

Information Technology and Libraries

March 1982

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Old Wine in New Bottles?

With this issue, the *Journal of Library Automation* becomes *Information Technology and Libraries*. The journal has already undergone considerable changes in the last year; the new name confirms these changes.

When ISAD changed its name to LITA in 1978, there was recognition that the fields of information science and library automation were broadening to encompass other technologies and applications. ISAD's core membership moved to the new information science and automation section and two new sections were created: One on audiovisual concerns and another dealing with video and cable communications. A telecommunications committee had been created sometime before 1978 to reflect changes and interests in that area.

Proliferating technologies, the trend toward integration of some of these technologies into new systems, and the rapidly increasing adoption of technology-based systems of all types in libraries have presented LITA with an unusual challenge: Does the present structure of LITA still reflect the needs and interests of membership? Increasingly, other ALA divisions are mounting technology-focused programs as their activities and interests reflect use of these technologies to solve library and user problems.

It is difficult today to conceive of cataloging, circulation, serials, and reference as separate from the technological systems which have been created to aid these activities. By offering programs and articles on these same systems, is LITA on a collision course with other divisions? How can LITA best define its role in this environment?

A Goals and Long-range Planning Committee has been created this year to define LITA's role in the American Library Association and to prepare a long-range plan for the divisions. The committee's charge is as follows:

To develop short- and long-range goals for LITA for the next ten years by means of a planning process which considers the present function statement (of LITA) and other available documents, solicits membership input, consults with officers and members of committees, sections, and other units in LITA, and gathers information by additional means which are useful for its charge.

The committee will examine the relationship of LITA's programs and other activities to one another as well as to other units of ALA. It will develop a set of clear and unambiguous goals for LITA which will serve to guide its activities in such a way as not to duplicate those of other units of ALA. It will develop a plan by which these goals are to be carried out, a method for evaluating what has been achieved, and a way in which both goals and plans may be evaluated and updated from time to time.

Hearings are being held at the ALA 1982 Midwinter Meeting to solicit membership participation in the planning process outlined above. A preliminary report will be ready by the time the 1982 Annual Conference is held.

There are several directions LITA can take in this new environment of rapid developments in information technology and their integration into many ALA

activities. It is not intended here to anticipate the deliberations of the Goals and Long-range Planning Committee, but merely to outline some options LITA has:

- LITA could continue its present activities without change.
- It could assume more responsibility for presenting current technological developments as well as basics to those librarians who are just beginning to explore this area.
- It could provide a high-level forum for discussions and problem-solving exchanges among those information professionals who are already actively involved with current technologies.
- It could provide information and education on applications of new technology not yet used in library settings.
- It could deal less with techniques and applications, and more with the effect of those technologies on individuals and society.
- It could sponsor and present more research on technology impacts, applications, and techniques.

There is no doubt that LITA has a role to play in dealing with all aspects of information technology, whether its present self-examination results in a major restructuring and reorientation of the division or whether there will be merely superficial changes—or perhaps no changes at all—remains to be seen. Membership participation in the process is extremely important to insure that outcomes reflect what members want and need, perhaps there will be “new wine in old bottles,” or it could be that both wine and bottles will be different. LITA will remain a dynamic and strong influence on librarianship; of this we may be certain.

B. KENNEY

Entry of Local Data on OCLC: The Options and Their Impact on the Processing of Archival Tapes

Dennis Reynolds

The OCLC System allows for a great deal of flexibility in entering institution specific data for an item. In the past, policies for entering local data have been formulated in many libraries on the basis of catalog card appearance, but the increasing use of OCLC tape products requires reexamination of many of the local data practices now in use. A survey was conducted by the Bibliographical Center for Research in order to determine the extent of variations for entering local data on the part of BCR OCLC libraries. The results are presented here, along with a discussion of alternative practices and their impact on the processing of OCLC tapes.

One of the most attractive features of OCLC has always been the flexibility it allows for local treatment of data. Existing master records can easily be edited locally in order for the resulting products to conform to a library's specific practices, and local data such as accession numbers, copy numbers, extent of holdings, and call numbers can all be entered in any of a variety of fields. Though OCLC has encouraged use of certain fields for certain types of local information, these were generally suggestions and seldom prescriptions. While there are advantages in such flexibility, an inevitable result has been the growth of an extreme variety of policies among libraries for entering local data. A common feature of many of these varying policies, however, has been their formulation based on considerations of catalog card appearance rather than on a basis of creating a machine-readable database, the latter being an important product available through OCLC in the form of MARC subscription tapes of a library's cataloging activity, often called archival tapes.

As more libraries have begun to use their archival tapes as a basis for other products, such as COM catalogs, online public catalogs, or automated circulation systems, the consequences of local practices have become apparent. In an effort to gather more concrete information on the variety of practices used in entering local data and to examine the possible consequences of these practices on the processing of tapes, the OCLC Services Department at the Bibliographical Center for Research (BCR) surveyed 144 libraries contracting for OCLC services through BCR. Of the 144 surveys, 126 were returned, for a response rate of 87.5 percent. Though the BCR survey may not reveal the extent of all variations for entering local data on OCLC, it is a sizable sample and does point out the general scope of existing practices. The issues involved in entering local data on OCLC and their implications for tape processing are numerous, and this paper does not attempt to cover all of them. Rather, the following five general areas are discussed: recording of locational information, recording of copy-

specific information, treatment of added copies, treatment of withdrawn copies, and editing of the fixed field elements. Though the fixed field elements do not pertain specifically to local data, the local treatment of these elements is sufficiently important to merit inclusion in a paper dealing with potential uses of OCLC tapes.

LOCATIONAL INFORMATION

There are three basic methods for establishing specific locational information for an item cataloged on OCLC. Perhaps the most common of these is the association of a separate four-character symbol and "automatic stamp" with each particular collection or branch location in a library's profile, such as main, reference, fiction, science branch library, and so on. Each time one of these four-character symbols is typed into the 049 field, the result is that a corresponding locational text (such as REF) prints on catalog cards above the call number. The second method for establishing specific locational information is through the use of an "input stamp." Under this option, the terminal operator types the full locational text (such as REF) into the 049 field preceding the four-character code; on catalog cards, this input stamp appears as the first line of a call number, thus achieving the same result as if an automatic stamp had been associated with the four-character code. The third alternative is similar to the input-stamp method, but the locational text is typed as the first subfield of the call number field, such as in the 092, rather than in the 049 field. This method yields the same results as the other two methods for purposes of catalog card production. In addition to the three methods described above, some libraries choose to use a combination of more than one of the three. The location stamp for certain collections within a library might be indicated through use of an automatic stamp, but locations for other collections might be indicated by using the input-stamp method. In the extreme, a library might add to this combination the use of textual information in the call number field, thus in effect using three different methods for indicating location, the specific method being determined by the collection into which an item is being cataloged.

In the BCR survey, the most prominent method used for establishing location was the use of a separate four-character code and associated automatic stamp for each collection in the library. Though the most prominent of any of the three methods or combinations thereof, table 1 shows that the automatic-stamp method was used exclusively by only 39 percent of all responding libraries. The second most popular method, preferred by 27 percent of the libraries surveyed, was a combination of two methods, using the automatic stamp for some collections in the library and the input stamp for other collections. The third most popular method was exclusive use of the input stamp in the 049 field, a practice subscribed to by 16 percent of the libraries. In-

Table 1. Entry of Locational Information

| Method of Indicating Locational Information | Number of Libraries Using This Method | % of All Responding Libraries |
|--|--|-------------------------------------|
| Automatic stamp in the 049 field | 49 | 38.9 |
| Automatic stamp in the 049 field for some locations, input stamp in the 049 field for other locations | 34 | 27.0 |
| Input stamp in the 049 field | 20 | 15.9 |
| Automatic stamp in the 049 field for some locations, textual stamp in the call number field for other locations | 9 | 7.1 |
| Textual stamp in the call number field | 4 | 3.2 |
| Input stamp in the 049 field for some locations, textual stamp in the call number field for other locations | 3 | 2.4 |
| Automatic stamp in the 049 field for some locations, input stamp in the 049 field for other locations, textual stamp in the call number field for still other locations | 2 | 1.6 |
| Various combinations used interchangeably for the same locations | 5 | 4.0 |
| | 126 | 100.0% |

cluding combinations, a total of eight different methods were used for distinguishing between collections, though the three singled out above were clearly the predominant ones, accounting for a combined total of more than 80 percent of the responding libraries.

While all of the methods described in table 1 achieve the same result on catalog cards, they require slightly different treatment in tape processing. It is somewhat ironic that the most convenient method for catalog card production—the use of automatic stamps—may require slightly more programming work in processing tapes for a single-library project than is required for manipulating input stamps or locational texts placed in a call number field. When the PRODUCE or UPDATE function is carried out using the automatic-stamp method, only the four-character code itself transfers to magnetic tape, not the textual translation of that code. If a locational text such as REF is to appear on a COM catalog or other product based on the tapes, a translation table for four-character codes must be prepared as part of the programming. The four-character code on each record on a tape must then be compared against this table and translated accordingly if it is to appear in full text on the product. When an input stamp is typed into the 049 field, or a textual stamp into a call number field, on the other hand, that text transfers directly onto the archival tape, and thus a translation table is not required in tape processing to identify specific locations on the resulting product.

While in theory the automatic-stamp method may be slightly more complex for tape processing, in actuality it may be the best to use, for two reasons. First of all, if the tapes are to be manipulated by commercial vendors, many vendors in the field have designed their standard programs on the assumption that automatic stamps will indeed be used by the library, and any departures may result in greater complexity. The second reason has to do with the increasing popularity of the use of OCLC tapes in multi-institutional projects, such as state-wide union COM catalogs. In merging holdings from the tape records of more than one OCLC library, it is necessary to pre-

pare a translation table of three-character OCLC symbols appearing in the 049 field anyway, and it will add little complexity to extend the translation table to include the fourth character appearing in the 049 field.

In the BCR survey, a number of libraries indicated that they use more than one method for identifying locations, the method depending upon the specific collection within the library into which an item is being cataloged. Though it is better to use one method throughout the library, using a combination of methods does not really pose serious difficulty so long as consistency between method and specific collection is maintained. An automatic stamp may be used for some collections and an input stamp for others, but each collection should have one and only one method associated with it. A few libraries in the BCR survey, on the other hand, responded that they use two or three methods interchangeably for the same collection, sometimes using an automatic stamp for the reference collection, while at other times using an input stamp. While this inconsistency does not present a problem for catalog card production, it may lead to problems in tape processing.

In addition to consistency in entering locational information for each collection within the library, documentation of procedures is critical for future tape processing. It is a virtual nightmare for both the vendor and the library when it is discovered after the first run of a product based on OCLC tapes that the library had changed its procedures at some point in the past without having documented the change. The fact that a procedure was changed is not so much the problem as is the fact that the parties involved were not aware of the change and appropriate programming was therefore not written to accommodate it. If a library decides to abandon use of one method of indicating location in favor of adopting another, it is critical for a vendor processing the tapes to know that this change took place, and precisely when.

COPY-SPECIFIC INFORMATION AND USE OF THE 590 FIELD

In addition to specific location information, there is a variety of other types of institution-specific detail that some li-

Table 2. *Entry of Copy-Specific Information*

| Type Of Copy-Specific Information | 035 | 049 | 590 | 910 | 949 | Other Fields or Combinations | Total | Total % of All Responding Libraries |
|-----------------------------------|-----|-----|-----|-----|-----|------------------------------|-------|-------------------------------------|
| Copy number | 0 | 14 | 28 | 0 | 1 | 9 | 52 | 41.3 |
| Accession number | 1 | 5 | 30 | 6 | 1 | 6 | 49 | 38.9 |
| Partial holdings | 1 | 15 | 40 | 0 | 1 | 15 | 72 | 57.1 |

libraries opt to record on OCLC. Three of the more common of these are copy number, accession number, and extent of holdings of a multi-part publication. Three questions on the BCR survey addressed the extent to which this type of information was recorded and, if recorded, in which fields. The results to these questions are presented in table 2. Of the 126 libraries which participated in the survey, a total of 52 consistently recorded copy numbers and 49 recorded accession numbers. A hypothetical question asking each library whether or not the extent of holdings would be indicated on an OCLC record if it purchased three volumes of a ten-volume set was answered affirmatively by 72 libraries.

As table 2 also shows, there is some degree of diversity as far as the specific fields in which information of this type is recorded. Far and away, though, the 590 field is the most popular among BCR OCLC libraries for recording accession number, copy number, and extent of holdings. The reason for the predominance of the 590 field for this information seems related to catalog card appearance. Most OCLC libraries are profiled to have the 590 field print on cards, and many of these are profiled to have the 590 field print only on shelflist cards, making it the logical field in which to record "shelflist information" necessary only for purposes of consultation by the technical processing staff.

Anticipating widespread use of the 590 field, the BCR survey also included a question specifically asking whether or not a library used the 590 field and, if so, what types of information were recorded in it. The results are presented in table 3. The 590 field is used by 84 of the libraries, or 67 percent of all responding libraries. The results to the second half of the question—what types of information are recorded—

Table 3. *Use of the 590 Field*

| Number of Different Types of Information Entered | Number of Libraries | % of All Responding Libraries |
|--|---------------------|-------------------------------|
| One type only | 36 | 28.5 |
| Two types | 19 | 15.1 |
| Three types | 13 | 10.3 |
| Four types | 6 | 4.8 |
| Five types | 5 | 4.0 |
| Unspecified | 5 | 4.0 |
| | 84 | 66.7% |

are far more complex. The answers ranged from ISBN to the name of a faculty member who requested purchase of the item, and included about every imaginable type of information that could be at all pertinent to anyone. In order to compile these results for even summary presentation, six specific categories of information were identified: accession number, copy number, extent of holdings information, locational information, general notes, and ordering information. In addition, a seventh broader category was defined as including all types of information not encompassed by the other six categories. Of the 84 libraries which record information in the 590 field, 36 use the field for recording only one category of information. Another 19 libraries record two categories of information in the 590 field, 13 record three categories, and 11 record four or five different categories. The responses from five libraries were unspecified.

While the 590 field is certainly defined for local information and has no restrictions as to how much or what type of information is to be recorded, there is a potential problem if the library enters several types of information in the 590 field. There are no sub-field values defined for the 590 field, and therefore it is impossible to readily distinguish one type of information from another

when tapes are processed. If a library enters several types of information in the 590 field and might wish to manipulate that data in the future, it might want to establish a machine-readable scheme for identifying the different types of data. Some libraries have defined their own local scheme of sub-field delimiters using dollar signs or other designators followed by indicator letters. This is a reasonable approach and will greatly facilitate machine-processing of the tapes if a library wants to manipulate only certain types of information in the 590 field. Alternatively, a library could distinguish different types of local information by making greater use of other local fields such as the 035, 910, and 949, with each field being used for one and only one type of local information. The problem with the 035 and 949 fields for many libraries, of course, is that they do not print on catalog cards. Some libraries circumvent this problem by entering certain types of local information twice on each record, once in a 590 field for purposes of catalog card production and once in another field to insure greater ease in tape processing. Several libraries in the BCR survey, for example, enter copy number, accession number, or extent of holdings

in both the 590 field and in 035, 049, or 949 field.

In using OCLC tapes for production of other automated services, the library may decide that much of the information it has entered into the 590 or other local fields will not be necessary for these other services. In this case, the manner in which such information is entered now is, perhaps, of little consequence. The library that does consider that certain types of such information might be useful, however, might consider consistency and machine-readable identification and separation of different categories of local data as important priorities in the cataloging procedure.

TREATMENT OF ADDED COPIES

Four questions on the BCR survey sought policy information on the treatment of multiple copies with respect to cataloging procedures. Two basic parameters were defined: whether the multiple copies were cataloged at one time or at different times, and whether various copies went into the same collection or into different collections within the library. The specific questions and the results of the survey for each are presented in table 4.

Table 4. Treatment of Multiple Copies

| <i>A. When two or more copies are acquired at one time, is multiple copy ownership indicated on OCLC?</i> | | | | | | |
|--|--------------------------------------|---|---|-------------------------|--------------------------|--|
| | Number of Responding Libraries | % Yes | % No | % Practice Varies | % N/A or No Answer | |
| When copies go into the same collection | 126 | 42.9 | 44.4 | 9.5 | 3.2 | |
| When copies go into different collections | 126 | 57.1 | 30.2 | 8.7 | 4.0 | |
| <i>B. When a subsequent copy of a title cataloged earlier on OCLC is purchased, is information on the subsequent copy entered into OCLC?</i> | | | | | | |
| | Number of Responding Libraries | % Yes; & Info. is Reentered for Earlier Copies | % Yes; but Info. is not Reentered for Earlier Copies | % Practice Varies | % N/A or No Answer | |
| When the subsequent copy goes into the same collection as the earlier copy | 126 | 13.5 | 7.9 | 70.6 | 4.8 | |
| When the subsequent copy goes into a different collection than the earlier copy | 126 | 19.8 | 31.7 | 30.2 | 14.3 | |

It is clear from the responses to these survey questions that many libraries choose not to indicate multicopy information on OCLC. For the circumstance in which a library catalogs two or more copies of an item at once and all copies will be housed in the same collection within the library, 44 percent of the libraries in the BCR survey responded that they do not enter data on OCLC to indicate that the library does in fact have multiple copies of the item. Even when the copies are cataloged at the same time but will be housed in different collections within the library, 30 percent of the libraries surveyed still responded that they do not indicate multiple-copy ownership on OCLC. Particularly dramatic is the situation in which a library catalogs a second copy of an item for which it had cataloged the first copy at an earlier date, with the second copy going into the same collection as the first copy. More than 70 percent of the libraries surveyed do not update their holdings on OCLC at all under these circumstances.

Some of the "no" responses to the questions in table 4 can be attributed to the general absence in some libraries of the conditions stated in the questions: many smaller academic and special libraries purchase multiple copies only very infrequently if at all. For these libraries, the issue of how multiple copies are treated is relatively unimportant. Many of the "no" responses in table 4, however, were supplied by libraries that do in fact routinely purchase multiple copies of an item. Rather than attempting to catalog additional copies on OCLC, many of these libraries prefer simply to record complete holdings on their shelflist cards and on cards in the public catalog. This practice has serious repercussions if a library is ever to use its OCLC tapes as a basis for generating other products. If a library has cataloged only one copy of an item on OCLC for which it in fact has several copies in the library, then information on the other copies is virtually lost on the product generated from OCLC tapes. If a COM catalog were produced and the library had cataloged only the first copy shelved in the main collection but had not updated their holdings to include informa-

tion on a second copy in the reference collection, then a patron consulting the COM catalog would be completely unaware that a copy of the item was available in the reference collection.

If a library has made a decision to enter information on OCLC for all copies of an item, particularly if they are cataloged at different times, then it must face a further question of procedure. In the BCR survey, a distinction in method was made between repeating information on an earlier copy when information was entered at a later date for a second copy, versus entering information pertinent only to the second copy. The distinction had to do with whether the "latest use" of a given OCLC record appearing on a library's archival tapes contains a cumulative history of information pertinent to all copies of an item in the library, or whether, on the other hand, a noncumulative history has developed, whereby specific information for each copy must be extracted from different appearances of the OCLC record on the archival tapes.

Some vendors dealing with OCLC tapes seem to favor the latest-use procedure, whereby the bibliographic information on the latest appearance of an OCLC record on a library's tapes is authoritative and the holdings are complete. This preference presents a problem for some libraries, particularly for processing centers that seldom maintain a union card catalog for all libraries included under their OCLC profile. For any library frequently cataloging added copies, though, the necessity of reentering complete holdings requires considerable time and effort in consulting shelflist records as a source of holdings information for earlier copies. Many vendors have recognized the significance of the problems which the latest-use method presents for libraries, and some have developed standard programming for dealing with approaches whereby each use of an OCLC record is recognized as representing information for only one copy of an item.

While either approach can be handled relatively easily in tape processing, the critical consideration is consistency. If a library carries out a retrospective conversion proj-

ect of a unified shelflist, for example, the same approach for entering holdings on multiple copies should be used in the conversion as is used in cataloging procedures for current acquisitions.

The fact that some libraries use the latest-use-of-the-record approach while others do not, presents additional problems in multi-institutional projects such as statewide union COM catalogs based on OCLC tapes. It is necessary for those responsible for programming to know which libraries in the project use which approach, and whether or not the approach used by each library has been perfectly consistent over time. An obvious solution would be a prescribed method for indicating additional copies on OCLC, but it is unlikely that such a prescription is forthcoming in the near future or that it would be entirely enforceable anyway. As a result, this is likely to remain a problem, and consistency and accurate documentation within each library is perhaps the best that can be hoped for right now.

TREATMENT OF WITHDRAWN COPIES

There are two rather different circumstances under which a library may wish to indicate on OCLC that an item has been withdrawn from its collection. The first is one in which the library has only one copy of an item and that item is withdrawn from the collection. The second circumstance is when a library withdraws one or more copies of an item of which it has several in the collection.

The BCR survey included two questions on withdrawn copies and the results for these questions are presented in table 5. The situation in which a library withdraws its only copy of an item is straightforward. By entering the appropriate four-character symbol in the 049 field and performing the cancel procedure, the record is transferred onto tape along with a cancellation code in an appropriate control field on the record. The library's symbol is also removed from the online list of holdings for that title. Of the 126 OCLC libraries responding to the BCR survey, only 89 consistently carry out this practice when withdrawing items

Table 5. Treatment of Withdrawn Copies

A. When there is only one copy of an item in the library which was previously cataloged on OCLC and this copy is withdrawn, are the holdings cancelled on OCLC?

| | Number of Responding Libraries | % of Responding Libraries |
|------------------|--------------------------------------|---------------------------------|
| Yes | 89 | 70.6 |
| No | 25 | 19.8 |
| Practice Varies | 8 | 6.4 |
| No Answer or N/A | 4 | 3.2 |
| | 126 | 100.0% |

B. When one of several copies in the library which were previously cataloged on OCLC is withdrawn, are the holdings updated on OCLC for this title?

| | Number of Responding Libraries | % of Responding Libraries |
|------------------|--------------------------------------|---------------------------------|
| Yes | 27 | 21.4 |
| No | 83 | 65.9 |
| Practice Varies | 6 | 4.8 |
| No Answer or N/A | 10 | 7.9 |
| | 126 | 100.0% |

which they had cataloged on OCLC at an earlier date.

In contrast to the relatively straightforward situation described above is the circumstance involving multiple copies. A hypothetical question on the survey queried libraries as to their procedures on OCLC when several copies are owned and one copy is withdrawn. Only 21 percent of the libraries surveyed indicate on OCLC that a copy has been removed from the collection. There are three probable reasons for this low percentage. First, some of the libraries in the survey have a very low incidence of multiple-copy ownership and the situation described is therefore not pertinent; some of these libraries answered "not applicable" to the question on the survey, but others may have answered "no." Secondly, as described in the previous section, a significant percentage of libraries in the survey do not indicate multiple-copy ownership on OCLC even when several copies are owned. It would make little sense for these libraries to have a well-defined procedure for indicating copy-specific withdrawals if copy-

specific additions were never indicated in the first place.

The third reason, though, has to do with the complexities of the procedures for indicating withdrawal of one of several copies previously cataloged on OCLC. It is possible to enter the four-character code in the 049 field for only the withdrawn copy and execute the cancellation command. While this might suffice for tape processing, the OCLC system would also entirely remove the library's three-character symbol from the online list of holdings for that title. Most libraries find that removal of their three-character symbol from the online display of holdings for a title of which they still own copies makes this an unacceptable procedure.

The alternative procedure, which OCLC recommends, is to enter information in the 049 field for all copies that the library still does have in the collection and then update the record. This is often called the record-of-latest-use approach. Rather than entering information on the withdrawn copy, the library in fact enters information on the copies that are still available. The problem with this solution is that it requires a great deal of additional consulting of the shelflist or other official records to determine the pertinent information for the remaining copies. As mentioned in the previous section, some libraries, and particularly processing centers, do not even have this information available. While this procedure may be the most viable alternative available for tape processing, it does tie the library to the latest-use-of-the-record concept since holdings are repeated for all remaining copies; it will require additional work in gathering information for those remaining copies, and it may simply not be feasible for some libraries.

The problems encountered in indicating withdrawal of copies are in fact much the same as the problems in indicating added copies. The difficulties in both cases might be greatly alleviated if OCLC could make available for each library an online local cumulative display of its 049 field. However, this would require considerably greater computer storage space at OCLC, and the more likely initiative for this may be in the form of regional support systems

such as has been envisioned by SOLINET.¹ Until the 049 local display is achieved by one method or another, though, these problems will remain ones to which there are only imperfect and widely varying solutions among OCLC libraries.

FIXED FIELD ELEMENTS

The fixed field elements on an OCLC record do not really fall under the umbrella of "local data," but local treatment of these elements is very important in terms of the future flexibility of processing a library's archival tapes. Attention to the fixed field elements has evolved gradually, and on many earlier OCLC member inputs these elements were all but neglected. Minimizing the potential importance of the fixed field elements has carried over into copy cataloging as well. This contention is readily supported by results to a question on the BCR survey concerning editing of the fixed fields in copy cataloging presented in table 6. Of the 126 responding libraries, only 23 (18 percent) always check and complete all fixed field elements on a record.

Table 6. Extent of Editing of Fixed Fields

| In Accepting OCLC Master Records for Cataloging: | Number of Responding Libraries | % of All Responding Libraries |
|--|--------------------------------|-------------------------------|
| The fixed fields are edited so that all are complete | 23 | 18.3 |
| Selected fixed fields are edited | 14 | 11.1 |
| Fixed fields are generally not edited | 73 | 57.9 |
| Practice varies | 16 | 12.7 |
| | <u>126</u> | <u>100.0%</u> |

Neglect of the fixed field elements is quite understandable given the traditional emphasis on catalog card appearance. All of these elements except the language element are virtually transparent in the entire card production process. While fixed field elements may be of little value for purposes of card production, they represent a potentially powerful resource in the use of OCLC archival tapes. If a library has given attention to these elements, it could one day easily produce a separate machine-readable catalog of its government documents, large-print titles, materials of genealogical inter-

est, indexes and abstracts, or a variety of other specialized materials. For an online public catalog, these same values could be defined as search qualifiers. A clear example of this is already available on OCLC. Form of publication and date of publication may be entered as qualifiers in searching the database, and this capability is directly based on values appearing on master records in two of the fixed field elements. While many OCLC master records have incomplete fixed field data, this does not prevent the individual library from completing those elements for purposes of its own archival tapes. This practice is time-consuming, to be sure, but that drawback should be carefully weighed against the potential value of having fixed field data available on a library's archival records for future use.

CONCLUSION

The problems addressed in this paper have been discussed primarily in terms of an individual OCLC library using its archival tapes as a basis for various library products. While this is a complex matter in itself, it is important to note the popularity of the trend in creating multi-institutional products based on OCLC tapes, such as statewide union COM catalogs. For these products, the impact of different libraries, or even different branches, adopting different practices for entering local data is even more profound. Some members of the multi-institutional project might use automatic stamps, others will use input stamps, still others will place locational text in call number fields, and yet others will use a combination of two or three methods. Some libraries will completely update an OCLC record each time they acquire an additional copy of an item, while other libraries enter information specific to only one copy of an item on each use of a record. There is such a myriad of alternatives and combinations that it is no surprise that most multi-institutional products require patchwork

and extraordinary programming to manufacture a usable product.

On both the individual and multi-institutional level, some libraries, vendors, and networks have developed schemes intended to facilitate the processing of local data on OCLC tapes.² While many of these are commendable for their innovative approach to existing problems, there has been little standardization among them, and they are generally cumbersome solutions that tend to circumvent rather than solve the problems.

Concrete solutions to the ambiguities raised in the entry of local data on OCLC may rest in greater agreement among libraries on procedures for entering local data. Some of the problems discussed in this paper might be alleviated if a broader range of fields, or at least subfields, could be introduced and associated with specific types of local information. In addition, related changes in the OCLC card printing program might ease the conflict of purpose between card production and tape processing that now seems to exist in certain situations. Local cumulative display of the 049 field by OCLC would certainly facilitate the treatment of added and withdrawn copies, and display of other local fields may help to alleviate other problems.

Any of these changes, though, would be expensive and the technical requirements would be such that they could not be realized overnight. Pending the realization—and even feasibility—of such far-reaching developments, the treatment of local data on OCLC is a vital concern for a library that may foresee a use for its archival tapes. For the individual institution, the implications of its practices for entering local data should be examined in terms of their effect on tape processing. For a group of institutions which may foresee cooperation using their OCLC tapes for a multi-institutional product, agreement on standard approaches to entering local data may ease the burden of problems at a later date.

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Journal, and SOLINET's own newsletter, *SOLINEWS*.

2. Most major circulation system vendors have designed their own recommendations for using the 949 field on OCLC. Some groups of libraries have also attempted to devise standardized methods for treatment of certain types of local data; an example of such an effort is the "CSUC 049 Standard" developed by the California State Universities and Colleges. For examples of schemes developed in the past by individual libraries, see Robert P. Holley, and Dale Flecker, "Processing of OCLC MARC Subscription Tapes at Yale Univer-

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The Future of the Book: A Historian's Perspective

Edward M. Walters

This paper conjectures the future of the book in the academic library using a historical approach. Its thesis is that there will be both continuity with the past and breaks with tradition, and that both forces will impact the future library. It distinguishes between cumulative and noncumulative knowledge and basic and applied research and concludes that knowledge in certain disciplines is best communicated using the traditional print-on-paper format, while communication of knowledge in other disciplines is likely to incorporate the newer technologies.

In times of rapidly changing technology it is both natural and appropriate to extrapolate in order to influence future change and to create standards that aid in determining the efficiency of present action. It is fitting and proper that we examine cherished institutions such as the book in an effort to gain insight into trends for future development. Recent works examining the future of the book have been plentiful to the extent that we presently have a number of books, articles, and essays on the subject, some of which make bold predictions on the demise of the book. This essay attempts to address the problem of the future of the book from the perspective of a historian. It employs this historical perspective to examine trends that are present in the emergence of new technologies and to examine forces and influences that compel society to maintain continuity with its past.

Historians do not always agree on what they mean by *perspective*, even though they use the term frequently; so I wish to define what I mean by *historical perspective*. Sometime in their professional training, historians are usually introduced to the

work of Mommsen, a historian who believed that every thinking individual generally is always searching for sources, and therefore is in practice a historian. Through many replications of the process of assembling sources and putting their essence through the mind, the historian at some point comes to the realization that "only events that have already gone by can disclose the prevailing state of things." Nowhere is this maxim better illustrated than in the field of law where lawyers and judges "think with the aid of sources" that they call *precedents* and their thoughts become our law.¹ In short, the modern historian is taught not to view history only in the "fife and drum sense" of the chronicling of battles and past deeds, but to view history as one of the ways in which we think. As each generation reaches maturity, it rewrites the history of the past from the vantage point of the way it presently thinks, invariably incorporating the prejudices of its own age, while discarding prejudices from past ages. The result of this process is the often cited benefit of perspective.

Historians of technology have an inter-

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esting way of looking at the future. These historians have a keen interest in extrapolation, but they tend to regard the exercise of looking into the future as an imaginative art form that serves a useful function in the present. It has been observed that:

We create our literary myths, legends, and epics of the future, not so that we will find our golden age, but because in the creation of utopian standards, we have created the forms which make present action possible. Every form of action makes use of ideals, such as fictions in science, heavens in religion, utopias in politics or completely self-fulfilling acts in art . . . thus creating a means, a model, a standard by which we determine the efficiency of present action.²

Tracing the origins of these models is a formal part of the methodology of historians of technology in analyzing technological achievement in many areas. Historians, for example, researching the history of the scientific satellite have found that the idea for a scientific satellite can be traced at least as far back in American thought to 1869 with the publication of a short science fiction novel called *Brick Moon* by Edward Everett Hale. Like most of his contemporaries, Hale had only a vague notion of where Earth's atmosphere ended and where space began, but he appears to have understood the mechanics of putting a satellite into an Earth orbit. Wrote Hale:

If from the surface of the earth, by a gigantic peashooter, you could shoot a pea upward. . . ; if you drove it so fast and far that when its power of ascent was exhausted, and it should fall, it should clear the earth. . . ; if you had given it sufficient power to get it half way round the earth without touching, that pea would clear the earth forever. It would continue to rotate . . . with the impulse with which it had first cleared our atmosphere and attraction.³

Historians have since concentrated on the intervening sequence of events that somehow links the idea of the new technology to a concrete planning phase for its creation, through the implementation and operation phase, and finally to its mass diffusion in society. This idea phase is equal in importance to all three phases of its development. Thus, while I will not be presenting a casualty list of the demise of certain communication forms such as books and journals, I will attempt to use the historian's perspec-

tive to probe some of the conditions attending the emergence of new communication technologies. I will be doing so with special reference to scholarly research methodologies.

Through the centuries, the profession of history has evolved an elaborate methodology for examining the past with microscopic scrutiny; but nonetheless the profession lacks a methodology for looking into the future. Historians have cautiously endorsed the field of what they call "contemporary history," a field that uses historical methods to examine present or recent events, even while the primary participants in the events are still alive. Still, this field has been primarily defended on the grounds that present records, which will become tomorrow's sources of historical information, are already so vast that it is a good idea to begin organizing now for their more efficient use by future generations. In short, the elaborate apparatus developed by the historian for assembling the sources, testing for reliability, verification of selected data, and the expression of the result is designed to look backward. In essence, I have been trained to look in the wrong direction for the topic under consideration. Since the historical profession does not equip me with a methodology to examine the future, I have chosen to proceed recklessly with the topic using a method that a colleague has aptly characterized as the "socio-egotistical" method.⁴

Before proceeding with the topic of the future of the book, a word of caution is in order. The historical profession is full of warnings to its aspiring practitioners to avoid any and all association with those who would attempt extrapolation of some future event simply by using historical methodology. In fact, historians usually reserve their fullest condemnation for those who attempt to predict the future—and fail. This unmitigated censure is passed out freely in history from Delphic oracles, to monastic chroniclers, or to witnesses testifying before congressional committees. For an example of this process of issuing a historical verdict, I have chosen a prophet and a piece of prophecy important in the library profession itself to illustrate, in historical perspective, some of the perils of prophecy.

It has become commonplace to quote Vannevar Bush's famous Memex article, an article published in 1945 cited for its vision of a future library system. It has had an undeniable influence on the library profession in precisely the same sense that I alluded to earlier as a model, a standard to measure the efficiency of present action.

Lest we forget, however, it was none other than Vannevar Bush who also predicted in the very year that the Memex article appeared, that an intercontinental ballistics missile was a technological impossibility. Because the point I want to make is important to our discussion, I would like to quote Bush's testimony before the Special Senate Committee on Atomic Energy of December 1945:

Said Bush:

There has been a great deal said about a 3000-mile high angle rocket. In my opinion such a thing is impossible and will be impossible for many years. The people who have been writing these things that annoy me have been talking about a 3000-mile high angle rocket shot from one continent to another carrying an atomic bomb, and so directed as to be a precise weapon which could land on a certain target such as this city. I say technically that I don't think anybody in the world knows how to do such a thing and I feel confident it will not be done for a very long time to come. I think that we can leave that out of our thinking.

Even as Bush was making this testimony before the Senate committee, the U.S. Army was assembling and preparing to test sixty-six captured V-2 rockets from the German arsenal. A continent away, the Russians, with their own share of captured technicians, engineers, and scientists and—more importantly—the captured physical plant necessary to produce more rockets, went silently ahead with their own plans. It was barely ten years later that the Russians announced the successful testing of an intercontinental ballistics missile over a 6000-mile design range. One American general responding sarcastically to the announcement exclaimed, "We captured the wrong Germans."⁵

Needless to say, the historians of technology have not been kind to Bush for his mistaken prediction, but quotation of the above testimony is not intended to make

light of a distinguished scientist and engineer. It is quoted to make the point that in probing the future of the book or any other technology, the experts can be dead wrong. This is particularly true in the library field, where one is often forced to rely upon the work of those in other fields whose conclusions may not be altogether trustworthy.

Having stated the above reservations, I am now prepared to share my ideas on the subject of academic libraries and the future of the book.

Let me state some of my assumptions about the subject:

1. Research methodologies exert a major influence on the way academic and research libraries are organized, funded, and managed.

2. Research methodologies filter down through the entire learning process and influence the characteristics and behavior of all users of research libraries.

3. Any new technological developments that are significant in the communications field are likely to be felt first in the research method of scholars before impacting the academic and research library.

4. The library profession needs to concentrate on precisely how the new technologies are being incorporated into the research process.

To introduce the subject of research methods in our present context, I would like to refer to the work of the intellectual historian Crane Brinton, whose book *Ideas and Men* was highly regarded in its day. In this work, Brinton makes the often cited distinction between *cumulative* and *noncumulative* knowledge. While I recognize that classification of knowledge is the major task of several disciplines such as logic, epistemology, and semantics, I wish to begin with Brinton's terminology because its two-fold division is simple and easy to grasp. Cumulative knowledge, roughly corresponding to what we call science, is characterized by a universally accepted core of knowledge, a growing outer edge of new knowledge, and the infrequent appearance of new knowledge that is reflected back through the core in what are sometimes called scientific revolutions. Scholarly dispute in the area of cumulative knowledge most often centers on the growing outer edge of the discipline,

while there is relatively little dispute about the core of knowledge. The core of knowledge, having been accumulated over hundreds of years, has generally had a steady growth, with a few of the original ideas of the disciplines still being retained, but with many newer ideas accumulating and false ideas being discarded along the way.

Noncumulative knowledge, corresponding roughly to what we call the humanities and social sciences, exhibits a different character. In knowledge of this kind, first of all, there is never any clear and certain increase of knowledge from generation to generation except in the sense that a kind of addition of perspectives occurs about certain propositions of men, about right and wrong, about beautiful and ugly things. These propositions, ideas, if you will, do not accumulate into an indisputable core of knowledge; they tend to stand independently of each other. A review of what each generation, for example, has said about an event like the Protestant Reformation gives an excellent idea into the assumptions of each age. The past cannot help being reconsidered by every generation, but the best of the earlier reports upon it are, in the main, as good as they ever were—only from a different set of assumptions. Thus, successive revisions of the past, ideas of one era or another, or conclusions of one group of social scientists do not necessarily cancel out all the others—certainly not in the same way that a scientific revolution affects the core of knowledge in science. They are additive as distinct from cumulative.⁶

The noncumulative disciplines also share certain fundamental differences in methodology from the cumulative disciplines of science in that (1) their use of measurement is often just simple counting rather than measurement of unit quantities; (2) they cannot assume the complete uniformity of the world they are studying as scientists do about the physical world of nature; (3) language problems often accompany the so-called sciences of society because of the absence of true units of measurement; and (4) the disciplines that constitute noncumulative knowledge cannot (like the physical sciences) pare down events and reproduce them at will in the simple forms and favoring conditions that we call experiment.

Now, if we accept this broad distinction between what we are calling cumulative and noncumulative knowledge, it follows that there are likely to be differences in the ways that these two groups of disciplines use books and journals, libraries, and communication systems. Library research has for a long time concentrated on well-known differences using citation research methods and sampling techniques to draw a fairly major distinction between the two groups, so I don't need to dwell upon these here. What I do want to suggest that is relevant to our discussion here is that the print-on-paper format of storing and retrieving research reports may be more relevant to the actual research methods in the noncumulative disciplines than we first imagined.

What are the general characteristics of research methods in the noncumulative disciplines? (1) Researchers in these disciplines have recourse to the same infinite range of materials; (2) researchers in these disciplines find their way among materials by roughly the same devices, both formal and informal; (3) researchers in these disciplines gather and test facts according to similar rules of evidence, probability, verification, etc.; (4) they generally exhibit their results in the same order, and spirit; and (5) they hope to impress other men's minds by the same literary means. The application of all these techniques in a roughly uniform manner has created a new and pervasive twentieth-century literary form called the "research report."⁷

I do not mean to imply by my remarks that there are no differences between the methodologies employed in the disciplines that we are calling noncumulative. In fact, many differences can be readily seen in some of the criticism that these disciplines level at each other's methodologies from time to time. Historians often criticize the social sciences for their preoccupation with models of behavior rather than actuality. Bertrand Russell criticized the social sciences for being what he called "enterprises of methodical guessing." A famous nineteenth century novelist chastised historians for always going around giving answers to questions that nobody ever asks, and the iconoclast Ambrose Bierce always referred to historians as "broad gauge gossips."

Those disciplines that have attempted to become numerical in the study of man and society in order to arrive at laws and prediction have been particularly criticized by the humanities. The field of psychophysics was once called a "science for a country whose natives could not be bored." There still exists a strong current in the humanities that believes with William James that "the mind is a stream of consciousness, acted upon by emotion, by the desire for order, by the fulfillment of purpose, by the vagaries of words, and by other tendencies that preclude analogy with a machine."

These differences notwithstanding, the noncumulative disciplines are similar in the thrust of their research methods, and certain characteristics of their research methods have implications for the future of the book. What is there about research methods in the noncumulative disciplines that will exert pressure for the continuation of their research reports in traditional formats, the book and the journal, even if substantial numbers of reports become available online?

There are a number of factors that could be considered here, but I have selected one major factor to illustrate in some depth research methodology in the field of history. A major condition in historical research methodology that favors the continuation of publication in the traditional methods of books and journals is the often cited requirement of the necessity to view information in context. This phenomenon has been too often passed over lightly by technologists, so I want to explain it more fully. Why is the context of information so important to the methods of the historians and some other disciplines in the noncumulative area?

I described earlier in general terms that the historical method roughly consisted of (1) assembling the sources, (2) testing for reliability, (3) verification of selected data, and (4) expression of the result with imaginative power. I am suggesting here that it is in the process of verification of the data and testing for reliability that context becomes critical to the historian. In the realm in which noncumulative disciplines are engaged, "facts seldom occur in print pure and free from interpretation or ideas." As

one historian has remarked, facts come "dripping with ideas." The only pure facts in historical reporting are those statements that express a conventional relation in conventional terms. For example, when we say a treaty was signed on December 2, 1823, we are expressing fixed relations between people, things, and time. If we say, on the other hand, that Kennedy was shot by Oswald, a disappointed misfit, we have created an *idea*.

The historian must work at all times in the realm in which fact and idea, in ceaseless interplay, constitute experience. Historians learn to make the distinction between the agreed-upon element of fact and the variable element of idea in all that they do. In all the testing for reliability and verification of data, the historian is constantly interested in circumstances and origins. The fact that courts go back to the debates in the legislature and to the known opinions of proponents in interpreting a statute reveals how important origins and circumstances are to the historian. The historian must be as careful about ideas as about facts, even to the extent of being critical about all the minds through which an idea has passed, including his own.

Because facts do often come dripping with ideas and values, context of information is extremely important to the way the historian handles evidence. An English lawyer by the name of John Sparrow once made some shrewd observations about evidence in connection with the *Warren Report*. Sparrow believes that those who denounced the report made a fundamental error when they chose to trust only the witnesses who had been consistent and congruent in their testimony. In reality, he believes, lawyers find that witnesses can be wrong on some points and right on others; that honest and truthful witnesses may contradict themselves without forfeiting credibility; that in large, complicated cases there is always a residue of improbable, inexplicable fact.⁸ In dealing with such complexity, historical method is all important: it is a discipline that requires a context, and those who fail to apply it are quickly rebuked by their colleagues.

It is tempting for me, at this point in our discussion, to extrapolate from what has al-

ready been said a simple, tidy bifurcated library of the future based on the differences between cumulative and noncumulative knowledge. If I were to be so bold in my prediction, I would have large amounts of the scientific literature of the cumulative disciplines stored online and with a large amount of scholarly dispute taking place in an online arena. If I wished to get extremely bold, I could foresee scientists coming up with new and imaginative ways to transmit the core of their disciplines using some type of programmable "electrobook." While all these exciting things would be taking place in the cumulative disciplines, I might predict that the traditional noncumulative disciplines would continue to use their books and journals in the way they always have and with library services continuing in these fields undisturbed. Unfortunately, I am afraid that the situation will be considerably more complicated than what I have described above. As useful as the cumulative/noncumulative model may be, it is an obvious oversimplification of a complex subject.

Thus, to complicate matters further as I work my way through to a conclusion, I want to look again into the fields of noncumulative knowledge to draw one final distinction in types of research methods—the critical distinction between *basic* and *applied* research. To illustrate the difference between basic and applied research, I have selected an example from the methods of social science research in a field that is known as "policy" research, a field that has seen a dramatic increase in the output of its research reports in the last decade.

In the modern state, what is called policy research often comes about as a requirement of the governing process. In democratic, developed nations with some form of parliamentary governance, the model for this kind of research is usually something like this:

The legislators ask whether a social policy or program works, and why. The administrative agency undertakes to evaluate the program and to report back the following year; it then delineates research tasks, requests and obtains proposals or grant applications, and selects a research contractor or grantee. The contractor completes the research and delivers a conclusive

report to the agency within a year. The agency then provides the legislators with a decisive summary and a briefing. The legislators consider the best interest of the nation and decide whether to expand, maintain, modify, contract, or terminate the policy or program. . . .⁹

It should be pointed out here that what is outlined above is a model of how the flow of information is designed to work, but that in practice there are many snags in the process. The important point to remember here in our discussion is that the quality of information supplied in this model is judged according to a different set of standards. It is judged for (1) its relevance to policy, (2) its timeliness, (3) the economy of obtaining it, and (4) the net benefit or expected payoff from its use. Thus, the priorities of applied policy research are actually quite different from those of academic basic research. Policy researches attempt to provide the most valid, reliable, and accurate information "within the constraints of schedule and budget." Basic research, on the other hand, is intended to create new knowledge, however long it takes and at whatever its cost. In reality, massive amounts of both kinds of information are supplied to the modern state to aid it in doing business, but the most dramatic growth in the last ten years has been in applied research of the type described above. Now I think that it is safe to say that this distinction between basic and applied research in the field of policy research also applies to research in many other fields including both cumulative and noncumulative disciplines—and the distinction has a bearing upon the future of the book.

What then are my conclusions about the future of the book based on the assumptions of the differing research requirements of cumulative and noncumulative knowledge and basic and applied research? First, I would remark that information customarily supplied by research libraries that support a large amount of basic research is characterized by "a very large repertory of highly specialized messages transmitted to many relatively small audiences with very specific goal oriented requirements."¹⁰ Because publication of materials in conventional form meeting these characteristics is not cost-effective, I would anticipate that

the publishers of these materials—expensive scientific journals for the most part—will use the new technologies as a means to design new services to help offset the costs of the printed form. Where these new technologies may lead us is simply unknown. In the noncumulative disciplines, the economic pressures are not likely to be so great as in the sciences except in the fields of applied research where the timeliness of information is a critical problem. Presently, for example, there are numerous cases reported of information intended to address one crisis being supplied long after a new crisis has emerged. Under these conditions, the noncumulative disciplines doing ap-

plied research are prime territory for the application of new technologies. Even so, I still agree with Professor Edmond Mignon of the University of Washington that the most immediate impact of the new technology is likely to be "the continuing diversification of the information environment rather than any radical changes in the design of primary library services." In this conclusion I take comfort from the fact that librarians have a number of years of experience living with a diversified information environment, and I do not believe that the experience of the future is likely to overwhelm us.

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OCLC-MARC Tapes and Collection Management

David U. Kim

OCLC-MARC subscription service tapes can be used as a convenient source of statistical data for collection management. New acquisitions can be analyzed by using monthly and annual cumulative tapes. Information obtainable includes general statistics such as numbers of new titles added by subjects, types of materials, languages of the text, and intellectual levels. Using Boolean operators, it is possible to generate statistics such as the number of chemistry handbooks published after 1970, art history books written in the Spanish language, filmstrips treating American history suited for children, etc.

CURRENT USES OF OCLC-MARC TAPES

One of the important services OCLC offers to its member libraries is the OCLC-MARC subscription service. As of November 1981, OCLC indicates that a total of 3,544 libraries presently subscribe to this service. Of these, 626 libraries are single-type subscribers. There are 76 multiple-type subscribers that extend the services to 2,918 libraries.*

OCLC-MARC tapes, commonly called archive tapes, contain a great deal of valuable information. However, a search of the literature indicates that current uses of the tapes by libraries are generally limited to building machine-readable local bibliographic databases and producing acquisitions lists and KWOC indexes. Bibliographic databases are used in producing COM catalogs or as bases of online computer catalogs. Holley and Flecker of Yale University and Horner of North Carolina

*Published statistics were not found. This information was obtained from the User Services Division of OCLC, Inc.

State University report their procedures and problems in creating local databases from the OCLC-MARC tapes.¹ In a short report, Roth introduces a use of archive tapes in producing an acquisitions list and KWOC index at California Institute of Technology.²

In this paper, use of the tapes to compile statistical data that are useful in collection management will be discussed. The University of Lowell Libraries (ULL) presently use OCLC-MARC tapes in analyzing its new acquisitions, and plan in the future to use cumulative tapes for collection analysis of its entire holdings. Monthly statistics are obtained by analyzing each newly received tape. The annual statistics are obtained at the end of each fiscal year from the cumulation of the previous twelve months' tapes.

SUBJECT DISTRIBUTION OF NEW ACQUISITIONS

Setting a selection policy and allocating the library material budget to subject areas do not guarantee actual addition to the collection in the desired ratio. New acquisitions have to be analyzed periodically and

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used as a feedback in reevaluating current selection policy and in allocating new funds.

One use of OCLC-MARC tapes for collection analysis is developing title counts of new acquisitions by subject matter. At present, the ULL obtain two statistics for this purpose: an analysis by broad subject areas represented by the 21 LC classification letters; and a more detailed subject analysis by tabulating new titles for each of more than 200 LC classification subclasses. Although it is possible to further subdivide the subject areas using numeric portions of the LC classification schedule, present requirements of ULL do not necessitate statistics for these subdivisions.

Figure 1 is a reproduction of computer-tabulated statistics of new acquisitions during the fiscal year 1980 for the 21 LC classes. For each subject area, the total number of titles added and the percentage of that subject within all new acquisitions is given. Statistics also provide the total number of new titles added during the fiscal year.

The numbers shown in figure 1 are generated by a program that keeps tally of the first letter of subfield *a*, field 050 in each record of the OCLC-MARC tape. If a library uses field 090 to store locally assigned

LC-type call numbers, the program should be written to scan through field 090 as well as field 050.

A portion of the more detailed subject analysis is shown in figure 2. A program that tabulates title counts for these subject categories reads the first two letters of the LC call numbers in the subfield *a* of field 050 and field 090.

When handling subject matters by the two-letter LC classification subclasses, it is necessary to count titles for nearly 200 categories. Since a new category is added from time to time, and the first letters are combined with the second letters in a different pattern to form the subject categories, it is convenient to establish a 21 by 27 two-dimensional matrix to accommodate each of all the possible subject categories. Categories that do not yet exist or categories for which the library holds no title then can be simply bypassed.

TEXTS OF NEW MATERIALS BY LANGUAGES

For university and research libraries that purchase a substantial number of foreign language materials, it is useful to know percentages of new acquisitions by language of the text. For public libraries that serve multi-cultural communities, this type of in-

| SUBJECT ===== | TITLES ADDED ===== | PERCENTAGE ===== |
|------------------|-----------------------|---------------------|
| A | 24 | .26 |
| B | 405 | 4.35 |
| C | 37 | .40 |
| D | 183 | 1.97 |
| E | 144 | 1.55 |
| F | 64 | .69 |
| G | 391 | 4.20 |
| H | 1387 | 14.90 |
| J | 117 | 1.26 |
| K | 217 | 2.33 |
| L | 402 | 4.32 |
| M | 1244 | 13.36 |
| N | 257 | 2.76 |
| P | 739 | 7.94 |
| Q | 1644 | 17.66 |
| R | 789 | 8.48 |
| S | 51 | .55 |
| T | 1053 | 11.31 |
| U | 15 | .16 |
| V | 17 | .18 |
| Z | 128 | 1.38 |
| TOTAL | 9308 | 100.00 |

Fig. 1. New Titles by Subject Matter.

| | |
|----|-----|
| N | 81 |
| NA | 51 |
| NB | 10 |
| NC | 15 |
| ND | 67 |
| NE | 4 |
| NK | 17 |
| NX | 12 |
| P | 35 |
| PA | 18 |
| PB | 6 |
| PC | 15 |
| PD | 2 |
| PE | 28 |
| PF | 3 |
| PG | 12 |
| PJ | 2 |
| PK | 2 |
| PL | 6 |
| PN | 114 |
| PQ | 80 |
| PR | 153 |
| PS | 184 |
| PT | 31 |
| PZ | 48 |
| Q | 72 |
| QA | 496 |
| QB | 38 |
| QC | 273 |
| QD | 275 |

Fig. 2. Detailed Subject Analysis.

formation is also necessary as a part of their collection-management data. This information is obtainable by tabulating the language codes stored at positions 35-37 of field 008. Figure 3 shows the ULL's new acquisitions during the period by languages.

CONTENTS OF NEW ACQUISITIONS

Four bytes beginning in position 24 in field 008 contain coded letters that indicate the nature of content for the record. By counting these letters, it is possible to obtain numbers of titles added by type of publications. Figure 4 analyzes book acquisitions of the ULL during the fiscal year 1980 by the nature of their contents. A few records contain up to four codes. For a statistical purpose, a library may simply classify a work by the first code (except *b*, which indicates inclusion of a bibliography), or may consider all the codes. If the latter option is adopted, the counts of the new acquisitions

| LANGUAGES ===== | TITLES ADDED ===== | PERCENTAGE ===== |
|--------------------|-----------------------|---------------------|
| ENGLISH | 8437 | 90.64 |
| GERMAN | 508 | 5.46 |
| FRENCH | 145 | 1.56 |
| ITALIAN | 82 | .88 |
| SPANISH | 43 | .46 |
| RUSSIAN | 0 | 0.00 |
| OTHERS | 0 | 0.00 |
| TOTAL | 9308 | 100.00 |

Fig. 3. New Titles by Language of the Texts.

| CONTENTS ===== | TITLES ADDED ===== | PERCENTAGE ===== |
|-------------------|-----------------------|---------------------|
| CATALOGS | 70 | .75 |
| INDEXES | 77 | .83 |
| ABSTRACTS | 7 | .08 |
| DICTIONARIES | 89 | .96 |
| ENCYCLOPEDIAS | 15 | .16 |
| DIRECTORIES | 119 | 1.28 |
| YEARBOOKS | 35 | .38 |
| STATISTICS | 80 | .86 |
| HANDBOOKS | 0 | 0.00 |
| OTHERS | 8816 | 94.71 |
| TOTAL | 9308 | 100.00 |

Fig. 4. New Titles by Nature of Contents.

| SUBJECT ===== | TITLES ADDED ===== | PERCENTAGE ===== |
|------------------|-----------------------|---------------------|
| ART | 285 | 3.06 |
| ENGLISH | 365 | 3.92 |
| HISTORY | 762 | 8.19 |
| LANGUAGE | 209 | 2.25 |
| PHILOSOPHY | 248 | 2.66 |
| PSYCHOLOGY | 157 | 1.69 |
| SOCIOLOGY | 536 | 5.76 |
| EDUCATION | 402 | 4.32 |
| HEALTH | 1266 | 13.60 |
| MANAGEMENT | 912 | 9.80 |
| MUSIC | 1244 | 13.36 |
| BIOLO SCI | 209 | 2.25 |
| CHEMISTRY | 275 | 2.95 |
| EARTH SCI | 134 | 1.44 |
| MATHEMATICS | 496 | 5.33 |
| PHYSICS | 273 | 2.93 |
| CHEM ENGR | 136 | 1.46 |
| CIVIL ENGR | 51 | .55 |
| ELEC ENGR | 186 | 2.00 |
| IND TECH | 98 | 1.05 |
| MECH ENGR | 148 | 1.59 |
| OTHERS | 916 | 9.84 |
| TOTAL | 9308 | 100.00 |

Fig. 5. New Acquisitions by Curriculum Areas.

by the nature of contents will add up to more than the total number of new acquisitions since each title may be counted up to 4 times.

TITLES ADDED BY CURRICULUM AREAS

At colleges and universities, many teaching faculty members are interested in the growth of library collection in their disciplines. Also, various accrediting teams often ask the number of new titles the library had added during a period on a given curriculum area. Librarians can answer these questions from the content of OCLC-MARC tapes they receive. Figure 5 is an example of such data for the ULL; for each curriculum area, the number of new acquisitions is provided.

Figure 5 is produced by a program that reads the letter portion of LC call numbers and groups the records into appropriate disciplines according to a profile that relates all the LC classification categories to appropriate curriculum areas. For example, the program totals all records having LC call numbers QA for mathematics, QC for physics, BF for psychology, and B / BC-BD for philosophy.

The size of academic units at the University of Lowell requires the ULL only to consider the letter portion of the LC classification schedule. Other libraries may need to consider the numeric portion of the LC call numbers to obtain separate data for smaller units within a LC classification subclass. For example, if a university has French and Italian departments—instead of one foreign language department—and the library wishes to have separate data for French and Italian languages, then the program must read not only two letters, PC, but also numbers following PC and sort PC1001-PC1977 as a group and PC2001-PC3761 as another group.

NEW ADDITIONS BY HOLDING LIBRARY

The ULL system consists of two campus libraries of comparable size, each with its separate reference and general collections. In addition, there are separate music and curriculum material collections. By sorting holding library codes stored in subfield *a* of field 049, it is possible to obtain the number of new titles added at each physical location within the library system. New titles added at the ULL are shown in figure 6.

CREATING AN EXCERPT FILE

Each record in an OCLC-MARC tape contains detailed bibliographic information for a work. The size of a logical record in the expanded MARC II format on an OCLC-MARC tape is up to 6,144 bytes.³ The statistical data as given in the preceding sections, however, are obtainable from the selected portions of the records comprised of less than 80 bytes per record. Therefore, in handling the tapes, it is more efficient to extract only the portions needed by the library and create an excerpt file for easier manipulation of the data.

A portion of an excerpt file used at the ULL is printed and shown in figure 7. This excerpt file is a merger of monthly excerpt files that were created from monthly OCLC-MARC tapes using COBOL on a CDC Cyber 71 computer.* The format is:

| <i>Position</i> | <i>Information</i> | <i>Extracted from Field</i> |
|-----------------|----------------------|--|
| 1-2 | Blank | |
| 3-9 | OCLC control number | 001, Positions 4-10 |
| 10-11 | Blank | |
| 12-41 | LC call number | 050, Subfield <i>a</i> ; 090, Subfield <i>a</i> |
| 42-43 | Blank | |
| 44-47 | Nature of contents | 008, Positions 24-27 |
| 48-49 | Blank | |
| 50 | Intellectual level | 008, Position 22 |
| 51-52 | Blank | |
| 53-55 | Language code | 008, Positions 35-37 |
| 56-57 | Blank | |
| 58 | Reproduction code | 008, Position 23 |
| 59-60 | Blank | |
| 61-69 | Dates of publication | 008, Positions 6-14 |
| 70-71 | Blank | |
| 72-75 | Holding library | 049, Subfield <i>a</i> |

In figure 7, column 58 (for reproduction codes) is blank. This indicates that none of the titles shown in this particular portion was a reprint.

CUMULATIVE TAPES FOR COLLECTION ANALYSIS

To this point, a use of monthly or annual cumulative OCLC-MARC tapes for analyzing new acquisitions has been discussed,

*The author would like to acknowledge the assistance of Ed Koenig, systems manager, University of Lowell Libraries, in developing the computer program that creates excerpt files.

giving examples from the University of Lowell Libraries. If all the records for a library are in machine-readable form, then a cumulative file of all the records can be a very useful tool for collection analysis of the library's entire collection. The same programs used for analysis of monthly and annual acquisitions may be used for analysis of the entire collection.

With already mentioned and additional programs, it should be possible to obtain information on the size of the collection by:

1. Subject categories (art, history, chemistry, etc.)
 2. Physical formats (books, microfilms, filmstrips, etc.)
 3. Locations (main library, science library, etc.)
 4. Natures of contents (encyclopedias, handbooks, etc.)
 5. Intellectual levels (adults, juvenile, etc.)
 6. Languages of texts (English, German, Spanish, etc.)
 7. Places of publication (U.S., Canada, Netherlands, etc.)
 8. Publication dates (prior to 1800, 1900-1950, 1981, etc.)
- A further development of the programs, using Boolean operators, should provide information on a specific question such as: books on art history written in English only; books on organic chemistry published after 1975; juvenile books dealing with science, etc.

SUMMARY AND CONCLUSION

OCLC-MARC subscription service tapes provide a great deal of useful information and may be used for purposes other than their current major use of creating a machine-readable local bibliographic database. One of these uses is in obtaining invaluable collection-management data.

Monthly and annual cumulative tapes can provide statistical data on the new materials actually added to the collection for the given period. Information obtainable from these include: number of new titles added, new titles added by subject categories, number of new additions by types of material, languages, intellectual level, and so on.

If a library has completed retrospective

| HOLDING LIBRARY ===== | TITLES ADDED ===== | PERCENTAGE ===== |
|--------------------------|-----------------------|---------------------|
| NORTH STACK | 3636 | 39.06 |
| NORTH REFERENCE | 507 | 5.45 |
| SOUTH STACK | 4358 | 46.82 |
| SOUTH REFERENCE | 656 | 7.05 |
| MUSIC | 66 | .71 |
| CURRICULUM | 85 | .91 |
| OTHERS | 0 | 0.00 |
| TOTAL | 9308 | 100.00 |

Fig. 6. New Additions by Holding Library.

| | | | | | | | |
|---------|-------------|------------|----|-----|-----------|-------|------|
| 5655402 | NX600.S9 | H46 | BC | ENG | S1979 | ULSS | |
| 4409094 | NA2542.T7 | K84 | B | ENG | S1978 | ULSS | |
| 4832239 | ML410.H35 | M5 1979 | B | ENG | C19791975 | ULSS | |
| 0814444 | NA4800 | .S72 1973 | B | ENG | R19731923 | ULSS | |
| 0177527 | LB675.T6 | T63 | | ENG | S1967 | ULSS | |
| 3627528 | E185.B6 | .D845 1978 | B | ENG | S1978 | ULSS | |
| 3572571 | HV9647 | .J66 | B | ENG | S1977 | ULSS | |
| 0423042 | E185.6 | .B74 | B | ENG | S1961 | ULSS | |
| 3519172 | HM45 | .A75 1977 | | ENG | N1976 | ULSR | |
| 3110294 | E184.A1 | R34 | B | ENG | S1977 | ULSS | |
| 3576661 | HT1521 | .T56 1977 | B | ENG | S1977 | ULSS | |
| 0241615 | BF1434.U6 | G6 | | ENG | S1972 | ULSS | |
| 3380118 | GV1457 | .033 1978 | | ENG | S1978 | ULNR | |
| 2799216 | GV811 | .S455 | D | J | ENG | S1977 | ULNR |
| 3179959 | PS3557.A712 | Q3 1977 | | ENG | C19771976 | ULSS | |
| 3380038 | KFC1100 | .F48 | B | ENG | S1978 | ULSS | |
| 3071786 | BM43 | .B5 1977 | | ENG | R19771962 | ULSS | |
| 2197530 | ML128.S3 | L7 | B | ENG | S1976 | ULSS | |
| 3355888 | TL1 | .S62 1976 | BI | ENG | S1976 | ULNR | |
| 4834038 | Z699.22 | .C37 1978 | R | ENG | S1978 | ULSR | |
| 3328994 | B3317 | .A397 | B | ENG | S1977 | ULSS | |
| 2980538 | R697.P45 | N49 | B | ENG | S1977 | ULSS | |

Fig. 7. Excerpt Data File.

conversion to machine-readable form, then the library may use the tapes for analysis of the entire collection. The OCLC-MARC subscription service tapes enable librarians to have not only general information such as the size of the total collection and titles by different categories, but also specific information such as the number of chemistry handbooks published after 1978, number of filmstrips dealing with American history suited for children, etc.

This paper has discussed some of the statistics that are obtainable from OCLC-MARC subscription service tapes, using examples currently available at the University of Lowell Libraries. This author emphasizes that the analyses discussed here are only some of many possible uses of the tapes as a collection-management tool. OCLC-MARC tapes contain a wealth of information that has yet to be exploited.

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Network Service Centers and Their Expanding Role

Joseph Ford

The growth of OCLC as an automated library resource-sharing system has been made possible in part by intermediary organizations, or networks, that function as marketing and distributing agents for OCLC services. As they have grown, the networks have taken on other roles. The results of a survey of the directors of the twenty networks reveal patterns of service beyond OCLC, and indicate that the networks provide, or plan to provide, automated library support systems themselves. Survey results also reveal brokerage of other automated services, networks' revenue sources, staff size and growth, and future plans.

The network service centers (networks) that act, in part, as marketing and distributing agents for the services of OCLC, the nation's major bibliographic utility, have emerged as major forces themselves in the rush to automate library service. For example, the New England Library Information Network (NELINET) distributes OCLC services to NELINET members, acting as an administrative and marketing agent for the library services that OCLC provides its general members, all but a handful of which receive these services through a network. In performing training, documenting system capabilities, interpreting and translating users' requirements to OCLC through technical descriptions (profiles), and supporting user groups, the networks provide the direct support in their regions that OCLC is not able to furnish its member libraries. In only a few years, the networks have gained prominence through their service to more than 2,500 OCLC libraries, and, moreover, as they have grown, the organizations that were once primarily distributors of OCLC service have become ac-

tive in other areas of library automation.

Most of these network organizations are geographically defined; they service statewide consortia, such as the Wisconsin Library Consortium (WLC), the Michigan Library Consortium (MLC), the Indiana Cooperative Library Services Authority (INCOLSA), and the Illinois Library Network (ILLINET), or they broker service to multistate regional groups, such as NELINET, the Southeastern Library Network (SOLINET), the Amigos Bibliographic Council (AMIGOS), the Pennsylvania Area Library Network (PALINET), and the Pittsburgh Regional Library Center (PRLC). One library network, the Federal Library and Information Network (FEDLINK), has a responsibility which extends nationwide.

Whether state, regional, or national in scope, the networks have attracted a good deal of attention. Several professional organizations have sponsored conferences on library networks, such as the Pittsburgh conference, "Structure and Governance of Library Networks," held in 1978,¹ the "Net-

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works for Networkers" conference, held in Indianapolis, in September 1979,² and the Library and Information Technology Association conferences, which began in 1975. While librarians were conferring on the role of networks, books and articles on networks began to appear. Both the conferences and the published work have focused on particular problems in network organization, management, and operations, or have aimed at defining proper goals and objectives for the networks. Few professional papers have attempted to describe the full range of activities that the "OCLC networks" perform.

SURVEY OF NETWORKS

In the absence of current and timely information on the range of network activities, I asked the directors of the twenty OCLC—distributing networks to respond to a survey on their organizations. Their answers provide primary information on several key areas of network activities, including anticipated growth in services, services not related directly to OCLC that networks may perform, use of members' bibliographic information on network-operated or network-controlled computers, staff size, sources of funding, long-range plans, and member-library involvement in the network planning process.

The survey questionnaire inquiring into network activities was kept as brief as possible in order to generate uniform information and to insure a high rate of return. It consisted of eleven questions, six asking for a multiple-choice response, two asking for specific numeric or percentage responses concerning network activities, and three final questions requesting the respondent to describe the network's history, long-range plans, and cooperative activities with other networks. Nineteen directors responded, representing 95 percent of the total number surveyed.* All responses were handtallied to generate simple aggregate data. A copy of the questionnaire is shown in appendix 1.

*Directors of the following networks responded: AMIGOS, BCR, CAPCON, CCLC, FAUL, FEDLINK, ILLINET, INCOLSA, MIDLNET, MINITEX, MLC, NEBASE, NELINET, OHIONET, PALINET, PRLC, SOLINET, SUNY, and WLC.

SURVEY RESULTS

Planned Network Services

Current and planned network services are explored in the survey's first section. Question 1 asks the directors to indicate which seven areas of growth they anticipate or desire for their networks. The directors' responses indicate a marked preference for continuing to add OCLC members as an area of "desired or anticipated growth." "Other contracting activity, processing/delivery" was second. "Another bibliographic system" and "network-based circulations" tied for third, and "retrieval services" and "network-based acquisitions," tied for fourth. Responses to question 1 are shown in table 1.

Table 1. Areas of Desired or Anticipated Growth for Networks

| Growth Areas | Number of First Choices | Number of Second Choices | Total First & Second Choices |
|----------------------|-------------------------|--------------------------|------------------------------|
| More OCLC Members | 6 | 6 | 12 |
| Contract, Proc/Del. | 6 | 2 | 8 |
| Other Bib System | 2 | 2 | 4 |
| Network Circulation | 2 | 2 | 4 |
| Retrieval Systems | 2 | 1 | 3 |
| Other | 1 | 2 | 3 |
| Network Acquisitions | 2 | 1 | 3 |

N = 17

Note: Number of choices greater than N due to respondents selecting more than one first choice.

For this question the directors rank ordered their choices for the seven possible areas of growth, and for "Other." Responses to this question were combined to generate the first-choice count for each growth area, and combined first- and second-choice counts. Six directors of the seventeen responding to this question ranked "more OCLC members" as a first choice, and six more ranked it second, for a combined total of twelve first and second choices, exceeding the combined choices of any of the other growth areas. "Contracting, Processing/delivery, etc.," is the second most popular growth area, chosen by eight directors, six as first choice and two as second. Other growth areas received uniformly fewer first and second choice re-

sponses. The eighth area of growth "Other," was a first choice of one respondent and the second choice of two, with the respondents naming retrospective conversion, authority control, and comprehensive document delivery as their expected growth areas.

The directors' responses to this question demonstrate a level of interests and services beyond their OCLC-related activities, and reveal patterns potentially of interest to both utility and network staff. For example, the network directors believe their OCLC user base can and will expand; no doubt that news will be encouraging to OCLC. It is equally apparent that contracting services loosely defined as "Processing, delivery, etc.," have captured the interest of several network directors. Approximately one-third of the respondents listed this response as the first among all choices, and nearly one-half gave it either a first- or second-place ranking. The other choices, circulation, acquisitions, another bibliographic support system, and retrieval services are almost equally interesting to the directors. While they anticipate growth in these areas, the directors are divided in their feelings about which growth areas they expect to predominate.

Brokering Retrieval Services

Non-OCLC related services have grown among OCLC networks as they have moved away from acting primarily as OCLC distributors. This movement is most clearly demonstrated in the area of brokering information retrieval services, and responses to question 2 indicate that more than half the networks are brokering such systems or plan to in the near future. The aggregate responses are shown in table 2.

In responding to this question, eight OCLC networks indicated that they made one or more such services available to their members as of May 1980, while four planned to do so by mid-1981. The vendor most often named is BRS, Inc., with eight networks indicating that BRS is currently under contract, and two more planning to add this service by mid-1981. Seven networks have contracts with Lockheed DIALOG, and two plan to add it, while SDC ORBIT presently has six contracts with two

Table 2. Information Retrieval Services Contracting among Networks

| Vendor | Networks Contracting (May 1980) | Networks Planning to Contract by mid-1981 |
|------------------------------------|---------------------------------|---|
| BRS, Inc. | 8 | 2 |
| Lockheed DIALOG | 7 | 2 |
| SDC ORBIT | 6 | 2 |
| New York Times Information Service | 5 | 4 |
| NLM Medline | 2 | 1 |
| Mead Data LEXIS/NEXIS | 1 | 1 |
| Other (SOURCE) | 1 | 1 |
| West Publishing Co. WESTLAW | 0 | 2 |

N = 12

more planned. The New York Times Information Bank is currently available through five networks, and four more plan to add it. The brokering networks each offer or expect to offer at least two vendors' services, and several networks will offer more. For example, two networks offer, or plan to offer, seven brokered services each; one network offers five and plans to add another; three networks offer, or plan to offer, four services each; and two networks offer or plan three services each.

Further evidence of the value the directors perceive in this type of service is apparent from a comparison of the responses to questions 1 and 2. Two of the three directors who made retrieval services either a first or second choice as an area of anticipated growth in question 1 were not then brokering such services, but intended to begin by mid-1981.

Uses of Network Bibliographic Databases

The MARC tape subscription service available from OCLC creates a wide range of potential network services, and the survey's third section focused on the services the networks might provide their members using these large-scale bibliographic databases. Responses to these questions are among the most interesting and enlightening of the survey, as they confirm that the networks have members' records on archival tapes, and have identified a number of current or potential uses for the files, that

the networks either have machine support for network projects or plan to acquire support, and that many network member libraries already have some machine access to their records.

In effect, some of the OCLC networks intend to become regional utilities themselves, as illustrated by the growth of network support systems away from the OCLC host utility. For example, about three-quarters of the respondents currently have available tapes of all members' records, and more than half the networks either are able to create cataloging products from their tapes or plan to offer this service. More than half of the networks offer some batch or online use of network records to some member libraries or plan to have this capability. Fifteen networks have plans for repackaging or reuse of their members' records, and the planned uses are an excellent index of the networks' interest in union lists and circulation (first preference), subject access (second preference), and management information, interlibrary loan, acquisitions, and serials control (third preferences).

The details of the respondents' answers will interest readers who are attracted by the networks' technical planning. Responses to question 3, concerning a network archival tape subscription, show that fourteen of nineteen respondents have a tape subscription containing all members' records. Six networks were currently able to create cataloging products from their OCLC tapes, with five more networks planning to do so by mid-1981 (question 4). Nine networks' members can currently use their records in a batch mode, based on either a member- or network-operated computer, with two more planning to do so by mid-1981 (question 5). Six networks' members currently have some online access to member records, with five more planning to have that capability by mid-1981.

Other responses to question 5 clearly illustrate the degree to which the networks are themselves becoming utilities: two networks of those offering access to their members' records will use a vendor's computer to provide that access. Thirteen networks will rely on a network- or member-based computer to provide member access to biblio-

graphic records, and three of these thirteen will use both network- and vendor-supplied computers.

Uses of Member Records

As a group, the directors reveal a preference for union lists and circulation control among the uses the networks would make of members' records. While no rank order was requested on question 6, a simple tally of the fourteen directors' responses shows eleven each selecting these two preferred uses for members' records. The second preference is for subject access, with ten respondents choosing this use, followed by management information chosen by eight, interlibrary loan by six, and acquisitions and serials control chosen by two each. Five directors selected "Other," citing name authority, public-access catalogs, special patron collections, computer-output-microform catalogs, and special bibliographies. Aggregate responses to question 6 are shown in table 3.

Table 3. *Current or Planned Uses of Members' Records Supplied on OCLC Tapes*

| Type of Use | Directors Choosing Each Use |
|------------------------|-----------------------------|
| Union list | 11 |
| Circulation | 11 |
| Subject access | 10 |
| Management information | 8 |
| Interlibrary loan | 6 |
| Other | 5 |
| Serials control | 2 |
| Acquisitions | 2 |

N = 14

All but one of the potential uses of OCLC records would provide service primarily to network libraries and their patrons. The other, "Management information," suggests statistical or numerical reports to be used in analysis of network services. Currently, OCLC offers summary statistical reports of cataloging activity and of serials control. Interlibrary loan statistics are under development. The revealed preference for management information may indicate that directors would pay for more detailed analyses of their members' acquisition patterns, of classification numbers assigned, of the age of materials being acquired, of unit

prices, and other potentially useful information that a machine scrutiny of records could provide.

The network directors expressed these same preferences in an independent survey conducted by OCLC. The minutes of the network directors' meeting of April 21-22, 1980, show that twelve directors or their representatives responded to questions on OCLC's new system development priorities.³ A tallying scheme which assigned priorities on a five-point scale, with five points for highest priority and one for lowest priority, revealed a group preference for serials/union lists, first with forty-seven points; circulations and online catalog, presumably with subject access, tied at forty-four points each; and acquisitions last with twenty-nine points. The directors' consistency is worth noting, as both surveys' responses indicate very clearly the types of system support the directors want for their network members.

Member-Library Involvement in Planning

Many of the directors indicated that their responses to three key questions did not correspond with the results of a formal member survey: three of the seventeen respondents to question 1 on growth areas; one of the nineteen respondents to question 2 on brokering information retrieval services; and two of fourteen respondents to question 6 on uses for member records checked the boxes indicating that the answers agreed with the results of a member survey. Member-library involvement in the service planning process for some networks may have taken place through committee representation but not through a formal needs assessment.

OCLC NETWORKS AND ORGANIZATIONS

Staffing

The networks' staffs grew between 1977 and 1980 at approximately the same rate as OCLC's membership. OCLC networks employed 63.5 full-time professional employees in July 1977; 68 full-time professional employees in July 1978; and 94 professional employees in January 1980. While figures for the individual networks vary

greatly, professional employees numbered between 3.5 and 4 per network in 1977 and 1978, and approximately 5 in 1980. At those same times, clerical employees numbered 80, 90, and 118, for an average per network of between 4.5 and 5 clerical employees in 1977 and 1978, and more than 6 clerical employees per network in 1980. Professional positions grew most in the eighteen-month period between July 1978 and January 1980, when 26 were created.

OCLC's User Services Division reports 1,307 members, 1,681 members, and 2,214 members for the same three points in time. The mean ratios of member libraries to network professional staff were 20.6 to 1, 24.7 to 1, and 23.6 to 1. The rate of growth of network professional staff in the eighteen months between July 1978, and January 1980, was 38 percent, slightly exceeding OCLC's rate of membership growth for the period, which was 32 percent. The survey does not correlate the growth rate of total OCLC transactions to size of network staff, nor does it attempt to examine the impact of new subsystems on network staffing. Furthermore, the survey does not attempt to ascertain the percentage of professional or nonprofessional employees engaged in non-OCLC related activities. Certainly, all networks with programs or activities beyond OCLC devote network staff time to support of those activities. Given the networks' non-OCLC related activities, and OCLC's subsystem and usage growth, it seems apparent, despite fears to the contrary, that networks' staffs were more productive in 1980 than in 1977.⁴

Funding

A surcharge to members on services obtained from vendors is the largest source of funding for network salaries and operating expenses, followed by member fees and state funds. All respondents except one derive at least half of their support from one of these sources, as highlighted in table 4. Of the seventeen directors responding to question 8, five estimated that their networks derive more than 90 percent of their support from surcharges. Member fees not connected with services are the second largest source of network funding support, and three networks derive more than 90 percent

Table 4. Percentages of Networks' Support Derived from Various Funding Sources

| Funding Percentages | Sources and Number of Networks Funded by Each Source | | | | | |
|---------------------|--|-------------|-------------|--------|---------------|-------|
| | Surcharge | Member Fees | State Funds | Grants | Federal Funds | Other |
| More than 90% | 5 | 3 | 1 | 0 | 0 | 1 |
| 75% to 90% | 1 | 1 | 3 | 1 | 0 | 0 |
| 50% to 75% | 2 | 0 | 0 | 0 | 0 | 0 |
| 25% to 50% | 0 | 1 | 0 | 0 | 0 | 0 |
| Less than 25% | 1 | 6 | 6 | 6 | 6 | 3 |

N = 17

of their support from this source. State-provided moneys furnish the third major source of funding, and one network is more than 90 percent supported by state funds. These sources remain important at lower support levels. For example, surcharges are a funding source for three networks that derive between 50 and 90 percent support from them. Fees contribute between 75 and 90 percent support to one network, and state funds provide between 75 and 90 percent support to three networks.

Federal funding plays the smallest role in funding network salaries and expenses, furnishing funds to only six networks and providing less than 25 percent of their support. Grant money is also a small source of funds, providing between 75 and 90 percent of one network's funds, then declining to less than 25 percent to six others. In the "Other" category, the directors named several sources, including investment income and services received in lieu of funds, such as office space traded for network support. The aggregate responses to question 8 are shown in table 4.

COOPERATION, HISTORY AND LONG-RANGE PLANS

Cooperation

The majority of OCLC networks have some sort of cooperative program with one or more of the other networks. Of the eighteen respondents to question 9, eleven indicated that their networks have such an arrangement with one or more networks, while seven do not. These cooperative arrangements vary in their purposes, ranging from formal regional associations in which several networks are members, to individual network-to-network agreements for training each other's members, to informal understandings to assist one another in eval-

uating proposals and implementing services. While it is difficult to generalize about the responses, they suggest that the networks will enter into agreements involving an exchange of services. Several directors mentioned a multistate cooperative in the Midwest, and a memorandum of understanding for cooperative systems development exists among approximately seven of the other networks. One director described this latter arrangement as "cooperative strategic and tactical planning . . . regarding the supply of automation services directly by the regional networks." This latter agreement has grown into a more formal arrangement known as the Council of Network Boards, which has met several times to explore areas of common interest to networks.

History

Two general types of network history emerge from the responses to the survey. The single-state networks such as ILLINET, SUNY, INCOLSA, and WLC are frequently a program within a state library agency that may have several concurrent programs in operation. These networks, to a great extent, depend on state government or state-supported institutions such as a state library to act as an administrative parent organization. The multistate networks developed in a different pattern. Many of these regional networks such as SOLINET, AMIGOS, and NELINET evolved from projects within an academic or library consortium to become separate programs or separate organizations.

Long-Range Plans

The directors revealed their greatest diversity in their ideas on the delivery of ser-

vice to their members in 1985. This question (number 11) also generated the least number of responses in the survey, and, as with questions 9 and 10 concerning cooperation and long-range plans, only the most general patterns can be discerned from the responses.

Eight directors described their long-range plans, seven did not, and four indicated that their networks were then engaged in a planning process. Among the eight responses were two indicating that they anticipated continuing to offer OCLC's services, although none of the others indicated that they anticipated discontinuing OCLC. Subject access to bibliographic records appeared four times, automated circulation systems and information retrieval systems appeared three times each, and word- or text-processing for libraries twice. Several of the directors mentioned their internal projects, such as reorganization, integration of work within the organization, and increasing staff.

MODEL NETWORK

Despite the diversity of responses on some questions, a model of the OCLC-distributing network, with distinctive organizational and technical attributes, emerges from the directors' responses. For example, the network model was born as an OCLC distribution service, with an original base in an educational or library consortium, or in a state agency. The network employs one professional staff member for each twenty-five OCLC libraries, and slightly more than one clerical staff member for each professional employee. Both staff and membership have grown at approximately the same rate as OCLC's total membership. If the network has a single-state membership, it derives three-quarters of its funding support from state-provided funds or surcharges; if the network has a multistate membership, it derives at least half of its funds from surcharges or membership fees. The network's leadership expects the organization to continue growing in several areas, including the addition of more OCLC members and contracting for services such as processing and delivery of library materials. The network will cooperate with other networks or service organiza-

tions to accomplish mutually valuable goals and might undertake some cooperative development work with another network for both networks' members. Finally, the network brokers information retrieval services or expected to by mid-1981.

As a technical organization, the model network will itself develop new automated services required by its members. It has its members' records from OCLC on magnetic tape; it can create cataloging products from its OCLC tapes, or expected to do so by mid-1981. Some of its members currently have some automated access to their own records, or planned to by mid-1981, and the access is provided by a network or member-facility computer. The network plans to use its members' records to provide union lists, circulation control, and subject access. The network is less interested than OCLC in developing automated acquisitions.

In the future, the model network's director expects to provide to its members services both from OCLC and from other sources. The network will continue offering OCLC services, but it will develop and broker other member-related services. Many of these services are not on OCLC's development schedule and probably never will be. The network has grown very rapidly, and many of its current activities were not undertaken as the result of a formal member-needs assessment. The network is now engaged in a planning process, and has a sense of its activities five years from now.

CONCLUSION

The nineteen directors who responded represent organizations that service about two-thirds of the members of the Association of Research Libraries and most of the major metropolitan public libraries. Beyond the size of some individual libraries, the sheer numbers of OCLC members give networks the power to influence patterns of library service. The networks, it is tempting to say, will become even more important as they develop member-required services and acquire their own automated support systems.

In fact, for some of the larger networks, this conclusion may be a valid one, despite SOLINET's recent experience. AMIGOS has announced plans to acquire a computer

to provide its members their records from the AMIGOS archival tapes, and later to expand AMIGOS-provided services. NE-LINET has decided to expand its services by using its own computer, and several of the networks have begun extensive planning processes designed to test the feasibility of network-based automation.

Clearly the networks are in a period of transition, moving from their earlier roles

as brokers of OCLC service to other, broader responsibilities. The difficulty of restructuring organizations to deal with their changing roles may be the cause of the recent stress in some networks. Despite these problems, we have unmistakable evidence that the networks are in the forefront of a major change in the delivery of library service.

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3. "Minutes of OCLC Regional Network Directors Meeting, 1980 April 21-22," undated, unnumbered typescript copy, p.9.
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APPENDIX 1. SURVEY QUESTIONNAIRE

Network _____

Please answer each question as fully as possible from the information available to you at this time. If you cannot answer all parts of a question, please give as full an answer as your information permits. If your network has performed a formal needs assessment or member survey, place a check in the boxes next to questions 1, 2 and 6, if your answers to those questions are based on the findings of your survey.

1. Please rank the areas of desired or anticipated growth you expect for your network. Use 1 for the highest ranking, and 7 for the lowest. Check the box if the ranking is based on the results of a member survey.
 - A. ___ MORE OCLC MEMBERS
 - B. ___ ADDING ANOTHER CATALOGING OR RESOURCE-SHARING SYSTEM (RLIN, WLN, ETC.)
 - C. ___ ADDING RETRIEVAL SERVICES (BRS, DIALOG, ORBIT, ETC.)
 - D. ___ NETWORK-BASED OR CONTRACTED CIRCULATIONS
 - E. ___ NETWORK-BASED OR CONTRACTED ACQUISITIONS
 - F. ___ OTHER LIBRARY-RELATED CONTRACT OPERATIONS (PROCESSING, DELIVERY, ETC.)
 - G. ___ OTHER (Describe)
2. Do you contract with any information retrieval system for your members? Check the box if your response is based on the results of a member survey.

YES ___ NO ___ PLAN TO BY MID 1981 ___

If YES, which systems are currently available to your network's members?
 BRS ___ DIALOG ___ INFOBANK ___ LEXIS ___ ORBIT ___ WESTLAW ___ MEDLINE ___
 OTHER ___ (Specify) _____

If YES or PLAN TO, which vendors will soon be available to your network's members?
 BRS ___ DIALOG ___ INFOBANK ___ LEXIS ___ ORBIT ___ WESTLAW ___ MEDLINE ___
 OTHER ___ (Specify) _____
3. Does your network receive an OCLC/MARC subscription tape of all member's records?
 YES ___ NO ___

4. Can your network create cataloging products directly from your OCLC tapes?
 YES ___ NO ___

If YES or PLAN TO, does your network contract for cataloging products, or perform the processing within your network?

CONTRACT ___ PERFORM WITHIN ___

5. Can your network's members use their own records, either in batch mode or on-line, through any other computer system than OCLC, Inc.?
 BATCH USE?
 YES ___ NO ___ PLAN TO BY MID 1981 ___
 ON-LINE USE?
 YES ___ NO ___ PLAN TO BY MID 1981 ___

If YES or PLAN TO for either BATCH or ON-LINE, please identify the source of computer access.

- A. ___ NETWORK OR MEMBER-FACILITY COMPUTER
 B. ___ VENDOR-OWNED COMPUTER

6. If you answered YES or PLAN TO in question 5, identify the current or planned uses of your member's records. Check the box if your response is based on a formal member survey.

- A. ___ UNION LISTS OR CATALOGS
 B. ___ SUBJECT ACCESS
 C. ___ CIRCULATIONS CONTROL
 D. ___ ACQUISITIONS
 E. ___ SERIALS CONTROL
 F. ___ MANAGEMENT INFORMATION
 G. ___ INTERLIBRARY LOAN
 H. ___ OTHER (Describe) _____

7. How many staff members did your network organization have as of January 1, 1980? Please count Full-Time Equivalencies.

PROFESSIONAL ___ CLERICAL ___

How many staff did your network organization have as of July 1, 1978?

PROFESSIONAL ___ CLERICAL ___

How many staff as of July 1, 1977?

PROFESSIONAL ___ CLERICAL ___

8. Please enter the estimated percentage each of the following sources contributes to funding your network organization, that is, for salaries and operating expenses.

- A. ___ SURCHARGE ON SERVICES OBTAINED FROM OCLC, AT&T, BRS, ETC.
 B. ___ GRANTS, DONATIONS, OR CONTRACTS.
 C. ___ GENERAL MEMBERSHIP FEES NOT CONNECTED WITH SERVICES.
 D. ___ FEDERAL FUNDS; LSCA, ETC.
 E. ___ STATE OR LOCAL FUNDS.
 F. ___ Other (Describe) _____

9. Does your network currently have cooperative arrangements with other OCLC-participating networks for achieving common goals, conducting studies, projects, or providing services?
 YES ___ NO ___

If YES, Please describe your current cooperative arrangements with other networks.

10. Please enclose any documentation, annual reports or brochures describing your network's history, or draft a brief description of its history.

11. Please describe briefly your network's long-range plans, that is, what you expect your network will be doing for its members in 1985.

NAME OF PERSON COMPLETING SURVEY _____

WORK TELEPHONE _____

Communications

Online in Saudi Arabia

**Selden S. Deemer: University of
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Although library automation in North America, barely twenty years old, is hardly old hat, enough libraries are using data processing for one thing or another that computers are reaching "ubiquitous" status. Particularly in academic institutions, it is hard to find a library without a CRT terminal lurking somewhere about the premises.

This is certainly not the case in Saudi Arabia, where the entire higher educational system is scarcely twenty years old, and the largest library in the country, at the University of Riyadh, has total holdings of fewer than one million volumes—many of these being duplicates distributed among a large number of departmental libraries. Until recently, any impact of computers on library operations has tended to come from external sources: online searching through Lockheed and SDC; vendor-supplied cataloging, either on cards or on microfiche; and order systems from book vendors and subscription agents.

A number of factors have inhibited the use of computing in Saudi libraries. The most obvious is that until very recently there was little in the way of "infrastructure" in Saudi Arabia: maintaining a computer system of any size is difficult with frequent power outages, fluctuating voltages, an erratic telephone system, an enormously long supply line, and a climate whose most notable features are dust and temperatures exceeding 100° six months of the year. However, the pace of recent development has been so rapid that serious infrastructure problems—excepting the climate—are now

of more historical than practical interest.

Manpower is another significant constraint, as more than 75 percent of the labor force is foreign. One of the traditional reasons to automate is to reduce manpower needs, but this is difficult when the necessary programmers, analysts, and others with textual computing experience are not to be found. The tightness in the labor market also leads to unusual staffing patterns: in the UPM library, partly because of a requirement for English fluency, librarians outnumber clerical staff, and even most typists are college graduates.

Nevertheless, the situation regarding library automation has begun to change rapidly, as most of the university libraries are looking at automation systems, and at least two academic libraries, the University of Riyadh and the University of Petroleum and Minerals (UPM), have already started to implement online library information systems. This article will focus on the installation and development of the DOBIS/LIBIS system at UPM over the past year.

The University of Petroleum and Minerals is a technical university with undergraduate and graduate programs in pure and applied sciences, engineering, industrial management, and architecture and environmental design. The student body numbers about 3,000, with about 500 full-time faculty members. English is a primary language of instruction, and more than 85 percent of the library's 160,000+ volumes are in this language. Growing numbers of graduate students, an ever-increasing emphasis on faculty research, and an expanding research institute are all placing greater demands on library services.

Use of computing resources is seen as one way to improve library services without expanding staff. As a result, in 1978 the university administration appointed a Task Force on Library Automation to study this problem. The present library automation

project resulted from the recommendations of the task force.

The first and most important step of the entire project was to define an effective approach to library automation. Given the size of the UPM library (fewer than 200,000 volumes), no single function was large enough to justify automation—even in the context of a healthy budget. However, as some American libraries are discovering, use of an *integrated* library information system can be justifiable:

In smaller libraries . . . the volume of transactions within a single function, e.g., circulation, cannot justify the purchase of an automated system. For these smaller libraries, one cost-effective approach is to automate multiple library functions in an integrated data base management system.¹

In our situation, cut off from much of the action in library automation, with skilled and experienced manpower always in short supply, local development of an integrated library information system was out of the question. Similarly, membership in a network of some sort, such as OCLC or BLAISE, was ruled out because of prohibitive telecommunications charges and the problem of synchrony: communicating with North America is difficult with a working day that is eight hours out of phase and a work week that runs from Saturday through Wednesday.

Features that UPM wanted in a library information system included:

- MARC and AACR/AACR2 compatibility
- Distributed access throughout campus
- Local software maintenance/development
- Multiple language capabilities
- Networking capabilities

A number of mini-computer-based systems as well as a few software packages designed for large computers were available that met our requirements to varying degrees. However, all of the "turnkey" mini-computer systems were eliminated because of maintenance considerations. Turnkey projects of various sorts enjoy a tremendous vogue in the Near East today, but without continuing maintenance, a turnkey system can quickly turn into a "turkey." It isn't practi-

cal for us to get on the telephone to CLSI's hotline in Newtonville, Massachusetts—especially if our problem is at 9:00 a.m. on a Saturday, corresponding to something like 1:00 in the morning there. The only large computer vendor with an extensive service organization in Saudi Arabia is IBM, and an IBM-compatible system was an early decision. In addition, as UPM already had a large and sophisticated Data Processing Center (DPC), with ample computing capacity and a large network of terminals across campus, use of existing equipment would help keep costs down.

Of the IBM-compatible software packages that were identifiable, few had been transferred to other libraries. Trying to automate in Saudi Arabia would be difficult enough without our being the trial case. In the end the DOBIS/LIBIS library information system, developed by IBM, in conjunction with the University of Dortmund (Germany) and the Catholic University of Leuven (Belgium),² emerged not only as the best fit to our needs, but, somewhat surprisingly, as the least expensive software package.³ UPM signed a licensing agreement with IBM during the summer of 1980.

Serious work on the system began in December 1980—primarily reading all available documentation, rereading it, and rereading it again. At the time, there was no one in the UPM library who had any practical experience with online library information systems, not even anyone who had ever seen a raw MARC record; in the DPC there was no one who had worked with a large online bibliographic database system, no one familiar with CICS, and no programmer fluent in PL/I for textual processing. We had to "bootstrap" the project from the beginning. In a year's time everyone connected with the project has acquired enough experience and skill through self-study and hard work to approach the system with some confidence.

Looking back, it now seems as if we were slightly mad to take on such a project with so little experience and so few staff available to work on it (one person full-time in the library and one almost full-time in the DPC, plus part-time efforts from various people in each place), but we had no other choice if we were to have a system that we

understood, and whose evolution we could control. Fortunately, DOBIS/LIBIS has required relatively little in the way of significant changes to fit our needs; most of the preliminary work consisted of "tailoring" the system to fit the local situation.

Library staff training began in April of 1981. Using films, graphics, and locally produced tutorial texts, we developed an introductory staff instructional program that carried people from bits to the MARC formats in a week. In our situation, with no staff experience with online systems, one strength of DOBIS (which we had overlooked in our initial investigations) is its treatment of MARC tags and subfield codes: they are not displayed, and knowledge of them is not needed to create useful bibliographic records. As a result, we found that our catalogers and typists learned very quickly to produce online cataloging from which LIBIS batch programs could produce fully tagged and subfielded MARC records. Moreover, staff were able to do so from raw cataloging copy, without worksheets or reference to MARC manuals. Cataloging staff training continued through October 1981 on the test system.

We have paid special care to work station design, as "CRT fatigue," resulting from poor ergonomics, is one of the most frequently cited problems with online systems.⁴ With modular furniture, we were able to reconfigure all cataloging work stations so that each terminal is shared by two people: either 2 catalogers or a cataloger and a typist. This allows cataloging staff to switch back and forth between online and offline tasks, improving utilization of expensive equipment, and reducing the likelihood of long, unbroken stints facing the tube. Psychological privacy is insured by arranging desks so that people are seated facing away from each other. Terminals are set up with the keyboards approximately 70 cm above floor level; work surface and chair heights may be adjusted further if desired. Copy holders keep flat work in the same sight plane as the terminal screen. No one has complained about terminal ergonomics, although the head of cataloging (who does not share a terminal) occasionally wears a foam neck brace: he would rather put up with a stiff neck than cut back

on his terminal time. One unexpected drawback arose from the extended test period, as everybody wanted to spend time on the terminals, to the exclusion of their regular work, which was still being done manually.

The cataloging department began using the system for retrospective conversion in November 1981. Printed cataloging outputs, such as card sets, labels, and book catalogs are still undergoing development and testing. Our starting database consisted of more than 76,000 MARC records obtained from Blackwell North America, most representing items sold to the UPM library over the past eight years. Retrospective conversion will entail verifying each record, including changes when necessary, and adding local copy information. Records selected from LC MARC tapes (CONSER; Books, English; Serials; Films) on the basis of a LC classification profile will be added continuously to the database, and we expect to have a system catalog of about 300,000 records by the end of 1981. However, we do not expect to complete retrospective conversion before the end of 1982 at the earliest, as there is no possibility of adding temporary or part-time help.

Preliminary work on the acquisitions function began in November, with a target date of March 1982 for production status. Fortunately, much of the tailoring done for the cataloging function is also usable by acquisitions, and the experience gained during the past year should make development of this function relatively easy. The only major enhancement will be a batch interface with the university's financial accounting system.

The circulation function has been put "on the shelf" temporarily until retrospective conversion yields a shelflist catalog of useful size. In addition, we are still waiting for equipment and supplies ordered nine months ago: the geographical isolation of Saudi Arabia is something that no amount of infrastructural development can cure. Work on circulation is scheduled to resume in the spring of 1982, after acquisitions reaches production status. An interface between student and employee record systems has already been programmed. We hope to have online circulation control by the be-

ginning of the 1982-83 academic year.

The periodicals component of the system is currently under development by IBM, with summer 1982 as a target release date. However, as DOBIS/LIBIS can already handle bibliographic records in the MARC serials format, there is no obstacle to retrospective conversion of serials records.

In view of our limited experience, we have deliberately tried to hold modifications to the basic software package to a minimum. The major planned enhancement is the addition of Arabic. One factor in our choice of DOBIS/LIBIS was its hospitality to multiple languages. At Leuven, for example, the system is set up with English, French, and Dutch as dialogue languages, and the DOBIS system used by the National Library of Canada features complete dual subject access through English or French subject headings.

The most obvious difficulty with Arabic in an online system is the use of a nonroman script that is written from right to left; as a result, character position 1 on an Arabic CRT terminal screen is at the upper right corner. The problems of controlling and displaying both scripts simultaneously are formidable. Although terminals and printers are available that could be used to develop an Arabic-only system, UPM lacks the incentive to take on such a task, as Arabic-script materials represent no more than 5 percent of our collection, and all library users are fluent in English. Nor would we consider creating romanized Arabic cataloging records, as this approach was rejected a number of years ago: all Arabic-script materials (including Persian and Urdu) are cataloged in Arabic, except for call number and subject headings.⁵ Like the Canadians, our ultimate goal is a system that will treat users of both languages equally, allowing search and retrieval of all relevant records irregardless of the user's or document's language.

Although there has been notable progress recently in data processing hardware for Arabic, to our knowledge no completely acceptable dual-script terminal exists at this time. Newer terminal designs use contextual techniques to display or print the appropriate letter shape from among as many as four choices for each character in the Ar-

abic script. This simplifies an Arabic type-writer keyboard considerably, as well as reducing the number of codes needed for the character set. Draft 7-bit and 8-bit Arabic character set codes, based on the CODAR-U codes proposed by the Arab League, are under study by the Saudi Arabian Standards Organization,⁶ but no single character set for Arabic has been accepted universally or enforced as a standard that manufacturers must meet. IBM must be counted among those manufacturers who have, to date, followed an approach at odds with the direction the standards-making bodies are taking.

There also exists no MARC standard for treatment of dual-script bibliographic records, although both RLIN and the LC MARC Development Office are working on the problem. Therefore, UPM has decided to concentrate on developing our system as far as we can for roman-script uses, while waiting for Arabic data processing to settle down. We believe that with suitable hardware, Arabic as a dialogue language will be no obstacle, and that the distributed file structure of DOBIS will be hospitable to records containing mixed-script data.

Another target for future development is improved subject access. For processing reasons, including the availability of cheap cataloging records from LC, whether in printed or machine-readable form, we follow Library of Congress Subject Headings, even for Arabic materials. The shortcomings of LCSH are well enough known, particularly for those who use English as a second language. Controlled permutation of LC subject headings is one possible development, adoption of the PRECIS system another.

We have not attempted to develop an Arabic subject headings system because we lack the manpower. Others in the Arab world, notably in Kuwait, in Egypt, and at the University of Riyadh, are doing so, but without coordination, leading to a profusion of terminology. At least within Saudi Arabia, it would be desirable to see a cooperative effort so that all academic libraries can be certain of using the same subject terminology.

Certainly until DOBIS/LIBIS or any other system can cope with Arabic, the pace

of library automation in Saudi Arabia and in other Arab countries will be retarded. Standardization and cooperation are two ways that automation can be encouraged. Establishment of an ISO standard for an Arabic character set code, and of a MARC standard for multiscript bibliographic records, together with national acceptance of such standards, would help. Adoption of a uniform set of cataloging rules for Arabic-script materials would also be a positive step. In view of the fact that most Saudi Arabs have received their higher education in English-speaking countries, AACR2 would seem a logical starting point for a national cataloging code. A library automation study group has been formed, with representatives from each of the major Saudi academic libraries.

It is difficult to overemphasize the importance of adopting and following standards, particularly when pioneering a new area, as we are. Certainly the fact that UPM has come as far as it has in less than a year is due in large part to our choice of a system that was developed with regard for existing international standards (MARC and AACR). We have been spared the multitudinous details that library automation pioneers had to wrestle with twenty years ago in the West. We have been able to make use of inexpensive MARC cataloging records, we are extending the system to handle the films and maps MARC formats, and we are adapting fairly painlessly to AACR2. All this was possible largely because the necessary documentation and terminology relating to MARC and AACR practices were already present in the system, and because we elected to accept them as standards to be followed. UPM library is building a large machine-readable cataloging database, but it will be difficult to share our records with other libraries in the area if they develop systems that do not follow existing standards.

In the long run, I have high hopes for library automation in Saudi Arabia. It appears to be a useful and, for the most part, culturally neutral form of technology transfer. Most importantly, in a rapidly developing country with a very small population, library automation promises to assist national growth through information dissemi-

nation, while reducing the need for still more foreign manpower.

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Retrospective Conversion at a Two-Year College

Michael T. Krieger:
Rentschler Library, Miami University—Hamilton, Ohio

Miami University—Hamilton, established in 1968, is a regional campus of Miami University, Oxford, Ohio. Its stated mission is to provide lower division undergraduate courses to the surrounding geographic area;¹ a mission supported by the institution's library, the Rentschler Library Learning Resources Center (LLRC), which has a collection of 62,000 titles.

Having joined OCLC in 1979 with the installation of its present single terminal,

Miami University-Hamilton had a low percentage of its holdings in machine-readable form; but like many community-college and regional-campus library collections established during the sixties, the one at Miami University-Hamilton is relatively small and new, lacking the complexities that size and age inevitably bring to academic libraries. When retrospective conversion via the OCLC system came under consideration, it was suspected that these conditions would be beneficial. It was the general consensus of the professional staff of three that the future would bring only increased demands for a machine-readable database of the LLRC's bibliographic holdings. Miami University Libraries, with multiple locations on three campuses, is interested in acquiring an automated circulation system and at the time of the study was seriously considering the circulation system, presumably based on OCLC MARC records, being planned by OHIONET. In addition, Rentschler Library wanted to attach its holding symbols to the bibliographic records of its materials to facilitate participation in the OCLC Interlibrary Loan Subsystem.

PRIOR RESTRAINTS

Planning for the project was initiated with the knowledge that it would operate under certain restraints. The unavailability of additional funding for the project precluded contracting with an outside agency or the hiring of additional personnel. Reassignment of job responsibilities within the institution was not a workable option. Therefore, the regular cataloging staff, a cataloging librarian, a paraprofessional, and two part-time students, would have to absorb the work generated by the conversion project. Scheduling difficulties were foreseen. To take advantage of OCLC's lower rate of \$.05 per update during non-prime hours, no records would be converted during prime time. Because of the small staff, the librarians must share reference responsibilities, which further reduced the time available for terminal use.

RESOURCES

A literature search preceded the writing of procedures. The scarcity of information,

especially practical information, was soon apparent. Of the few available resources, none dealt with the situation at Miami University-Hamilton—in-house retrospective conversion at a two-year college. An ARL collection of procedures and policies of networks and universities did prove helpful.² It advises the librarian on such topics as the use of local MARC fields and suggests procedures that can be adjusted to particular needs. Also, a workshop on retrospective conversion* conducted by OHIONET staff aided in the organization of the project by explaining the use of local fields and defining minimum editing requirements for the differing functions (ILL, circulation, on-line catalog) that could be based on the converted records.

QUESTIONS

Before making a long-term commitment, data were needed to answer the following questions on the feasibility of converting the entire collection:

1. What would the hit rate be. i.e., how much original cataloging would be required?
2. What would the cost be?
3. What would be the approximate time required to convert the collection?
4. Would incorrect shelflist cards be replaced?
5. Would the planned draft procedure be workable?
6. What unforeseen problems would be encountered?

The hit rate for a small academic collection established in 1968 and developed to support a freshman and sophomore curriculum was expected to be high. The collection is composed of commonly held titles (*Choice* is the principal selection tool); many cataloging records would be on LC MARC tapes.

DESIGN

Library of Congress class "C" was to be used as a test. Circulation records indicated that only 4 of the 250 titles in that class were currently in circulation. The procedure

*Retrospective Conversion Workshop held on January 25, 1981, at Upper Arlington Public Library in Upper Arlington, Ohio, conducted by Joel Kent and Carl A. Anderson.

written to govern the conversion of class "C" specified that materials be brought to the terminal and be compared with their shelflist cards as conversion occurred. This was possible with a collection of our size and was done to insure the accuracy of the input records and for the purposes of inventory and weeding. Since the materials were to be in hand when their records were converted, the opportunity would be taken to weed and inventory. Circulation records indicated the known number of missing books had steadily grown since the last inventory in 1976. The catalog records needed rectification. Weeding would rid the collection, for which room for expansion is limited, of unwanted material. Both inventory and weeding would prevent the conversion of records of unavailable or unwanted materials, resulting in a database of higher quality.

After the example of the University of Colorado-Boulder,³ the following fields on shelflist and terminal records were compared to determine a bibliographic match.

| Field | | Note |
|-------|-----------------|------------------------|
| 010 | LCCN | If present |
| 1xx | Main Entry Name | All subfields |
| 245 | Title | Up to b |
| 250 | Edition | If present |
| 260 | Imprint | All subfields |
| 300 | Collation | Arabic pagination only |

To maximize future usefulness of the database the following editing standards were set: (1) match call number with shelflist card, (2) update subject headings, (3) input accession and copy numbers in 049 field, (4) delete extraneous call number fields, (5) input correct holding library, (6) add any access point present on the shelflist card but missing online.

Since the subject tracings on the shelflist cards have been kept current with *Library of Congress Subject Headings*, problems with online updating were not anticipated. Irrelevant call number fields were deleted to prevent confusing displays of multiple fields. In a farsighted attempt to create complete records, accession numbers of monographs were to be input following OCLC guidelines. It was hoped that accession numbers would aid in a more exact identification of pieces, especially in a

multicampus system with many duplications. In the eventuality of an online catalog the accession numbers would be wanted on the records. Numbers for multivolume works and serials were omitted; in addition to being time consuming, the lack of local display capabilities would necessitate the reentering of complete holding information with each subsequent transaction.⁴ These records will require later upgrading to bring them to the level of completion of the others. Before then, online identification of separate parts will not be possible nor will the extent of each record's holdings be known.

DATA

The test conversion, completed on October 9, 1980, produced the statistics contained in table 1. The test file contained 350 records, 18 of which were OCLC produced, leaving 332 records to convert. Of those, 313 were actually converted with update or produce commands, leaving 19 unconverted.

When the LLRC began online cataloging, the book collection contained 49,133 titles. This number minus projected withdrawals and losses leaves 46,322 titles to convert. The test was completed in 13 work, 19 calendar days. Terminal time for the conversion of 313 records was 1,045 minutes, which is 3.34 minutes per conversion. An average of 79.6 minutes per day was spent at the terminal. The test conversion was done at the one terminal by a single paraprofessional. Figures derived from the test were used in projecting statistics for the conversion of the entire collection (table 2). These figures indicate 2672.1 calendar days

Table 1. Conversion of Class C

| | Number | Percent of Convertible Records | Cost |
|---------------------|--------|--------------------------------|---------|
| Records updated | 289 | 87.05 | \$14.45 |
| Records produced | 24 | 7.23 | 30.00 |
| Original cataloging | 0 | | 0 |
| Cards produced | 120 | | 4.32 |
| Unconverted records | 19 | 5.72 | — |

Table 2. Total Conversion of Collection

| | Number | Cost (Current Rate) | Cost (1982 Rate) |
|--------------------------|----------|---------------------------|------------------------|
| Records updated | 42769.29 | \$2138.46 | \$6415.39 |
| Records produced | 3551.33 | 4829.80 | 4971.86 |
| Cards produced | 17756.65 | 745.78 | 745.78 |
| Missing and withdrawn | 2811.39 | --- | --- |

(7.32 years) would be needed for complete conversion.

Continued work indicates that the amount of original cataloging will not remain at zero, but it will be minimal. Cost projections take only known prices into consideration. Higher cost over the duration of the project will further increase overall costs.

EVALUATION

The data provided the LLRC with useful information. The crucial hit-rate factor (100 percent) was unexpectedly high. Production of replacement cards (7.66 percent) was higher than anticipated and will be reduced by replacing only those existing cards with blatant errors affecting user access. Several other changes followed an evaluation of the written procedure. Initially, the paraprofessional was not permitted to update non-LC records. This initial precaution immediately proved unnecessary due to the paraprofessional's expertise and impractical due to the unexpectedly high percentage of non-DLC records. Since many records, when compared to LC produced cards, appeared to be transcribed LC copy with DLC omitted from the 040 field, the restriction was abandoned. Also, the OCLC control number of the online record replaced a simple check mark, indicating the record's conversion, on the verso of the converted shelflist cards. Projected duration of a complete conversion was greater than anticipated, but the extra time will allow project costs, increased substantially by the recently announced OCLC rates,⁵ to be distributed over a longer period of time.

CONCLUSION

Although based on the conversion of a single LC class, this study suggests that

many two-year academic libraries can expect an extremely high hit rate, which is the principle determinant of project cost and duration. While most of the data have local applications, generally the findings indicate that an in-house retrospective conversion project is feasible for many academic libraries, but that a considerable amount of time is required for completion.

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The USBC and Control of the Bibliographic Database

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INTRODUCTION

The original concept of the Universal Standard Book Code (USBC) was as an alternative control number to the ISBN for bibliographical records. The International Standard Book Number has brought a de-

gree of order to the publishing world and has proved essential to the development of computerized cataloging systems based on MARC. It also plays an essential part in the online ordering systems that have been introduced by publishers and booksellers. However an examination of its construction and method of allocation shows that it has inherent defects for use in the growing number of machine-readable bibliographic databases that are now in use throughout the world.

The ISBN is a ten-digit numerical code, consisting of four parts: first an international group identifier; second a unique number allocated to the publisher by the national book numbering agency and varying from two to seven digits depending on the output of the publishing house; third a number added by the publisher for the individual item and made up to nine digits; and last a modulus eleven check digit. Varying the size of the second and third parts enables publishers with large outputs to have small publisher codes but more numbers available for allocation of books and for the reverse to apply to publishers with small outputs. The problems arise over the part of the ISBN that is allocated by the publishers themselves because some have been guilty of lack of control in the way this number has been allocated. This has often led to duplication. There have been cases of the same book being given two different numbers and of the same number being used for two different books. An additional disadvantage is the fact that the ISBN cannot easily be supplied retrospectively to older and out-of-print material, although some publishers have allocated numbers to the older material that is still in print.

For bibliographic records held in manual form, the defects of the ISBN are a nuisance rather than a problem. However, as bibliographic data banks in machine-readable form grow in size, and as records are fed into them from an increasing number of different sources, it becomes more and more important that each record can be identified by some form of control number that is not subject to misapplication either by human error or through faults in its structure. Present systems, where they do not use their own local arbitrary control numbers, rely mainly on the use of the ISBN. This can only

be partially successful because the application of the actual number for the books is the responsibility of the individual publisher, with the exception of very small publishers who use the Standard Book Numbering Agency. In all cases the allocation process is a manual one, and since the resultant number has no logical basis, there is no means of checking. It was against this background that the concept of the USBC evolved. As it evolved, however, it became clear that it could be used in the short-term for the solution of the critical problem of detecting duplicates in a large database. As a natural corollary to this it could also be used for the merging of databases.

USBC STRUCTURE

The USBC is machine-generated, and the coding algorithm operates on the basic elements of the bibliographic record. It consists of sixteen characters, which is longer than the ISBN but much shorter than some other numbers that have been suggested. The sixteen characters of the USBC consist of six different elements. The structure of each of these elements differs and improvements in the efficiency of each are still being investigated. The following brief notes give some indication of the coding structure which is used.

Weighting: A weighting factor is obtained by counting all characters in the title field and using the last figure of the count for coding purposes.

Date: This is obtained from the last three digits of the date of publication taken from MARC tag 260 subfield code c and is obtained by compacting the three digits into two alphanumeric characters.

Title: This is the largest, the most important, and the most complex of the coding algorithms that are used. In the earlier versions of the USBC the coding relied on a combination of positional allocation and the use of tables giving frequency of occurrence of letters in English-language text. However, the methods now in use are based on entirely different principles. They use an alphanumeric code and a statistical technique that analyzes each title and creates a code based on the frequency of characters within the title. This has led to improvements that have made the USBC almost 100 percent effective.

Edition: A one character alphanumeric code that uses the last numeric character in the edition tag; if no digits exist the first available letter is used.

Volume: Uses the last two numeric characters of the volume or parts as given in tag 245 subfield code *g*.

Publisher: A two-figure code that operates on the initial letters of the publisher information.

In addition, a spare element of one character will eventually be necessary for the reasons given below. The following is an example of a typical USBC: 1R2ACHIMNOS174AE for BNB No. B7528431: University of Oxford, St. Edmund Hall "St. Edmund Hall Directory," Oxford: St. Edmund Hall, 1974.

Originally it had been intended that although the code was machine-generated it would be possible to allocate it manually if necessary. The code has now become so complex that this is no longer possible. Even the manual deciphering of the code is a tedious process.

USBC FUNCTION

In order to appreciate the long-term practical applications of the USBC it is important to consider how a machine-generated control number is likely to operate in the future. The USBC must be seen in the context of the likely development of the bibliographic control process. Certain trends of this development are already beginning to appear. From these trends it seems probable that all but the smallest countries will have their own computer-based bibliographic control organization, although there is likely to be some grouping on a regional or linguistic basis. These national organizations will link up with each other to form an international network.

In this sort of environment, allocation of a machine-generated control number like the USBC would take place in the following manner or something very like it. The publisher's computer would generate a control number as soon as firm publication details became available. When the final bibliographic record reached the national center, the control number would be generated again and compared with the publisher's version. Any discrepancy would mean that

the publication details had been changed.

The authenticated control number would then be compared against a master file of control numbers. This would be a fail-safe mechanism since the USBC, even at its present stage of development, is capable of providing very nearly complete discrimination. With the addition of an extra coding element using one or two characters the chance of a code duplication would be very unlikely to occur. However, it is essential that this check is made and that in the event of a collision there is a mechanism for rectification. This would be achieved by the computer changing the code that is causing the clash by using the spare element of the code.

The procedure outlined above does not apply when the publisher is so small that it does not have access to a computer. The situation will then be much as it is today, except that the manual application performed by the Standard Book Numbering Agency will become an automatic process. The computer will create the USBC when the bibliographic record for the book is added to the national database. Validation for the USBC will then be the same as that for the USBC submitted by a publisher.

It is clear from the work carried out so far that the problems of actually creating a universal standard book code are soluble. The real difficulty in the near future is overcoming the vested interests that have created control numbers which are not machine-generated. However, we are moving quite quickly into an era of communication networks that will move bibliographical records from publisher to bookseller to library, and will do so across national boundaries. These networks will rely on the computer and in such an environment it is essential that the control number is machine-generated and not subject to human error. Standards will be needed throughout the world that will be based on principles that enable computers in different environments handling the same bibliographic records to construct an identical number for that record. This must be the long-term and main function of the USBC.

USBC IN ACTION

An example of the power of the USBC as

it exists today is best illustrated by a description of a coding run on the 1975 U.K. MARC file. This contained 31,369 records and a unique code was created for all but 75 of these records. This means that the success rate was 99.761 percent. However, an analysis of the 75 records that created collisions, that is, created duplicate codes, showed that the success rate was very much higher than this. Forty-six of these records turned out to consist of twenty-three pairs of duplicates. These were then examined in the printed BNB, which was derived from the MARC tape, and they were found to be a mixture of true duplicates and quasi-duplicates with the exception of one pair that had been corrected. They broke down as follows:

- Six pairs of exact duplicates
- Seven pairs of hardbacks and paperbacks that had been treated as separate entities. Normally BNB handles the paperback and hardback in the same entry without repetition.
- Finally there was a group of nine pairs of duplicates that turned out to be quasi-duplicates. They were all British government publications and from the BNB entry it was impossible to tell how they differed from each other except for the series number. In most cases the difference was very slight but nevertheless important, e.g., the difference between an agreement being ratified or not ratified. These were obviously cases where fuller cataloging should have been used.

There were fourteen cases of true collisions, one of these was a triplicate and the remainder were duplicates. This represents a failure of 0.09% or less than one collision per 1,000 records. There is a possibility of eliminating even this small percentage of collisions by modifying the algorithm and/or the use of additional elements, e.g., use of pagination as an element would have eliminated eleven of the collisions and use of the series entry 5.

THE PROBLEM OF DUPLICATIONS

The problem faced by every bibliographic database is control of duplicates. It is a problem that everyone knows exists and that no one has been able to measure with

any degree of accuracy. For example Hickey and Rypka,¹ who have carried out research on the OCLC database, found a duplication rate of 4.8% on the large sample that they tested. However, they felt that this was not the actual duplication rate, which they estimated might be between 7 and 9 percent depending on the definition of a duplicate. They also found that as larger samples were used a higher percentage of duplicates was found. Although this growth appeared to be associated with sample size they could find no direct functional relationship.

As has been shown above algorithmically derived record identification codes, such as the USBC, are capable of detecting duplicates on databases that contain bibliographic records that have been made using standards consistently. Unfortunately databases such as OCLC that are receiving input from a number of different sources have found bibliographic control difficult to exercise. This has led to a much higher level of duplication and this is believed to have been created in four ways. The first is because libraries have quite deliberately input new records because they are dissatisfied with the existing record on the database. The other three reasons are quite unintentional and are caused in three ways: (a) data input errors, (b) variations in the cataloging, and (c) inconsistency in the use of MARC tags.

Input errors are caused by operators keying incorrectly, spelling incorrectly, or transposing letters. Automatic correction for this type of error is likely to be available in the near future. The variations in cataloging practice that lead to duplication are quite often difficult to pinpoint. However, it seems likely that the four major areas are title variation, date variation, edition variation, and publisher variation. Of these four, by far the most common is title variation.

Since most of the methods that are being considered use the characters of the full title, omission of the subtitle is almost certain to mean that a duplicate can be missed. Different dates can be given because the cataloger has interpreted the various dates such as date of publication, issue date, or reprint date in different ways. It can also be caused by different methods of presenting a date,

for example 1978/79, 1978-79, or 1978-9. It is often only the alert cataloger who will be able to spot that a work is really a new edition and not a reprint or reissue. Some of the variations in the publisher name are already taken into account by the USBC coding algorithm. However, there remain a number of other cases where the algorithm has failed to detect what is usually a shortened version of the publisher name.

Inconsistency and errors in the use of the MARC tagging structure cause duplications that are often very difficult to detect. Major problems arise with inconsistent use of the subfield codes for the titles but problems also arise with the date, edition, and volume tags.

A systematic approach to the problem of data variability and its effect on coding has been adopted in the form of the 'JUMBO' code. This is a high-capacity, multielement code of eighty-three characters containing a total of twenty elements, many of which are multiples of the same element coded differently. For example there are five volume/part no. elements. The original idea behind this approach was that it would enable a single scan of the database to produce the alternatives that would then be selected for testing by simple masking to 'assemble' the USBC of interest. The exclusion of elements, the length of elements, and the application of different coding methods on the performance of the USBC could thus be evaluated conveniently and efficiently. A reassessment of elements used in earlier forms of USBC became necessary in the light of experience gained with BNB71, '72, '75, '78, LC78, and a sample file of some 44,000 records from the OCLC base. As a consequence, the program was revised, first to search more within the record to locate possible valid source data for the element in question, and second to analyze that same data in a variety of ways.

The first file chosen to be processed by the JUMBO code, because of the difficulties it posed, was the OCLC sample file, and currently, the performance of sixteen forms of candidate title element for the USBC is being evaluated. Part of this work also involves using simpler keys in order to detect duplicates that were missed by the earlier versions of the USBC that were far more

discriminating, as they were composite keys. They were also less forgiving of data variability than current algorithms used in the JUMBO code. Since the code holds the results of different analyses of the same field, mutual exclusion and overlap between the batches of duplicates produced from different elements is being studied as a means to detect a higher proportion of true duplicates than might be uncovered by a single coding of the fields. Though originally conceived as a research tool for the design of the USBC, the JUMBO code is inherently capable of being a duplicate detection device. The effectiveness of this offshoot function is still under investigation.

From early on in the work, it was decided that each bibliographic record must be taken as it stands. The aim, therefore, has been to develop algorithms that can cater to a high extent with the vagaries of catalog input. This approach excludes any preliminary digestion stage that cleans or standardizes data. As work with the JUMBO code progresses, it should tell us much, not only about the performance of a given USBC, but also about the data itself.

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Use of Electronic Mail for ILL

William DeJohn: Pacific Northwest Bibliographic Center

The Pacific Northwest Bibliographic Center is a regional network through which libraries of all types share their resources. It serves as a bibliographic center, as a regional document delivery and interlibrary loan network for the states of Alaska, Oregon, Idaho, Montana, and Washington, and the Canadian provinces of Alberta, British Columbia, and Saskatchewan.

PNBC is a nonprofit corporation.

PNBC's mission is to facilitate sharing of resources and strengthening of library services among libraries in the Pacific Northwest. PNBC does not broker OCLC, WLN, or UTLAS Services. The University of Washington provides to PNBC, without cost, housing in its main library as well as access to the libraries' collections and bibliographic tools. PNBC uses the university libraries' collections for its document delivery program.

WHY ELECTRONIC MAIL

There are vast distances between libraries in the region, and some delivery times via the U.S. mails depend upon the location of the postal depots. There are three bibliographic utilities in the region with more than 150 participating libraries. None of the systems are able to electronically link up with the other. PNBC does not have an OCLC terminal because OCLC does not have a category for cooperative organizations that are not libraries. Therefore, PNBC cannot communicate electronically with the many libraries on OCLC nor can libraries communicate electronically with PNBC. The greater access to resources in libraries throughout the region requires improved methods to request and deliver those resources. PNBC has been working on the physical delivery of materials, most recently through Greyhound Bus and Federal Express.

A more efficient and effective way to transmit interlibrary loan requests to each other across the bibliographic utility lines and over great distances was needed to improve service.

CLASS OFFERS ELECTRONIC MAIL

In the fall of 1980, CLASS began offering a trial subscription to the OnTyme electronic mail system of Tymnet. PNBC arranged to provide several subscriptions to the service for libraries in the Northwest because it appeared that Electronic Mail Systems (EMS) offered some potential solutions to some of the problems outlined above. Specifically, here are the assumptions PNBC made about EMS:

1. It appeared to be a cost-effective way

to transmit interlibrary loan requests;

2. It appeared to be a method for libraries—no matter what utility they were members of—to electronically send requests to each other and to PNBC;

3. It appeared that electronically sending requests provided an opportunity to cut down on turnaround time and postage, and to reduce staff time;

4. It appeared less expensive than using TWX for the same purpose;

5. Special files could be set up and used for storing requests and special messages;

6. It had text editing capabilities.

FACTORS ENCOURAGING USE OF EMS IN PACIFIC NORTHWEST

1. Several academic, hospital, federal, and special libraries already had terminals being used for online database searching;

2. PNBC'S objectives were to provide services, assistance, and leadership to Pacific Northwest libraries;

3. Protocols for sending/receiving interlibrary requests were already established;

4. Access to resources was available through the online databases, through various microfiche catalogs of monographs and serials;

5. Start-up costs were inexpensive.

THE SURVEY

PNBC at first set up the five state library agencies in October 1980. Not only were all five members of the PNBC Board of Directors, but their staffs and PNBC staff were in constant communication and the system could be immediately put to use and experimented with. By May 1981 there were 65 libraries and branches using EMS through PNBC in the Northwest. By November there were 105 EMS users.

In June 1981, PNBC surveyed thirty-eight active Northwest library users of electronic mail that had been on the system several months. The libraries were asked how they were using EMS, what changes if any they were making internally, if there were any noticeable cost savings, benefits or problems, and for ways in which PNBC could assist. The survey and responses to it were sent via electronic mail. It should be noted that some respondents had been using

the system for six to nine months while others had been on less than six months. As with any new procedures, it was noted that some of the new users were more active than those that had been on the system since the beginning.

Use

All libraries were using EMS for sending and receiving interlibrary loan requests to and from other libraries and PNBC. Some were only using EMS for rush requests. One reported sending messages to a supplier of scientific equipment. A few were creating and storing files. Washington State University had begun storing interlibrary loan requests in special files that could be retrieved from branch libraries when patrons made inquiries as to the status of their requests. One library used EMS to respond to requests and to ask for renewals. Conference planning and sending messages to colleagues in other academic libraries in the same state were some other examples of uses. Several special librarians were using EMS to contact others for Special Libraries Association committee work.

Internal Changes

Many reported they could now transmit messages electronically to PNBC and other libraries, whereas previously several had had no special transmission methods such as TWX or TELEX, and had used only the U.S. mails and the phone. Most reported less typing of forms and fewer internal procedures. Several mentioned improved turn-around time since they could now place a request in some library's mailbox instantaneously. One library said the staff must remember to check the mailbox twice per day, whereas previously an unattended TWX would display all messages as they were sent. However, another noted that staff could now select the time of day to pull off or send messages. One librarian reported saving ILL transactions in files, while another spoke of preparing weekly reports online and storing them for transmission to his supervisor.

Cost Savings

Five libraries saved \$1,200 to \$2,500 per year by removing their TWX. They indi-

cated EMS was less expensive and more flexible. Less staff time was spent on EMS than on TWX for equivalent usage. Several libraries reported savings in postage, envelopes, time spent folding and stuffing forms into envelopes, addressing envelopes, and delivering and picking up from mailrooms. One library reported less opening of mail. (However, it should be noted that libraries have to cut apart their EMS requests so some work has been transferred from the mail-handling area to the interlibrary loan office.) Several libraries stated why they preferred EMS to the phone: They could send messages whether or not the recipient was available, saving the time taken in multiple attempts to reach the person by phone. Some indicated that it was less expensive than a phone call. One librarian reported that it used to cost from two to four dollars to call across the state for a rush request; now she uses EMS with a local phone call and achieves the same result. One library has decreased its use of ALA ILL forms. Preliminary studies have indicated costs per message ranging from 15¢ to 86¢ depending on a variety of factors.

Benefits

Libraries said they like EMS because it is not TWX, has no tapes, is faster to type on the terminal than TWX, allows spontaneous replies, offers easy address storage and retrieval, is easy for clerical- and student-level staff to use, opens communications with other libraries, improves turn-around time, relieves the backlog of requests waiting to be typed, sorted, proofread, and mailed, provides instant communication with major Northwest resource libraries, enables a user to ask a question when it arises, allows multiple use of the same terminal, and has many potential capabilities.

Problems

Most problems cited were related to telecommunications, not electronic mail per se, during the survey time in May and June 1981. Since that time, most of these problems have disappeared. One library has had problems with scheduling time on the terminal. Several reported that other libraries were failing to respond on EMS and instead

were using the U.S. mail for informational replies. This continues to be a major problem. Several users mentioned editing problems and the complexity and difficulty of using the OnTyme manual. Since the survey period, Tymnet has issued a revised and improved OnTyme Handbook and PNBC has begun a training program and issued a usage guide for EMS.

Needs

Asked what PNBC could do to assist them, libraries expressed the greatest need for training workshops on the most efficient and effective use of the system. Other needs mentioned were for information on how other libraries were using EMS, the lengthening to one month of the time a message could remain retrievable, a cost analysis of EMS versus traditional interlibrary loan procedures, a synopsis of interlibrary loan policies of each library in the region, and encouragement of other libraries to use the OnTyme system, including libraries elsewhere in the country such as the Library of Congress, the Linda Hall Library, and the Engineering Society Library. Most libraries were regularly transmitting messages within the region. Few seemed to be transmitting outside the Northwest. A few were communicating with special libraries in California where CLASS users are concentrated. Most libraries were not receiving requests from outside the region, although major libraries whose holdings are listed in various databases were receiving inquiries about EMS.

PNBC asked about the usefulness of its online directory with addresses, contact persons, and phone numbers of EMS users. Libraries' responses were split fairly evenly on its use online. Some printed it out and were interested only in updates; others felt it was important to be able to pull it off and replace the old copies once or twice per month. PNBC, finding it much easier to maintain online than offline, has since revised the complete list, rearranging it into full addresses by states, short names of libraries, and identification codes, updated regularly. Thus libraries can pull off the directories of specific states and also check updates without printing out huge files. In addition, PNBC has arranged special short

files by type of library.

The results of the survey overwhelmingly indicated that our assumptions were correct. Much will depend upon whether the costs for EMS continue to rise. When the survey was conducted, the cost of connect time was five dollars per hour. In August, the connect time charge was raised to six dollars per hour. The connect time is the greatest single cost for most libraries even though it is lower than other online services. For a few libraries, the storage costs are high because of major online files that are maintained as in the case of Washington State University and PNBC.

The use of an intelligent communications device, such as the CLASS MESSENGER, is one way to reduce connect time. As another example of cutting costs, regional federation headquarter libraries in Montana are entering messages on Apple II Plus microcomputers and then transmitting in the evening to each other when phone rates are lowest. (Because of limited Tymnet nodes in Montana, most Montana libraries using EMS have to make a long-distance call to enter the system. As one librarian plaintively indicated, EMS has added another element to interlibrary loan complexities: Libraries have now acquired another code, the code for OnTyme II, to be added to their NUC and OCLC symbols.)

One problem surfacing with greater use of EMS is that supplying libraries are incurring costs due to heavier use by requesting libraries. PNBC expects to look closely at this as well as conduct an evaluation of EMS as it is being used in the Northwest in early 1982, when most libraries will have been active users for six to twelve months.

SUMMARY

PNBC is using EMS for a specific application, transmitting and receiving interlibrary loan requests among libraries and PNBC in the Northwest. It was an ideal application given the Northwest's set of circumstances: distance, available terminals, a coordinating agency, established resource-sharing protocols, and multiple bibliographic utilities in the region. Cost is minimal considering benefits, which are faster turnaround time, savings in staff time, and improved communications. ■■

User Survey of a Microfiche Catalogue

**Peter Simmons: School of Librarianship, and
Jocelyn Foster: Main Library,
University of British
Columbia, Vancouver, Canada**

A recent survey carried out by a class of students at UBC's School of Librarianship attempted to assess users' attitudes to the UBC Library's microcatalogue, a microfiche catalogue containing records for all materials processed since the end of 1977—about 175,000 titles. In particular the survey was directed toward discovering users' attitudes to the format and information contained in the entries in the microcatalogue, the filing order, and whether the public saw any usefulness in having access to a sequence of the microcatalogue in call-number order. At the time, only authors/titles and subjects lists were produced.

The background to these specific aims was that as the catalogue had rapidly grown, the full format of microcatalogue entries had become expensive to produce. It had been suggested that a reduction in the amount of information contained there could produce cost savings. The survey also aimed to test users' reactions to the fact that the filing order of the microcatalogue differs in significant ways from the card catalogue, and that the original plans for the microcatalogue had specified a call-number sequence that had not yet been implemented.

A questionnaire containing eleven questions was formulated by the students in the class with library-staff input, and administered by the students in the two largest libraries on campus over a period of nine weeks. The questionnaire was given only to people already using the microcatalogue, since its purpose was to sample microcatalogue users. Two hundred surveys were completed. Sixty-five percent ($N = 130$) of the respondents used the microcatalogue at least once a week during term. Twenty-one percent ($N = 43$) had not used the authors/titles subset at all; 17 percent ($N = 34$) had not used the subjects subset. Forty-four per-

cent ($N = 89$) indicated that they would find a call-number list useful as an alternative subject approach and for bibliographic purposes.

The respondents were given two sample entries: one from the author/title and one from the subject sequences of the microcatalogue, and asked to cross off the elements they did not use, as shown in figure 1. Very few discriminated between authors/titles and subjects sections, with good reason, as the entries in the subjects differ only from the authors/titles in lacking the subject tracings. The majority who did discriminate wanted less information in the subjects than in the authors/titles.

Forty-nine percent ($N = 98$) of the respondents wanted changes. The least useful information was seen to be the ISBN (31 percent; $N = 62$) and the physical description (30 percent; $N = 60$). Between 20 and 25 percent of the respondents saw no use for one of the following: author of the introduction; series note; place; publisher. Fourteen percent ($N = 28$) felt that subject tracings were unnecessary. Fewer than five respondents crossed out any other information given in the entry.

Respondents were asked if they wanted more information; 41 percent ($N = 83$) did so, nearly all requesting more subject or content information.

The third section of the questionnaire presented two filing sequences, one of which is shown in figure 2. The first sequence imitated the microcatalogue, the second the card catalogue. Thus for authors and titles, the first sequence showed authors and titles interfiled word by word while the second showed two sequences under each word, with authors first and titles second. For subjects, the first sequence was also word by word, while the second showed subdivisions after the subject, followed by multiple-word subject headings.

The questionnaire revealed the users' lack of knowledge about filing. Seventy-two percent of the respondents admitted they didn't know how author/title entries are currently filed in the microcatalogue; 69 percent said the same for subjects. A further 12 percent for authors/titles and 15 percent for subjects were unable to correctly identify the correct order, leaving

Have you used the AUTHOR/TITLE microcatalogue? YES NO
 If not, please go on to the next question.

When you look up a book in the author/title microcatalogue you see an entry such as the one below. On the entry below, please cross out those items you do not use.

Fitzpatrick, Sheila Louise, 1918-
 Cultural life in Russia : a study of Russian art/
 [by] Sheila Fitzpatrick.; ~~with an introduction by
 James Wymore. New York: Jamieson and Co.,
 1972.-xii, 265 p.; [19] leaves of plates; 7 maps.~~
 (Russian art historical series, no. 7). - Includes
 descriptions written by the original artists. -

ISBN 0721856301

1. Russia - Art - 1917- 2. Russia - Intellectual Life - 1917-
 NL 3802.5 F51 1972 Fine Arts Library.
 NL 3802.5 F51 1972 Sedgewick Library.

If this entry seems satisfactory in all respects, please indicate here

Fig. 1. The Survey Question Relating to the Content of Entries in the Author/Title File. A Similar Question on the Same Page of the Survey Asked about the Content of Subject Entries.

The AUTHOR AND TITLE entries below are shown in two orders.
 Do you know which way they are filed in the microcatalogue now?

- a. Don't know. b. Order A. c. Order B.

How would you prefer to see them organized in the microcatalogue?

- a. Don't care. b. Order A. c. Order B.

ORDER A. The following items are in strict alphabetical order.

- London Art Gallery.
- London in the age of reform.
- London. Institute of Contemporary Arts.
- London, Keith R.
- London Symphony Orchestra.
- London. University. School of Medicine.
- London, Walter James, 1927-

ORDER B. The following items are grouped. First come people's names, then London as a place, then London used as part of a title or organization.

- London, Keith R.
- London, Walter James, 1927-
- London. Institute of Contemporary Arts.
- London. University. School of Medicine.
- London Art Gallery.
- London in the age of reform.
- London Symphony Orchestra.

Fig. 2. The Survey Question about Filing Order of Entries in the Author/Title File. A Similar Question on the Same Page of the Survey Asked about the Filing Order of Subject Entries.

only 17 percent (for both authors/titles and subjects) who knew how items were filed. When asked for their preferences, 22 percent did not care how they were filed. Fifty-five percent said that filing should continue unchanged, even though most of these respondents had been unable to identify how items are currently filed.

A final question asking for comments about the microcatalogue had the most positive response. Of the 105 comments, nearly

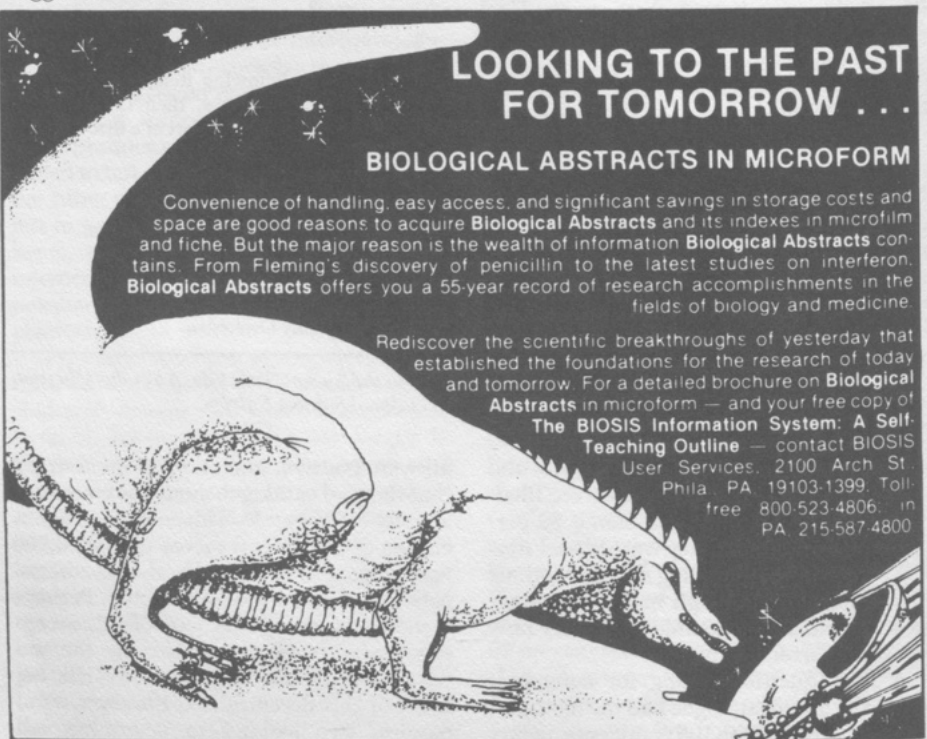
all were positive, and many of them urged that the card catalogue should be converted as quickly as possible. This confirmed a conclusion of the general survey of some 6,000 users done six months earlier that the microcatalogue had been well accepted. Perhaps it should be noted that part of this acceptance may be accounted for by the unwieldy central card catalogue, which, because of this decentralized library system, requires two lookups to determine call

number and location of any item, while the microcatalogue, widely distributed, requires only one lookup. This is because branch library locations are only shown in the card catalogue in call-number sequence, so that a user must first find the call number of the desired item, then use the call-number sequence to determine the locations in the system holding the item. In the microcatalogue, locations are shown as part of all entries. It is clear that the unease felt by library staff confronted with two catalogues and microfiche format was not shared by the general users.

The survey was in many ways an attempt to mediate between two positions in the library: one that the microcatalogue should exist as a basic finding tool designed with brief entries for economy and ease of processing, and the other that the microcatalogue is a continuation of the existing card catalogue that should follow the standards set there. The survey does not seem to have supported or refuted either of these views in any significant way. Rather it appears to suggest that the users believe themselves to

be well served by the information that is offered, and that users do not have strong feelings about how many or which descriptive elements they are shown. Since the library is not in a position to offer the greater degree of subject analysis that users do appear to want, it seems likely that the microcatalogue will continue to consist of the relatively full bibliographic records that the staff demand for their own uses.

In fact, since the survey the staff have decided that the author/title and subject entries should be left as is, in their full format; that the list in call-number order should be produced but need not give full data and could serve merely as a finding tool; and that subject tracings should appear on the author/title file. The strict word-by-word filing order has been maintained since the users show no preference for any order, prompting sighs of relief from the library's programming staff. Many of the library's filing decisions for the microcatalogue have recently been confirmed by the 1980 ALA filing rules. ■■



**LOOKING TO THE PAST
FOR TOMORROW . . .**

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Reports and Working Papers

Correspondence on Telecommunications Act Revision

Hon. Timothy E. Wirth: U.S.
House of Representatives; and
Eileen D. Cooke: ALA

For several years, the Congress has been engaged in the revision of the 1934 Communications Act. Most of the action has occurred in the House where the Commerce Committee's Subcommittee on Telecommunications (Lionel Van Deerlin, chairman) submitted several bills that were hotly contested by various conflicting telecommunications interests. The bills were never passed. The House subcommittee's new chair, Representative Timothy E. Wirth (D-Colo.) has just introduced H.R. 5158, a new bill that attempts to deal with the many conflicting issues in telecommunications and to formulate a national telecommunications policy. The bill is proderegulation and favors competition; it is also more user oriented than previous legislation.

Wirth invited ALA and other organizations to comment especially on issues dealing with diversity of information sources. Because of the extraordinary importance of telecommunications issues for librarians, and especially its inherent information-related issues, both Wirth's paper and ALA's response are reprinted below. LITA provided substantial input to ALA's paper.

August 11, 1981

Ms. Eileen D. Cooke
American Library Association
110 Maryland Avenue, N.E.
Box 54
Washington, D.C. 20002

Dear Ms. Cooke:

I am writing to invite you to submit a

written statement to the Subcommittee on Telecommunications, Consumer Protection, and Finance in connection with the Subcommittee's examination of the issue of diversity of information. A memorandum describing the various components of this issue and theories under which these issues might be analyzed is enclosed. The memo is marked to indicate the issues we would particularly like you to address.

A great deal of the focus with respect to current efforts to reform the nation's telecommunications laws has been centered on the economic aspects of competition and regulation. Often ignored are the critical questions with respect to information policy, and more specifically how we can insure enhanced diversity of information sources as technological diversity is increased. I firmly believe that new telecommunications legislation must embrace the diversity of information principle.

I am hoping you will be able to provide an assessment as to what is the proper theoretical framework through which information diversity principles can be applied and developed, and, in addition, provide specific proposals to be considered in order that existing information diversity might be maintained and further diversity might be created. Any legal analyses of the issues raised, particularly with respect to the First Amendment questions, would be especially helpful.

The submission you provide will form an essential part of the Subcommittee's record that will be used for the purpose of developing a report on the issue of information diversity. In September the Subcommittee will also be holding hearings on this matter. This report, together with information to be gathered at these hearings, will serve as the foundation for addressing diversity issues in all the Subcommittee's legislative efforts.

Please submit three copies of your statement by *September 18, 1981*. Should you

have any questions, please feel free to contact Tom Rogers of the Subcommittee staff at (202) 225-9304.

On behalf of the Subcommittee, I thank you for your participation and look forward to hearing from you.

With best wishes,

Sincerely yours,

Timothy E. Wirth, Chairman

Subcommittee on Telecommunications,
Consumer Protection and Finance

DIVERSITY OF INFORMATION SOURCES

The Subcommittee on Telecommunications, Consumer Protection and Finance is conducting a thorough examination of the issue of diversity of information sources which will culminate in a report intended to serve as a blueprint for national policy in the area, and specifically to assist the Members of the Subcommittee in their efforts to reform the Communications Act of 1934 in this Congress.

As part of these efforts the Subcommittee is also conducting an examination of the status of competition and regulation in various telecommunications markets. That inquiry will, in part, attempt to assess the economic ramifications caused by the vast array of engineering and technological developments that have occurred in the telecommunications field. Thus, by conducting an examination of diversity of information policy, the Subcommittee is seeking to insure that information diversity keeps pace with this technological diversity.

The following statement provides an outline of the major areas relating to the issue of information diversity—including both the theoretical framework and the areas of possible policy implementation—that the Subcommittee plans to explore. The discussion below raises several aspects of the diversity of information inquiry including many which go beyond the diversity issues which arise in the area of common carrier telecommunications policy.

I. Theory

A. *First Amendment Theory*

A democratic society depends on the free flow of information. Throughout the nation's history, the First Amendment has

provided the freedom essential to the formation of diverse information sources. The First Amendment has given the providers of information the right to deliver whatever messages they choose free from government interference. At the same time, it also has provided the public with access to an extremely broad marketplace of ideas.

As the U.S. Supreme Court has stated, the intent of the First Amendment is not only to protect the rights of the press from government, but also to protect the rights of the public to a robust marketplace of ideas. The challenge in reforming the nation's telecommunications laws is, therefore, to insure the presence of these two First Amendment values—and to protect and promote them—in a new technological era which will radically alter the means by which information providers transmit information and the public receives it.

An equal challenge is presented with respect to contrasting First Amendment doctrine applicable to different media forms as developed by the Supreme Court. For instance, First Amendment principles are applied to the print press quite differently than they are to broadcasters, and both approaches differ from the application of First Amendment principles in the common carrier area. The major question which arises then is what First Amendment theory should be applied to the newly developing technologies, when the lines now separating the various media forms begin to disappear, and presently distinct mediums converge.

B. *Content vs. Structural Regulation*

In order to encourage greater diversity in the communication of ideas or messages over electronic media, the government has historically imposed some form of regulation. The Subcommittee intends to closely examine the possible continuing value of applying government regulation as a means of encouraging diversity of information sources as well as to explore the relative merits of content and structural regulation, with particular regard to the impact on First Amendment interests where these differing forms of regulation are imposed.

For example, in the case of radio and television broadcasting, the government has

imposed Fairness Doctrine obligations upon licensees. This would clearly fall into the category of a content regulation as it provides guidelines to the broadcaster as to how he must deal with the communication of certain ideas and issues. Over the years many have argued such content regulation runs counter to the First Amendment protection of a free press. Others claim it is a necessary tool to insure that the First Amendment rights of the viewers and listeners to a diverse marketplace of ideas are preserved. The Subcommittee intends to assess the relative value of content regulation as a means of assuring diversity, particularly given the impact of new technologies.

Structural regulation is another tool that can be used to encourage and insure diversity. Aside from totally prohibiting participation in certain markets, the imposition of common carrier status might be thought of as the ultimate structural regulation whereby the party who controls the means by which messages are transmitted must make his facilities available to all who wish to transmit such messages. This regulatory approach is the model historically applied to telephone companies. Of course, structural regulation can take many forms far short of imposing common carrier obligations. Along these lines, the promotion of information diversity through the imposition of "access" requirements is one means of limited structural regulation which has been suggested. Local cross-ownership and national concentration rules are other forms of structural regulation.

As the emerging technologies develop, and services such as videotext begin to blur the traditional lines which have distinguished various forms of information delivery, the impact of applying content or structural regulation to these new technologies has far reaching implications with respect to diversity of information policy. When one considers that the daily *newspaper* one receives today in printed form may soon be delivered electronically over the *telephone* wire and read off of the *television* screen, the convergence of traditionally distinct forms of communication becomes clear. The Subcommittee, thus, intends to explore such questions as whether cable TV systems, newspapers, radio and television

stations, and traditional common carriers, should be treated similarly or differently than one another within the framework of a consistent policy toward electronic media, aimed at assuring a diversity of information sources (i.e., is or is not a cable system to be treated as if it is an electronic newspaper or publisher?).

In sum, in an environment of rapidly expanding technological diversity, the Subcommittee's inquiry will address the questions of whether marketplace forces are sufficient to insure the widest diversity of information sources, or if not, the relative value of imposing content or structural regulation to achieve this goal.

II. Policy Implementation

A. *Private Bottlenecks*

Customarily, when the preservation of First Amendment values has been examined, attention has been focused on how to prevent government infringement of freedom of speech and of the press. However, as we approach an era in which the vast majority of information is transmitted and received electronically into the home or office, there becomes a need to closely examine the role played, in the provision of information to the public, by the entities which will own and control the facilities used for purposes of electronic communication. To insure that "private bottlenecks" do not develop in such a way that First Amendment values are threatened will be a central focus of the Subcommittee's deliberations.

This issue has already been addressed in part by Congress last year in H.R. 6121, and this year is S. 898—bills which substantially rewrite the Communications Act of 1934 with respect to common carrier telecommunications regulation. These bills, while differing in many respects, both contain provisions which (with some limited exceptions) would prohibit AT&T from having any editorial control over, or proprietary interest in, information distributed over its own transmission facilities. Thus, a clear consensus is developing that, in the case of a nationwide dominant carrier, where that carrier has an effective monopoly over the local transmission facilities, control of content should be separated from

control of the conduit through which that content flows.

There are other conceivable existing and potential private bottlenecks where a wire, or other transmission means over which information flows is so unique or dominant that its owner (if it also had proprietary interests in information content) could have incentives to inhibit the delivery of diverse sources of information into the home or office. Some of the issues which arise in this context are the following:

1. Should independent local telephone companies also be subject to restrictions relating to the control of content delivered over the local conduit they control?

2. Should cable systems be limited in some way as to their control of content over their own transmission facilities, either entirely or partially?

3. Does a lack of nationwide or regional dominance by independent phone companies or cable systems weigh against imposing restrictions on their control of information content distributed over their local facilities?

4. Is a satellite or satellite transponder an actual or a potential bottleneck, the unrestricted control of which might inhibit the distribution of information other than that information controlled by the satellite or satellite transponder owner? Should the dissemination of information by satellite be addressed in the context of encouraging diversity of information sources?

B. Media Ownership

The regulation of the telecommunications industry has historically involved questions of media ownership under the theory that as ownership of the media is increasingly diversified, the number of voices the public can receive is increased, with a resulting increase in the overall diversity of information available. Ownership questions break down into two basic categories: (1) local cross-ownership of media outlets, and (2) national media concentration and multiple ownership of media outlets.

1) Local Cross-Ownership.

There are several different means by which information is delivered to the public in any locale, such as by newspaper, radio,

television, or cable. There are several other emerging means of information delivery to the public, such as low power television and direct broadcast satellites. The issue of cross-ownership restrictions focuses on diversifying the ownership of these different media outlets on the local level so as to increase the diversity of voices speaking to the citizens of that local community. Present FCC rules prohibit the cross-ownership of certain broadcast and newspaper combinations. For the most part, however, cross-ownership questions relating to the new technologies have not been addressed. The Subcommittee intends to explore what cross-ownership rules, if any, are necessary to enhance the diversity of information sources on the local level and what restrictions, if any, are necessary to insure that as new means of delivering information emerge, that engineering diversity is paralleled by diversity of information sources.

The Subcommittee will also examine the possible desirability of codifying cross-ownership rules, along the lines suggested by last year's H.R. 6228, the "Communications Cross-Ownership Act of 1980," as opposed to the present situation whereby such policy is left to administrative regulation either in rules or in individual licensing proceedings. In addition, the question of how to deal with cross-ownership related issues as the lines which now distinguish different media forms begin to blur, as discussed above, will also be a subject of the Subcommittee's deliberations.

2) Media Concentration and Multiple Ownership.

The relationship between national media concentration, media conglomerates, and the diversity of information sources available to the public will also receive the Subcommittee's close attention. Questions to be examined include whether the existence of diverse information delivery systems at the local level is alone sufficient to adequately protect this interest; what is the impact of national concentration of the media on the nature of information available in any given local market; and whether policy in this area is best handled in the context of traditional antitrust enforcement, as *hoc* decisions by the FCC in individual proceed-

ings, or some other manner. The issue of ownership by a broadcast or cable entity of multiple broadcast or cable outlets in different markets will also be examined. In addition, the Subcommittee will review how ownership of the media by minorities, women, and other groups which are significantly underrepresented in such ownership might be increased.

September 28, 1981

The Honorable Timothy E. Wirth,
Chairman
Subcommittee on Telecommunications,
Consumer Protection and Finance
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Wirth:

This statement is submitted in response to your letter of August 11, 1981, inviting the American Library Association to submit a written statement in connection with the Subcommittee's examination of the issues of diversity of information. The American Library Association is a nonprofit educational association of over 38,000 libraries, librarians and information specialists, library trustees, educators and communicators, and is the only nongovernmental organization at the national level representing all types of library and information services.

INTRODUCTION

We salute your approach to the complex issues of telecommunications and information policy. At this point in the lengthy congressional effort to revise the Communications Act of 1934, it is important and useful to examine the principles which should underlie any revision. We have been following the revision effort with a great deal of interest and concern since at least 1977 when we first submitted a written statement to the Subcommittee. We certainly agree that the focus has been on the economic aspects of competition and regulation. We very much appreciate the Subcommittee's current focus on how to ensure enhanced diversity of information sources as technological diversity is increased. We also appreciate your exploration of the information diver-

sity issue by soliciting statements and holding hearings before legislation is introduced. We are pleased to be able to participate in this effort.

The great interest by librarians and information specialists in federal telecommunications and information policy is due first to the changing role of libraries. Early libraries provided the important function of collecting scarce written records. The exponential increase in the number of documents and other sources of information, however, made mere possession of information inadequate. Libraries today are no longer solely repositories, but sources of information with emphasis on access and communication. The second reason for our interest stems from the rapid advances in technology. The means to library access and information dissemination is increasingly through computers and telecommunications. To which of the emerging technologies nonprofit institutions like libraries have reasonable access depends partly on the outcome of Communications Act revision.

A third reason for interest in this subject is the evolving services and products libraries offer today or may offer in the future. Well over 2,000 libraries make use of automated library networks that supply a variety of information via on-line computer facilities. Some of this on-line information is used for ordering and cataloging library materials; some for locating items in other collections so that libraries may borrow from one another efficiently for their users; some for on-line access to the literature of specialized fields which may substitute for use of printed indexes and abstracts. In the future these services may include access to full text, and will increasingly be delivered to homes and offices as well.

Some libraries have computerized files of local community life-support information, provide access to small personal computers, originate local cable television programming, and provide health care information on tape over the phone. In an interactive cable TV experiment involving the public library in Columbus, Ohio, viewers could influence the discussion on a book review program, choose the next book to be reviewed, and order the book to be mailed

from the library to the home. A new public library under construction in Farmington, Connecticut, will include a satellite communications system as part of its audiovisual department.

All of these services would be impacted by federal legislative and regulatory developments. The various emerging technologies would seem to promise considerable diversity. If so, we see major roles for libraries, perhaps combining with public broadcast stations to become community telecommunications centers, providing access to the new technologies for the "information poor" who may not otherwise have access for many years if at all, and providing guidance, especially for the unsophisticated user, through the bewildering multiplicity of sources to that particular technology and that specific piece of information which is relevant and appropriate to meet a particular need.

With this as background we turn now to the specific points in the memo attached to your letter.

THE FIRST AMENDMENT AND DIVERSITY OF INFORMATION

... the White House Conference on Library and Information Services affirms its support for the first amendment to the Constitution of the United States of America which guarantees freedom of inquiry, freedom to read, freedom to publish, and free and full access to information, especially information about public processes, and that these freedoms are essential to the maintenance of free libraries and informational services. . . .¹

This strong reaffirmation of First Amendment principles by the delegates to the 1979 White House Conference on Library and Information Services was the first and most important of their recommendations. It begins with the declaration that "a free, democratic society depends on a fully informed citizenry." The American Library Association also strongly supports the fundamental First Amendment principle of the unrestricted flow of information and ideas.

The "robust marketplace of ideas" to which the public is entitled depends partly for its protection on antitrust laws to avoid

monopoly in economic markets, but primarily on the First Amendment, from which it follows that information is not only an economic good but a part of the infrastructure necessary for a democratic society. Information is therefore a public good which must be available to all.

We agree that the First Amendment protects the rights of information providers to deliver whatever messages they choose free from government interference, and the rights of the public to a robust marketplace of ideas. With these rights as the guiding principles, it is clear that carriers of any kind must be prevented from exercising control over the content of what is transmitted.

Along with separation of the delivery of information from the content of the message must come reasonable access for the public at large to the means of delivery. Since the means of information delivery will become increasingly electronic, the soapbox and the handbill no longer constitute "access." In an ideal world, however, if access to the various technologies of information delivery were guaranteed, there would be no need for content regulation, and questions of multiple ownership could be handled by antitrust policies. However, it is obvious that the Subcommittee will not be developing legislation in a vacuum; the real world situation from which you must begin is not ideal but incredibly complex and shifting constantly.

CONTENT VS. STRUCTURAL REGULATION

... responsibility for the medium must be separated from responsibility for the message. This separation becomes essential under the First Amendment, which guarantees, for example, that one has the right not only to purchase any newspaper but also to purchase space for printing a text in that paper. There is a great danger that this tenet will crumble before the advance of new information technologies.²

In June of 1980, the American Library Association convened a colloquium to examine the policy implications of information. Leaders from government, industry, communications, publishing, education, librarianship and allied fields grappled with many of the issues your Subcommittee is ad-

dressing. In "An Essay Based on the Discussions," quoted above, editor Carlton Rochell goes on to make a couple of points very relevant to the "content vs. structural regulation" issue:

One way to avoid this fusion of creator and distributor is to develop a broadband type of facility, where the distributor of information is basically a common carrier. By so doing, said [Henry] Geller, information could flow in much the same way as printed data and could be subject to the same degree of regulation. "The government role here," he insisted, "is to let technology have its day and to set up a structure that minimizes government interference and allows everybody to have a fair crack at the marketplace."

Problems arise, though, because in reality not everyone *has* a fair crack—and not all segments of the public are equally served by it. In the future, for example, a larger percentage of the population will come from minority families. "We are talking about a growing number of have-nots, who need access to information resources," Anne Branscomb said, "and I think we have to be really concerned about how they get those resources."³

Content regulation would not be needed if another principle, that of public access, were to be all pervasive throughout the telecommunications industry. It has already been established that regulation of telecommunications is not solely economic. Increasing access routes for the general public and nonprofit institutions would increase the diversity of information sources while avoiding the necessity of regulating content. Mechanisms which could be used include setting aside access time on broadcast stations, providing public access channels on cable and satellite systems, and subsidized rates for interactive videotext systems and telephone lines or at least considering criteria other than size for discounts on telecommunications rates.

To give just one example, if time for public access were set aside on broadcast stations, those who opposed the points made in a political broadcast could avail themselves of this time to "answer back" and the fairness doctrine need not be invoked. First Amendment rights would be preserved without making those who own the transmission media a party to the proceedings. As a matter of fact, First Amendment rights would be enhanced because access would

not be contingent on a prior broadcast.

Since access to the broadcast portion of the spectrum is limited, and since at the present time the broadcast medium is still dominant, certainly so in "prime time," the fairness doctrine and related protections should not be eliminated without other guarantees of access to that medium. The fairness doctrine is an imperfect mechanism; its effects in practice have not always lived up to its theory, but until improved forms of access are provided it helps to insure diversity of viewpoints.

There are a variety of health, education, and welfare applications of the newer technologies which would be in the public interest, even though some of them would not result in a profit for the information provider. It may be cheaper to provide preventive health care information and certain kinds of education via direct broadcast satellite or interactive videotext systems than for society to subsidize the societal costs of the lack of this information. Yet such applications are not likely to develop in the market place. The access mechanisms mentioned earlier—public access channels and nonprofit rates—would facilitate such developments.

PRIVATE BOTTLENECKS

Information resources, products, and services are vital components of our society, of our economic productivity, of our governmental operation, of our individual growth and well being. They are increasing in their value and importance, however their role may be measured. Government policy should be designed to foster the development and use of information resources and to eliminate impediments to such development and use.⁴

Under this heading, your memo indicates that "a clear consensus is developing that, in the case of a nationwide dominant carrier, where that carrier has an effective monopoly over the local transmission facilities, control of content should be separated from control of the conduit through which that content flows." We agree; the first principle must be separation of content from conduit.

The recent announcement that AT&T and CBS are forming a partnership to provide CBS-controlled information packages in a two-way home information system us-

ing Bell System facilities indicates a pairing of two giants which causes us some concern. Will AT&T have any control over the information content? Will other information providers also have access to AT&T lines? Application of the common carrier principle would avoid direct control of content by owners of distribution media, but it is also necessary to guard against indirect control by a combination of conduit ownership and great marketing power.

This leads us to some comments on the specific questions raised in your memo.

1. Should independent local telephone companies also be subject to restrictions relating to the control of content delivered over the local conduit they control?

Yes, local independents must be prevented from exercising content control. For instance, if a local phone company wanted to get into the videotext business, it could provide the distribution mechanism, but should not be able to insert information into the system, or censor the material offered, or exclude certain providers, just as AT&T should be prevented from controlling content at the national level.

2. Should cable systems be limited in some way as to their control of content over their own transmission facilities, either entirely or partially?

Cable systems should also be treated as common carriers, with no control over the content transmitted. In practice it may be possible to treat new cable franchises in this manner, but much more difficult to separate content and access from many cable operators who are currently controlling both. If no solution to this problem can be found, existing systems should at least be required to provide public access channels.

3. Does a lack of nationwide or regional dominance by independent phone companies or cable systems weigh against imposing restrictions on their control of information content distributed over their local facilities?

No, the principle of separation of content from conduit remains the same. The present lack of dominance should not weigh in a decision that will be just as pertinent for the future.

4. Is a satellite or satellite transponder an ac-

tual or a potential bottleneck, the unrestricted control of which might inhibit the distribution of information other than that information controlled by the satellite or satellite transponder owner? Should the dissemination of information by satellite be addressed in the context of encouraging diversity of information sources?

Satellite transmission should not constitute a bottleneck as long as there continues to be wide availability of transponder time to all who need it. If operated as common carriers, direct broadcast satellites could increase the diversity of information sources, especially if public groups have access to them.

CONCLUSIONS

Encouraging diversity is thought to further the goals of creating a vigorous and heterogeneous political, social, and cultural environment, as well as enhancing personal liberty by expanding choices and opportunities.

The Federal Government uses several ways to achieve greater diversity, through regulation of the content of information disseminated, regulation of the structure of industries that produce and transmit information, and provision of public access to communication and dissemination channels. In addition, there are policies which encourage the marketplace to provide more diversity.⁵

Protecting diversity of information sources is essential under the First Amendment. Diversity cannot be guaranteed, we feel, if all decisions are left to marketplace forces. Government should avoid regulating the content of information dissemination. Government can most effectively prevent control of content by a certain amount of structural regulation, that is, by applying the common carrier principle to all forms of electronically transmitted information. Government should also use appropriate mechanisms to insure that public access to the various forms of telecommunications is available to all. In addition, cross-ownership of the sources of information should be monitored closely as a matter of the public interest.

There has been a quantum leap in the amount of information needed by contemporary citizens to participate fully in a democratic society. As a major disseminator of occupational, educational, and recreational information to the American people,

libraries are affected by the outcome of your deliberations. The American Library Association believes that if the principles enunciated above are applied consistently throughout the telecommunications industry, the American people will be assured access to information on as broad a basis as possible.

We also want to reiterate our support of congressional exploration of policy initiatives that will promise to stimulate expansion and diversity among information sources, and urge periodic congressional review to assure that divergent views are being afforded equitable access to the newer channels of information dissemination.

We wish to acknowledge the contributions of the following members of the American Library Association in the preparation of this statement: Thomas J. Galvin, Dean, School of Library and Information Science, University of Pittsburgh, and ALA President in 1979-80; Donald P. Hammer, Program Director, Library and Information Technology Association, ALA, Chicago; Carol C. Henderson, Deputy Director, ALA Washington Office; Brigitte L. Kenney, Infocon, Inc., Golden, Colorado, and President, Library and Information Technology Association, ALA.

We appreciate this opportunity to present to the Subcommittee the views of the American Library Association on diversity of information sources.

Sincerely,
Eileen D. Cooke
Director
ALA Washington Office

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The CLASS Data Base Network

CLASS Data Base Task Group

The following concept paper was prepared for discussion by the CLASS membership, and is reprinted here to bring it to the attention of a wider audience.

PN-82

9 September 1981

TO: CLASS Authority Advisory
Council (AAC)

FROM: CLASS Data Base Task Group

SUBJECT: The CLASS Data Base Network: A Vision for the Future

1. INTRODUCTION

At their meeting on 5 June 1981, the Authority Advisory Council (AAC) took note of the continuing lack of a unifying concept, or "vision," to guide data base development. Various individual libraries and library groups within and without CLASS are pursuing separate, unintegrated paths toward building and using data bases. Such parochial and fragmented development hinders efforts to foster area-wide access to bibliographic and holdings information needed to support interlibrary resource sharing. Unless the current direction is modified, effective intertype library cooperation, for which CLASS is committed, will be rendered difficult, if not impossible, to achieve.

The AAC requested that its CLASS Data Base Task Group consider the issues affecting data base development and attempt to conceptualize a unifying "vision" for the future. In accordance with that request, the Task Group hereby submits its report for consideration by the AAC. In doing so, we wish to state that the Task Group is aware

that the vision presented herein is but one conceptual model, but it is one, in our view, which is most hospitable to the environment in which CLASS must serve. Whatever the model that the AAC finally selects for CLASS, the members of the Task Group are convinced that a firm commitment and active participation on the part of all CLASS segments and members are absolutely necessary for successful implementation.

2. DEFINITION OF THE ASSIGNMENT TO THE TASK GROUP

2.1 Background

The Task Group has struggled over the past two or three years to ascertain how data base development should be handled by CLASS. It appears that the founders of CLASS worked under the assumption that CLASS would provide a centralized, monolithic, computer-based system to handle virtually all data base needs within the state of California. That assumption has proven to be invalid. California libraries use more than one bibliographic utility, groups of libraries within the CLASS membership segments pursue differing strategies for providing access to library resources, and the CLASS membership has expanded to include a large number of libraries beyond the borders of California.

The Task Group has made several attempts over the past year to point out to the AAC, and to other groups, that uncoordinated development of data bases and data base systems is a serious problem for CLASS members and other libraries. We have suggested that those agencies with the responsibility and funding for data base development should explore how their plans fit together.

In response, the AAC has suggested that CLASS might best exert leadership in this area by proposing a concept, or "vision," to illustrate to what ends current and future data base developments might be bent. Assigning the task, the AAC cautioned that in devising such a vision the Task Group not be constrained by current funding limitations or jurisdictional strictures.

In essence, then, the members of the Task Group understand their assignment to be the formulation of a guiding concept, on

which the future development of the CDB is to be based, and the delineation of a role for CLASS in translating that concept into reality.

2.2 The Objectives to be Accomplished

During the early deliberation of the Task Group, an effort was made to define the assignment so as to focus the Group's discussion sharply on the objectives to be accomplished. The objectives which emerged from the Task Group review of the assignment are:

- a) To devise a conceptual structure of the CDB Network, and
- b) To define the concomitant role for CLASS in that structure.

At the same time, our examination made evident that, important as they are, such questions as determining the most appropriate means of data base building, selecting the most effective method of document delivery, and other questions which deal with "how to" achieve the desired end, were considered to be outside the scope of the assignment.

2.3 Definition of Terms

Several terms must be defined at the outset:

a) CLASS

For the purpose of this paper, CLASS refers to the total CLASS organization: the segments, the membership, the governing bodies and their constituent groups, as well as the CLASS staff.

b) Data Base

A data base is a file of machine-readable bibliographic citations.

c) CLASS Data Base (CDB)

The CLASS Data Base is a collective term which embraces all machine-readable bibliographic files whose owners agree to make them accessible to all libraries which participate in CLASS Data Base activities. Because the existing data bases already include records from members and non-members, and because that pattern is likely to persist into the future, all libraries within California, as well as in other geo-

graphic areas served by CLASS, should be eligible to participate in the planning for the CLASS Data Base.

d) CLASS Data Base Network

The CLASS Data Base Network is defined as the technical and organizational structure by which users of libraries in the CLASS service area can locate and gain access to library materials.

e) Access

Access is defined as the patron's ability to view the holdings of all libraries which participate in the CLASS Data Base Network. Access is one of the two basic functions provided by the network. The second is resource sharing.

f) Resource Sharing

Resource sharing means that the collective set of material and human resources available among the members of the CDB Network can be drawn upon to support service needs of any member, within reason.

g) Segment

As recognized in the CLASS Joint Powers Agreement, one of the seven categories by which CLASS member libraries are grouped. Each segment represents a type of library.

h) Node

A group or association of libraries organized to perform a mutually cooperative set of functions and using the same computer support facility.

3. ASSUMPTIONS

In order to formulate a conceptualized model of the CDB Network, it was necessary to make a number of assumptions. The first assumption was that the structure thus formulated would form the core and would facilitate the goal of "a viable comprehensive integrated cooperative system of library and information services throughout the state," as set forth in "Library Directions for the 80's," the master plan for California libraries now being drafted.

Furthermore, if that broad goal statement is to be put into practice in real library service, it seemed essential to us that the

CDB Network provide two basic functions: access and resource sharing. In its simplest term, by access is meant the patron's ability to view the holdings of libraries which participate in the CDB Network. By resource sharing is meant the Network's ability to facilitate borrowing and lending transactions among libraries of a group or among libraries in different groups within the Network.

There were also other assumptions which need to be stated for clear understanding of this document, though some may be a truism requiring no mention:

a) The CDB Network will make use of electronic technology as an essential ingredient, and the CDB will be, therefore, available online, in an interactive mode. It was further assumed that, within reason, the technology currently exists to accomplish the purposes of the Network.

b) As conceptualizers, the Task Group acknowledges certain realities: that because of the nature of many of the institutions involved, they will continue to pursue their own course of development (UC and CSUC are examples); that various groups of libraries are in various stages of development and some of their work has sufficiently advanced that they are already committed to certain lines of development; and that different library groups have varying requirements such that an imposed uniformity would be neither practical nor beneficial.

c) The contents of the data bases in the CDB Network will ultimately include records for materials in all formats (monographs, serials, AV, referral information, etc.)

d) The CDB Network must be based on systems that perform basic essential services for each participating library or the outlook for its ultimate success will not be bright.

e) That the magnitude of the creation and operation of the CDB Network will require that some agency assume the functions of network coordination.

As may be imagined, the effort to enumerate assumptions, which are largely based on several levels of realities, clarified the issues for the Task Group and established the parameters around what appeared to us within the realm of possibility. Thus, the Task Group agreed that a decen-

tralized system, rather than a centralized system, would be the appropriate structure for the CDB Network. A detailed review of the pros and cons considered by the Task Group with respect to both types of systems has been distributed separately to AAC and is appended to the minutes of the Task Group's 21 July 1981 meeting.

4. DESCRIPTION OF THE CDB NETWORK

Graphically expressed, the proposed CDB Network would appear as illustrated [in figure 1].

In the simplest terms, the CDB Network would consist of a federation of nodes (i.e., groups of libraries) with their associated data bases. The UC system with its associated union catalog would be an example of a node supported by a single institution. Most nodes, however, would consist of a multi-institutional grouping of libraries, such as the fifteen public library cooperatives in California, and the three in Nevada. Many of these groupings are intersegmen-

tal, and are based on geographic proximity; others may be based instead on affinity of interest (e.g., the Research Libraries Group). This valuable experience in cooperation and sharing can and should be transferred to the next phase in the area-wide development of an integrated library service.

Having considered many possibilities, the Task Group concluded that each node must provide at least two basic functions for its members: an online catalog and an online circulation service. In addition, each node must have the ability to query all other nodes for bibliographic access throughout the CLASS service area, and the capability to perform transactions necessary for inter-library lending. These linking functions will be provided by the CDB Network.

In our view, each group (node) should have, within reason, the freedom to select an online catalog/circulation system which meets the community's needs, so long as CDB Network requirements for linkage are satisfied. Given the state of the art, the Task

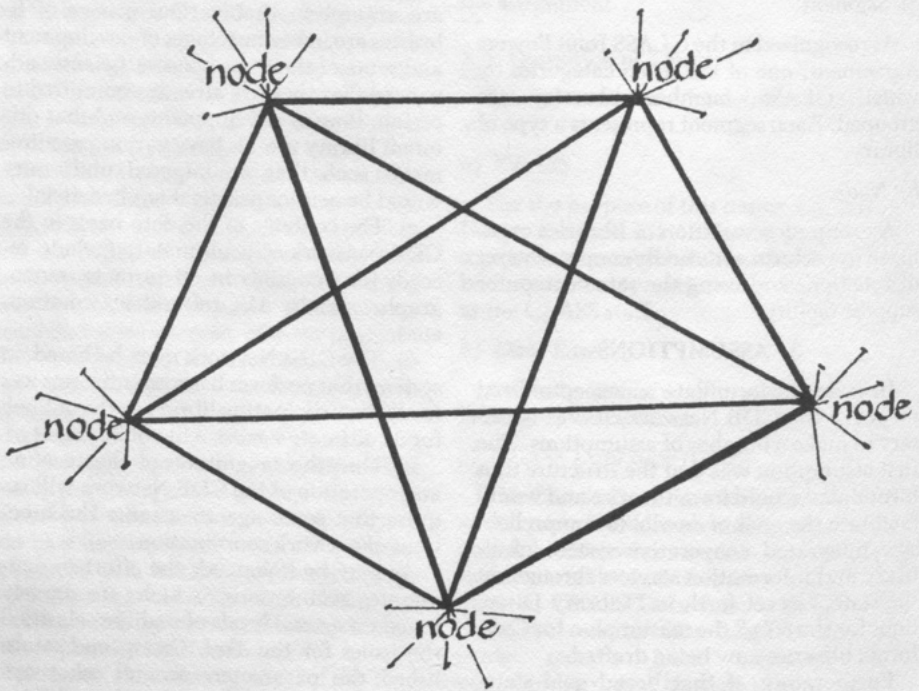


Fig. 1. CDB Network.

Group believes that the freedom of choice is necessary, for there are institutions and groups which have already developed their own systems or are committed to certain paths of future development. Consequently, it appears to the Task Group that it is neither desirable or necessary, and indeed impossible in some cases, to ask them to abandon their plans and systems in order to accommodate the CDB Network.

Access to the resources of the CDB Network would, at the outset, be made to service points (branch libraries, reference desks, etc.) within a node via an online terminal. However, it is highly likely that in the future library users would have the ability to access the CDB Network from an office or home terminal. The online systems envisioned today for the nodes and the Network, therefore, should encompass the probability of providing greatly expanded usage from individuals, with the concomitant need for prescribed sets of procedures to support such usage.

There are four interconnected components of this data base network concept: data bases, telecommunications, transportation, and management.

a) Data Bases

Data bases would be created and maintained at the local or regional level, using whatever means a library or library group finds to be most appropriate. In many cases, OCLC or RLIN will probably be used. But in other cases alternatives such as a locally developed system, a circulation control system with cataloging capabilities, MiniMARC, Auto-Graphic's AGILE II, or a COM catalog vendor might be used. Local data bases should be serviced by a combination of online catalog and circulation control systems so that both holdings and availability of materials can be efficiently determined.

b) Telecommunications

For the data base network, effective and economical telecommunications and associated computer support must be available. In addition to allowing any library service point to communicate with any other node in the network, telecommunications support must allow users to communicate with

their local library service points. Furthermore, computer support must be provided in conjunction with telecommunications to service several functions: 1) file searching; 2) message routing; 3) ILL load balancing; 4) collecting and analyzing transaction statistics; and 5) interfacing to allow one data base system to talk with another. The system environment envisioned for the nodes and the Network should encompass video delivery and storage as well as the traditional digital computer data access and storage methods.

c) Transportation

A fast and effective transportation net is needed in order to move requested library materials from their storage location to their use location, and back.

d) Management

The normal managerial functions of planning, organizing, staffing, directing and controlling must be carried out at all levels of the network structure: within the local libraries, at the nodes, and at the network coordination level. The network coordination level does not currently exist.

5. ROLE OF CLASS IN THE DISTRIBUTED NETWORKING ENVIRONMENT

CLASS should manage the development and operation of the linkage functions in the CDB Network, and should provide the organizational framework by which the nodes decide upon their working relationship with each other. The Network should provide support, expert assistance, and encouragement to the nodes, and individual libraries, to help them make effective use of the CDB Network.

In the view of the Task Group, CLASS's role of Network coordination will be an ongoing and extremely critical one for the success of the CDB Network. It should be remembered that for CLASS to fulfill its responsibility, it will be essential that each node, in addition to the operation of the local system, be responsible for interaction and cooperation with CLASS (acting as Network coordinator) and the other nodes along each step of development.

Immense efforts will be required to

achieve coordination and proper communication among participants in a networking environment in which constituent members are not identical. CLASS is in the unique position of being a membership organization, wherein all types of libraries can work together to achieve a common goal; it is, therefore, eminently qualified to perform the role of Network coordinator in the CLASS service area.

The CLASS Data Base Network represents the means by which the organization's members and constituent elements could work together to achieve a coherent, efficient, and effective structure for delivering cooperative library services. We believe that this paper is presented at a critical time when CLASS area-wide coordinated library and information service is recognized as a need which is only partially satisfied by the existing systems and data bases. It is also a propitious time, when existing systems within the CLASS service area are not yet

cast in concrete, so that modifications and accommodations for linkage and integrated service may be made without unreasonably large expenditure of time and money.

6. RECOMMENDATIONS

We recommend that the AAC approve the CDB Network concept presented in this paper. Additionally, as the first step toward realization of the concept, we urgently recommend that the AAC:

1) Propose to the CLASS membership this concept of the CLASS Data Base Network and determine the members' interest in moving to implement the concept.

2) Inform the CLASS Board of the AAC's actions with respect to presenting the concept to the membership.

3) Schedule and host meetings throughout the CLASS service area to determine how this concept should be developed to meet members' needs. At these meetings, AAC should:

a) Identify the priorities of individual members and members within nodes, in matters of interlibrary service needs, data base development, interlibrary structures and protocols, etc.

b) Ascertain in what ways libraries and library groups will support and participate in the formation of the CDB Network.

4) Once sufficient support for the Network concept is generated among the membership, advise the CLASS Board as to what steps CLASS should take to implement the CDB Network. ■■



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News and Announcements

Videodisc Encyclopedia

The electronic publishing division of Aretê Publishing Company, Inc., has produced an experimental videodisc to explore the creative possibilities and the technical requirements of this new medium.

Selected materials from the *Academic American Encyclopedia*—a twenty-one-volume general purpose encyclopedia published by Aretê in 1980—have been transformed into images stored on a pre-programmed videodisc, which fully utilizes the interactive potential of the optical-laser disc player. In addition to the full text of the selected articles and all of their appropriate illustrations from the encyclopedia, sound and motion have been added to provide a new dimension of information that enhances the learning experience. Although the experimental videodisc uses just one side, it would take the viewer between four and five hours to review all the material encompassed on the disc.

For research purposes they selected some twenty or more articles for the experimental disc. Some, such as the Beethoven article, are intended to stand alone; others such as the Dinosaur sequence, provide information from a series of related articles that—if accessed through the printed encyclopedia—would normally require the consultation of ten separate volumes.

The index to the disc lists the following articles:

Ludwig von Beethoven: This biography of Beethoven with the full text and bibliography, is supplemented by several contemporary illustrations and short segments from both the 5th Symphony and the 12th String Quartet—thus permitting a comparison between musical forms and the style of Beethoven's "heroic" period and the later, more serene style of the last decade of his work.

Dinosaurs: The coverage in this sequence is extensive. In addition to the general article and a time chart showing the evolution

and dominance of each major family over several hundred million years, one can move quickly into specific articles on individual dinosaurs and articles on the three great geological periods in which they were the dominant animal forms. Extensively illustrated with four-color drawings created for the encyclopedia, each illustration is commented on by spoken narration.

Gettysburg Address: Carl Sandburg's unique reading of Lincoln's Gettysburg Address provides several images as well as the slow scrolling of the complete text, a device which blurs the distinction between reference and education.

Hydrofoil: This article shows not only a sophisticated cutaway drawing of the inside of a hydrofoil, but by means of a short motion sequence, the viewer can see how the craft skims across the surface of the water, supported by its submerged foils.

Martin Luther King, Jr.: Certainly the most dramatic article—one in which the viewer can derive some sense of the emotional impact of a particular man and moment in history, is provided in this biography, where the viewer has an opportunity to hear a segment of King's moving "I Have a Dream—Free At Last" speech from the march on Washington back in 1963.

All of the above materials are under the control of the viewer, who can go from any article to any other article immediately, can take as much time as necessary reading the text, or can skip the text entirely and go right to illustrations, sound or motion sequences. Thus, the videodisc encyclopedia transcends some of the limitations of literary or reading fluency—a five-year-old will get almost as much out of the articles as a high school student because of the amount of interesting information crammed into the spoken "captions."

Technical and Production Aspects

This experimental, interactive videodisc was designed for use on the most sophisti-

cated of the optical-laser disc players, the DVA 7820, manufactured by DiscoVision Associates. (It was developed for the model 2 player but can also be played on models 1 and 3.) The disc contains a discreet series of preprogrammed instructions that are encoded onto its recording surface during the replication process. These coded instructions are then "read" into the microprocessor memory of the disc player automatically while the disc is being played. It is the preprogrammed instructions that enable the viewer to go immediately to any choice on the disc at the touch of a single button of the player's controls.

Because this was to be an experimental disc, Aretê elected to use the full capabilities of the state-of-the-art technology exemplified by the DVA 7820 player. However, we are developing subsequent videodiscs that will be considerably more flexible in their design and programming, so that they can be played on much less sophisticated players as well as being adaptable for educational instruction with a microcomputer interface.

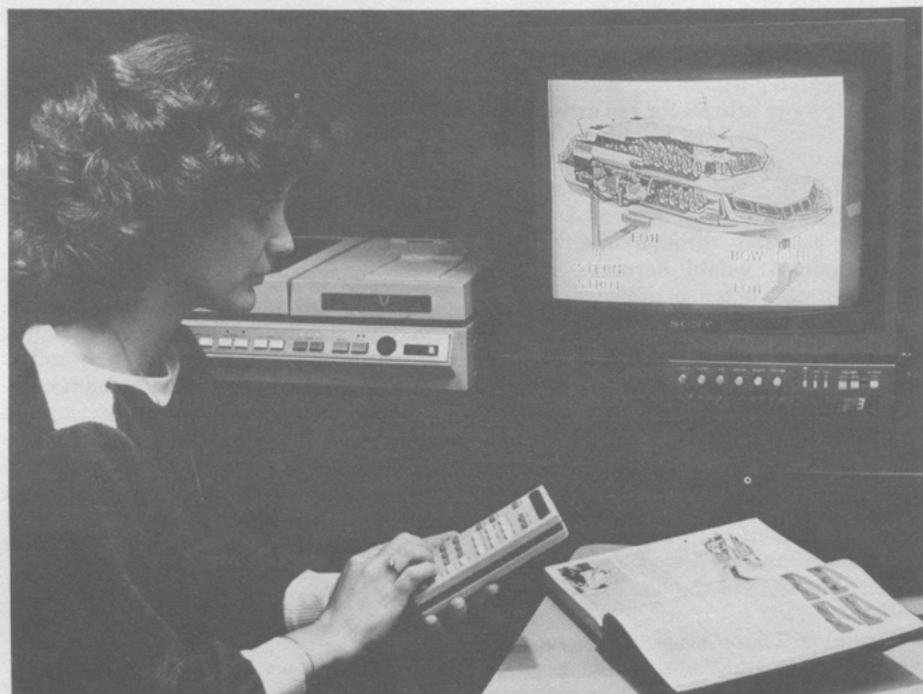
Technical assistance in the preparation of

this disc was provided by the International Institute of Applied Technology (IIAT) of Germantown, Maryland, who helped us organize the materials to be placed on the disc, oversaw the video production, and developed the program to run the disc. Valuable assistance was also provided throughout the project by the technical staff of DiscoVision Associates.

All the illustrations on the disc—original artwork, color transparencies, black-and-white photos, motion sequences, etc.—were edited and converted to 1-inch videotape before being supplied to DVA's production facility at Costa Mesa, California, for disc mastering and replication.

The text that appears on the disc was produced by a Vidifont character generator, which transferred the articles directly onto videotape. Designed as a titling device for broadcast TV, the character generator is a far-from-ideal means of converting large amounts of textual material to video; therefore Aretê plans to continue research into alternative methods of displaying text within videodisc programs.

Although this experimental disc was pro-



duced for in-house use and not for sale, Arêté is making a limited number of copies available to qualified research and educational institutions for experimentation and demonstration. We are continuing our own research into the viability of the videodisc as a publishing medium for reference materials, and would welcome an exchange of ideas and experiences with other researchers working in the same field.

Further inquiries should be directed to Anne Whitney, assistant to the president, Arêté Publishing Company, Inc. ■■

Microcomputer Databases

Over twenty-one microcomputer magazines and descriptions of over 5,000 microcomputer programs will be accessible via online indexes on the DIALOG Information Retrieval Service beginning early next spring. Libraries joining the new surge to microcomputers for library applications will now be able to locate both relevant articles and applicable programs that fit their computers while online with DIALOG.

The *Microcomputer Index* is a subject and abstract guide to such journals as *Byte*, *Interface Age*, *InfoWorld*, *Personal Computing*, *Softside*, *Dr. Dobb's Journal*, etc. Each record contains a short abstract and complete bibliographic information plus assigned descriptors. Included are general articles about the microcomputer world, book reviews, software reviews, discussions of applications in various areas, descriptions of new microcomputer products, etc.

Microcomputer Index is produced by Microcomputer Information Services and corresponds to the quarterly printed work of the same name. It will be available on DIALOG in spring 1982 as file 233. The file will begin with approximately 6,000 records from 1980 to the present and will be updated quarterly with about 1,200 items.

Computer programs for microcomputers are indexed in the new DIALOG file, the *International Software Directory*. The editors attempt to list all commercially-available software for any type of microcomputer. Records in the *International Software Directory* consist of short, searchable descriptions of each software item with indexing by broad applications categories such as medical, dental, educational, scien-

tific, and systems. Items are coded by names of compatible microcomputers such as APPLE, TRS-80, PET, Atari, etc.

The computer programs included are for both the serious computer expert and the novice hobbyist or game player. The *International Software Directory* can lead you to programs to help you prepare mailing lists, to maintain accounts receivable records, to keep inventories, to prepare payrolls, as well as to a broad spectrum of electronic games. Purchase prices and supplier names and addresses are also included. In addition, the producer, Imprint Editions, will provide software directly via DIALOR-DER.

The *International Software Directory*, produced by Imprint Editions and international in scope, corresponds to the printed work called the *International Microcomputer Software Directory*. It will be available on DIALOG in spring 1982 as file 232, beginning with over 5,000 records and featuring monthly updates.

Both the *Microcomputer Index* and the *International Software Directory* will be available on DIALOG's Classroom Instruction Program.

For more information, contact: DIALOG Information Services, Inc., Marketing Department, 3460 Hillview Ave., Palo Alto, CA 94304. Telephone: (800) 227-1927 (800) 982-5838 (California). ■■

Electronic Mail for Library Associations

Library associations and their committees now have the opportunity to use OnTyme electronic mail services at low cost through CLASS. CLASS offers a special price structure for the transaction of committee business and professional communications by such groups. OnTyme is particularly appropriate for committee activities such as conference and program planning, developing and announcing meeting agendas, maintaining an online membership directory or newsletter, and all general group communications. Professional groups that have already taken advantage of the special rates include the Executive Board and some committees of ALA's Library and Information Technology Association (LITA), the Council of Regional Groups of ALA's Resources and Technical

Services Division (RTSD), and SLA's Executive Board and Long-Range Planning Committee.

The standard rates for CLASS OnTyme users include an annual subscription fee of \$100 per institution, which allows for up to five passwords. A professional organization may have a subscription for the same annual fee, but add as many additional accounts as needed for the group, at a charge of \$1 per month per account. CLASS will also provide one combined invoice for the entire group, which reduces service charges.

The CLASS OnTyme user group now includes more than 350 users throughout the United States. For more information contact: Dennis Oliver, Manager, Cooperative Library Network, 1415 Koll Circle, Suite 101, San Jose, CA 95112-1698; (408) 289-1756. ■■

First Multiprocessor System in Libraries

The Baltimore County Public Library, Baltimore, Maryland, and the Carroll County Public Library, Westminster, Maryland, claim to be the first two libraries in the country to install an online multiprocessor computer system. On November 10, the libraries began checking out materials and performing numerous other circulation functions at forty-four terminal locations throughout the two counties. The terminals are all connected to a three-processor CLSI System located at the Towson Branch of the Baltimore County Public Library.

The Baltimore and Carroll counties' CLSI System responds in less than three seconds to all commands throughout the system, even during the busiest periods. The libraries will be adding twenty more terminals in the next few months and anticipate similar performance when all sixty-four terminals are operational.

Multiprocessor systems follow the current industry trend of distributed processing whereby smaller computers divide the work, providing more reliable systems with built-in redundant components, at a much lower price. The CLSI System at Baltimore and Carroll counties, employs three DEC PDP 11/34 minicomputers with a single, integrated database. All the library's terminals are connected to a switching device

called an intelligent port selector, which is controlled by its own Apple II microcomputer. If any one of the three minicomputers goes down, the port selector switches the terminals ordinarily connected to that processor to the other two operational processors. Furthermore, the disc drives that store the library's main database are dual-ported, so that they may be switched to another processor in the event of failure. This multiprocessor approach also enables the library to integrate additional processors as more terminals are required, at a relatively low cost. The price for Baltimore County's upgrade to the multiprocessor system was approximately \$300,000, which was shared by Carroll County. ■■

TV Series Gets Instant Feedback

When the first show of the new CBS television series "Simon & Simon" aired November 24, the cast and crew gathered anxiously in executive producer Phil DeGuere's Hollywood office—not to await the ratings, but to receive critical comments from television viewers in the East.

"We could actually read objective reactions over my computer terminal from viewers before the show was even on the air in Los Angeles," DeGuere says. "You can't imagine how important it is for us—people who do television and movies and live most of our lives in the Hollywood vacuum—to get instant feedback, good or bad, from our audience."

Feedback came from participants among his 14,000 fellow subscribers to *The Source*, a nationwide network of information and communication services. Respondents generally praised the intelligence of the new show, "but they also told us to speed up the plot a bit and increase the sibling rivalry between Rick and A. J.," DeGuere reports.

About 100 people responded the first week. The number doubled the second and, according to DeGuere was expected to equal the total Nielsen sample of 1,250. "When you consider that Nielsen ratings don't even tell us if viewers actually watch the show or care about it—well, I think this use of *The Source* has significant potential for involving viewers in the upgrading of television programming."

DeGuere promises that criticisms and

comments will be taken into account, "and viewers will see them reflected in future episodes."

If this viewer feedback experiment helps "Simon & Simon," DeGuere says he will alert the producers of other prime-time series to it. "The information we're getting is especially important when a series is in development, or going through a transition."

DeGuere, who writes his scripts and keeps track of production budget on his personal computer, has created a "bulletin board" on *The Source* that all subscribers can read, alerting them to upcoming shows in the series, reviewing subscriber comments about past shows, and asking for specific feedback about plot ideas and characterizations.

The Source is a nationwide information utility, owned by the Reader's Digest Association, Inc. It can be accessed by a local telephone call from over 350 major metropolitan areas, using a standard data terminal, personal computer, or communicating word processor. In addition to its communication applications, *The Source* provides its subscribers with over 1,400 information services, including regularly updated news, financial market reports, airline schedules, electronic shopping, legislative monitoring, and article abstracting. Persons interested in more information may call *The Source* toll-free at (800)336-3366. ■■

Patrons View Library's Catalog from Home

The Iowa City Public Library, Iowa City, Iowa, now has the capability of providing its patrons access to its online catalog directly from their homes. According to Lolly Eggers, director of the Iowa City Public Library, the library has successfully interfaced CLSI's Public Access Catalog with a public service cable television channel. As a result, patrons will soon be able to telephone the library requesting catalog information about a particular subject and will view the detailed bibliographic and holdings information on their home television screens. The library plans to offer this interface capability first to the Iowa City school system, and later to the general public.

The Iowa City Public Library was the

second library in the nation to install the CLSI online catalog in September 1981. The library has discarded its manual card catalog and now relies entirely on seven touch-sensitive browsing terminals in its new building.

Eggers indicated that "the current online catalog-cable TV interface is only the first step in using the full information dissemination potential of our CLSI System and cable television facilities. We expect to work closely with CLSI in the future to develop even more sophisticated capabilities."

Lyndon Holmes, vice-president of development at CLSI, concurred that a most exciting potential exists for libraries that can offer their patrons access to the library's database through a community cable television system. "We see the time in the not too distant future when low-cost, two-way home access to library and other database information and services is as common as color TV is today." ■■

LITA Preconference Audio Cassettes Now Available

Audio cassette recordings of the Library and Information Technology Association preconference institute, held June 24-26 at the 1981 American Library Association Annual Conference, are now available.

The institute's several presentations addressed the needs of librarians installing or preparing to install various types of automated systems. Recorded presentations include: "Where Do We Begin?" Carolyn Gray; "Technology Overview," John Kountz; "Analysis of Specifications: A Case Study," Nancy Eaton; "How to Develop a Contract," Hank Epstein; "A Vendor Perspective on Contracting," Patricia Earnest; "Contract Administration," Ronald Miller and "Contracting (a role-playing exercise) and Wrap-up," Kaye Gapen (chair) and Panel of Speakers for Questions and Answers.

A full set of cassettes is available for \$40. Individual cassettes are \$4.50 each. Presentations by Kountz, Eaton, and Epstein are each on two cassettes, therefore, \$9 for each of those speaker's talks. LITA members receive a 10 percent discount.

Order from Information Yield, 311 Stonecrest Drive, Syracuse, NY 13214. ■■

Recent Publications

In the present issue, marking the transformation of JOLA into ITAL, the former "Book Reviews" section expands to become "Recent Publications," comprising "Reviews" and "Other Recent Receipts."—David L. Weisbrod, Book Review Editor.

Reviews

Authorities: A MARC Format. 1st edition. Washington, D.C.: Processing Services, Library of Congress, 1981. 116p. \$15 (tentative, as of Dec. 23, 1981). LC: 81-607128. ISBN: 0-8444-0391-1. (Available from Cataloging Distribution Service, Library of Congress, Washington, DC 20541.)

A "preliminary edition" of this MARC format was issued by the Library of Congress in 1976 and has since been augmented by several working papers, the most important of which was a draft revision of the format that included series authority data. Access to information on the progress of format development and documentation has been difficult, and many systems designers have had to make due with incomplete and out-of-date specifications. At last, we have the "first edition" of the authorities MARC format, and it is a meticulous presentation of a complicated data structure.

The major problem various committees have grappled with over the years was how to structure the format to accommodate updates of local files using authority data issued by the Library of Congress. Unlike the other MARC formats, a single authority record has potential for frequent update, and each change can impact many other records on an authority file. Also there is greater likelihood that a local authority file will depart from Library of Congress practice to accommodate both the needs of a library's clientele and the particular history of its card catalog. Therefore, update by complete record replacement, which has been the practice for bibliographic records,

does not work for authority records. The question debated was should the format include field-by-field explicit indication of data that were changed or should the changes be implicitly determined by matching the text of fields. The unwieldy 24-character \$W subfield that appeared in almost every field of the record in the "preliminary edition" was an attempt to provide explicit information about change in the record. The device has been abandoned in this edition resulting in a much more succinct record. Authority-file update routines will have to rely on full text matching at the field level.

Also missing from this format is the pronounced "LC-centrism" so evident in earlier formats. The document reflects a genuine understanding that a standard for the library community should not be designed to support the distribution of records from the Library of Congress exclusively, even though we can agree that this is its most important use. The format is comprehensive, and designers of authority-control systems will find here an analysis of data that comprehend local, regional network, and national requirements.—*John F. Knapp, Ringgold Management Systems, Beaverton, Oregon.*

Online Searching: An Introduction, by W. M. Henry and others. Woburn, Mass.: Butterworths, 1980. 209p. \$31.95. LC: 80-40242. ISBN: 0-408-10696-4.

Searching bibliographic databases using examples from online retrieval services in the United States, England, and Europe is the subject of this book. It does not cover searching catalog databases such as OCLC and RLIN, full text systems such as Mead Data Central's LEXIS and Dow-Jones NEWS/RECALL, videotex services such as The Source, and numeric or statistical services such as those provided by Data Resources Inc. or International Data Corp. This is not to suggest that the book is incomplete but that it has a clear focus on one segment of a diverse and expanding field.

In 120 pages of well-written text the authors cover eight topics: a brief history and status of online bibliographic databases, terminals and telecommunication procedures, database organization and content, retrieval system features or capabilities, search strategy, the search specialist's role, managing a search service, and education and training.

The information, examples, and bibliography are up-to-date as of the end of 1979. The text is solidly grounded in both the research and practitioner literature, and each chapter cites carefully selected articles on the topics covered in it. Search examples are chosen from the physical sciences, social sciences, and humanities and are well illustrated.

The material on the search specialist's role emphasizes that personal communication skills are as important as analytic skills. The chapter on management is concise and especially useful, because many search specialists are also responsible for managing aspects of a search service. The chapter on education and training reminds the reader that teaching and learning is both an opportunity and an obligation for those who expect to be considered specialists and professionals.

The examples come from a range of search services that will be of interest to the U.S. reader without limiting the ability to learn from the examples. In addition to BRS, DIALOG, and ORBIT, examples are shown on BLAISE (British Library Automated Information Service), ESA-IRS (European Space Agency-Information Retrieval Service), and Infoline (a London-based service).

The most important heuristic feature of this book is the author's conceptual analysis of the entire search process. This is diagrammed in flow chart form in the search strategy chapter, and each step is discussed. The analysis is then presented in an appendix as a five-page check list for search preparation and search strategy. It's almost worth the price of the book alone.

The book has perspectives that are dated and perspectives that are ahead of current practice. For example, the discussion on how to search using 30 baud terminals seems to come from a time when 120 baud

terminals were rare. On the other hand, the discussion of computer-assisted instruction touches on the potential of microcomputers for teaching online searching.

The authors devote a section to the special problems of searching for chemicals because of the synonym and ambiguity problems in chemical names. This may be because of the authors' backgrounds rather than the fact that chemistry is an exception. A discussion of the common command language proposed for Euronet should be of interest to the American search specialist, who must be a computer system polyglot.

I mentioned that the book has 120 pages of well-written text but its actual length is 200 pages. Almost one-third of the book consists of appendixes containing standard information about databases, data elements, and commands on several systems. At least one other text on online searching also presents this type of information. Such information is soon out-of-date and adds to the cost and bulk of a book without enhancing its usefulness.

There are now at least two online searching texts in print (the other is Meadows and Cochrane *Basics of Online Searching*, Wiley, 1981) and two in press (Christine L. Borgman, Marcel Dekker, 1982; Ryan Hoover, Knowledge Industry Publications, 1982). A textbook doesn't teach a skill. At best it supports a good teacher for introductory students and suggests ways of refining techniques for the experienced practitioner. This book serves both purposes well and the authors should consider a second edition as both retrieval capabilities and practical searching knowledge expands.—*Douglas Ferguson, The Research Libraries Group, Stanford, California.*

Small Computers in Libraries. (monthly)

Edited by Allen Pratt. Published by the Graduate Library School, University of Arizona, Tucson, AZ 85721. April 1981-. ISSN 0275-6722. \$20 per year.

Access: Microcomputers in Libraries. (quarterly) Edited by Deborah Christian. P.O. Box 764, Oakridge, OR 97463. July 1981-. ISSN 0277-0784. \$11 per year.

These two new journals meet a real and

growing need for information on the use of microcomputers in libraries. (Microcomputers are defined by Pratt as those systems costing under \$10,000.) Both journals seek to make themselves useful to librarians with no computing or technical background, and both succeed well in doing this. In fact, each journal includes articles, bibliographies, glossaries, etc., specifically intended to introduce librarians to information sources on microcomputing, microcomputer hardware and software, and library applications of microcomputers. Moreover, the journals provide a place for librarians to publish and disseminate information about their own systems, applications, and experiences. Both journals might well be considered as must subscriptions for almost all libraries.

Small Computers in Libraries is microcomputer-produced (quite appropriately), and its format and content are newsletterlike. How-to, background, and discussion articles are also included. Most issues contain an article on some special topic (such as disk storage systems) that is introductory in nature. One of the stated aims of the journal is to serve as a clearinghouse for information in this area, and it succeeds in doing so. The annotated bibliographies of information sources are invaluable guides for learning about what is already a complex field with many specializations. An important aspect of this publication is its inclusion of descriptions of library (and to some extent school) applications, since all too often libraries carry out important applications that are not otherwise reported in the literature.

Access: Microcomputers in Libraries is primarily a journal of substantive articles. If *Small Computer in Libraries* includes articles as well as newsletter-type content, then *Access* can be described as also including brief news notes, interviews, notices, and reviews as well as articles. Typical articles may be on specific applications, on affordable databases, on technical questions such as memory needs or storage systems, or on library uses of commercially available software designed for other purposes. *Access* also publishes computer programs themselves, which has not—so far—been true of *Small Computers in Libraries*.

The increasing capabilities of microcomputers combined with decreasing cost and size of microcomputer hardware has provided librarians with a whole new ball park as far as library automation and augmented information and other services are concerned. It is clear that microcomputers, either as stand-alone devices or as essential parts of distributed processing networks, offer new, important, and economic opportunities to librarians. These two journals give vital help to librarians in exploiting these opportunities—*Theodore C. Hines and Rosann W. Collins, Library Science/Educational Technology Department, School of Education, University of North Carolina at Greensboro.*

Video and Cable Guidelines. Edited by Leslie Chamberlin Burk and Roberto Esteves. Chicago: American Library Assn., 1980. 416p. \$9.75.

Compiled by the most ponderously named Video and Cable Communications Section of the Library and Information Technology Association of the American Library Association, *Video and Cable Guidelines* is designed to be an introductory volume for libraries not yet involved with cable as well as a source of cross comparison for those persons and institutions already working in varying degrees with video and cable.

It is a curious sort of book, defying easy categorization (something of an irony for a library association publication). Exactly what *Video and Cable Guidelines* is, depends, as per the old fable, upon exactly which part of the elephant an inquiring reader grasps.

The work begins with a diverse collection of eight articles by various cable and library media professionals: "The Administration of CATV Services" by Donald Sager; "A Checklist of Administrative Concerns" by Kandy Brandt; "Federal and State Regulation of Cable" by David Owen Korte; "Some Ideas on Cable Programming" by Leslie Chamberlin Burk; "The California/Washington Video Circuit" by Wesley Doak; "Technology, A Video Guide" by Roberto Esteves; "Video Software" by Anne Hollingsworth; and "Video Access" by Arlene Farber Sirkin.

In general the articles deal with substantive issues of interest to libraries. Particularly commendable is Sager's discussion of the video/cable role of libraries in the larger context of the library as information source, and Arlene Sirkin's excellent review of the tools available for locating video material and attaining rights to and bibliographic control of same. However, the pieces vary a good deal in depth and quality of writing and, overall, exhibit no particular editorial perspective. This is not necessarily bad, but the articles do not, as advertised in the introduction, provide much of a basis for understanding what follows.

What follows is really a marvel of the surveyor's art. This, the bulk of the volume, consists of over 300 pages of "Reports from the Field" in which the video and cable activities of over 260 libraries are profiled, often in considerable detail. Each library describes its work with video and cable under the standard headings of: History, Present Operations, Focus, Future, Problems, and Benefiting Influences—thereby providing for easy location and comparison of material.

These profiles reveal widely differing degrees of library involvement with video/cable, ranging from no involvement and no interest in involvement to the operation of sizable video lending libraries and full studio production for cable.

The contributing libraries are then listed alphabetically by state and again, in a very helpful index, by type of library (public, academic, etc.) and by type of involvement with video/cable (cable drop viewing only, cable programming, circulation of video tapes, equipment loan, etc.). The profiles suffer only from being a little dated, most of the material having been gathered in 1979.

In sum, *Video and Cable Guidelines* provides a comprehensive, if loosely structured, overview of library involvement with video and cable, circa 1980. If there is anything to speak of in the errors and omissions department, it would be the opportunity missed to frame the whole work in the above-mentioned broader perspective of libraries as information providers—information in print, on fiche, on magnetic tape and disc, on film and videodisc and so on. This coming reality of the library as a multiform

mat provider of information is the context in which library work with video and cable can be best understood and, most importantly, best supported.

Video and Cable Guidelines is essential reading for public, academic, private, and governmental librarians.—Richard Varnes, Boulder, Colorado, *Public Library*.

Other Recent Receipts

Listed here are books and other publications of potential interest to members of LITA, received for review. Some of these materials may be reviewed in later issues of ITAL.

Automating the Archives: Issues and Problems in Computer Applications. Lawrence J. McCrank, editor. Published for the American Society for Information Science. White Plains, N.Y.: Knowledge Industry Publications, Inc., 1981. 363p. LC: 81-11732. ISBN: 0-914236-95-4, hardcover \$34.50. ISBN: 0-914236-86-5, softcover \$27.50.

Book Theft and Library Security Systems, 1981-82. By Alice Harrison Bahr. White Plains, N.Y.: Knowledge Industry Publications, Inc., 1981. 157p. LC: 80-26643. ISBN: 0-914236-71-7, softcover \$24.50.

Comparative Information for Automated Circulation Systems: Turnkey & Other Systems. 2nd edition. By Joseph R. Mathews. Grass Valley, Calif.: J. Matthews & Associates, Inc., June 1981. Distributed by CLASS, 1415 Koll Circle, Suite 101, San Jose, CA 95112. 74p. \$20 prepaid, \$22.50 billed.

The Context of Interconnection for a Nationwide Bibliographic Network. By Edwin J. Buchinski and Mazharul Islam. (Canadian Network Papers, ISSN 0226-8760: no.1) Title on added title page: Le contexte de l'interconnexion dans le cadre de l'elaboration d'un reseau bibliographique national. Text in English and French, each with special title page and separate paging. Ottawa: National Library of Canada, 1980. NLC: C81-090016-5E. ISBN: 0-662-51085-2.

Current Trends in Serials Automation. Essen Symposium, 6 October-8 October 1980. Ahmed H. Helal and Joachim W. Weiss, editors. (Publications of Essen University Library, ISSN 0721-0469: no.1) Essen, West Germany: Essen University Library (Postfach 568, 4300 Essen 1), 1981. 201p. ISBN: 3-922602-01-0.

Development of a Probabilistic Author Search and Matching Technique for Retrieval and Crea-

tion of *Bibliographic Records*. By Thomas B. Hickey and others. OCLC Research Report Series, OCLC/OPR/RR-81/2. Dublin, Ohio: OCLC Office of Planning and Research, May 27, 1981. 42p. (See availability information under *Survey of Online Searching Instruction . . .*).

Field, Subfield, and Indicator Statistics in OCLC Bibliographic Records. By Thomas B. Hickey. OCLC Research Report Series, OCLC/OPR/RR-81/1. Dublin, Ohio: OCLC Office of Planning and Research, March 23, 1981. 146p. (See availability information under *Survey of Online Searching Instruction . . .*).

Hierarchical Relationships in Bibliographic Descriptions. INTERMARC Software-Subgroup Seminar 4, 25 March-27 March 1981. Ahmed H. Helal and Joachim W. Weiss, editors. (Publications of Essen University Library, ISSN 0721-0469; no.2) Essen, West Germany: Essen University Library (Postfach 568, 4300 Essen 1), 1981. 424p. ISSN: 0106-3375 INTERMARC Software-Subgroup Seminar. ISBN: 3-922602-002. Free from the library.

The Impact of Micro-Electronics, a Tentative Appraisal of Information Technology. By Juan Rada. A World Employment Program Study. Geneva: International Labour Office, 1980.

109p. ISBN: 92-2-102378-8 limp cover, 17.50 Swiss francs, £4.40, U.S. \$10. ISBN: 92-2-102383-4 hard cover.

The Information Society: An International Journal. V.1, no.1, 1981. Joseph Becker, editor. Crane Russak & Company, Inc., 3 E. 44th Street, New York, NY 10017. Volume 1 (four issues) \$48. CODEN: INSCDS. ISSN: 0197-2243.

Information Technology & People. First issue, May 1, 1981. Citech Ltd., P.O. Box 5, Ickenham, Uxbridge, Middlesex, UB10 8AF, England. Published monthly. U.K. £50, overseas \$160 or equivalent (airmail).

Library Networks, 1981-82. By Susan K. Martin. White Plains, N.Y.: Knowledge Industry Publications, Inc., 1981. 160p. LC: 80-26710. ISBN: 0-914236-55-5 hardcover, \$29.50. ISBN: 0-914236-66-0 softcover, \$24.50.

Linking Bibliographic Data Bases: A Discussion of the Battelle Technical Report. By C. Lee Jones, program officer, Council on Library Resources, Inc., One Dupont Circle, NW, Suite 620, Washington, DC 20036. October 15, 1980. 28p. (See *Technical Report on Linking the Bibliographic Utilities . . .*, listed below.)

MARC Formats for Bibliographic Data. By the Automated Systems Office of the Library of Congress, 1980. Various pagings. Available from Cataloging Distribution Service, Processing Services, LC. 1980 base text and 1981 updates, \$50; 1982 subscription prices: MFBD (main text plus index and record structure appendices), issued quarterly, \$50; MFBD Code Lists (country of publication, geographic areas, languages, relator subfields—formerly Appendix II), issued annually, \$7.50; MFBD History (formerly Appendix IV), issued annually, \$6.

Microcomputers and Libraries: A Guide to Technology, Products and Applications. By Mark E. Rorvig. White Plains, N.Y.: Knowledge Industry Publications, Inc., 1981. 135p. LC: 81-12326. ISBN: 0-914236-67-9, softcover \$27.50.

Minis and Micros: Smaller Computers for Smaller Libraries? [sic] By Bruce Royan and A. Rennie McElroy. Cambridge, U.K.: Library Association, Colleges of Further and Higher Education Group, 1981. 44p. ISBN: 0-85365-903-6 £2.00, post free in U.K. Obtainable from: F.J. Chambers, Librarian, Cambridgeshire College of Arts & Technology, Cambridge CB1 2AJ.

Online Bibliographic Searching: A Learning Manual. By Ching-chih Chen and Susanna Schweizer. New York: Neal-Schuman, 1981. 227p. LC: 81-83497. ISBN: 0-918212-59-6. \$19.95; five or more copies \$14.95 each.

On-Line Public Access to Library Bibliographic Databases: Developments, Issues and Priorities. Final Report to the Council on Library Resources. Columbus, Ohio, and Stanford,

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Calif.: OCLC, Inc. and The Research Libraries Group, Inc., 1980. 50p.

Resource Sharing & Library Networks. Ward Shaw, editor. New York: The Haworth Press, Inc., V.1, no.1 (Fall 1981). Published quarterly, \$35 individuals, \$45 libraries and other institutions. ISSN: 0270-3173.

Science & Technology Libraries. Ellis Mount, editor. New York: The Haworth Press, Inc., V.1, no.1 (Fall 1980); theme of this issue: Planning for Online Search Service in Sci-Tech Libraries. Published quarterly, \$35 per volume. ISSN: 0194-262X. ISBN: 0-917724-73-9.

Scientific Information Systems in Japan. Hiroshi Inose, editor. New York: North-Holland Publishing Company, 1981. 257p. LC: 81-1658. ISBN: 0-444-86151-3. \$58.50.

Survey of Online Searching Instruction in Schools of Library and Information Science. By Carol Hansen Fenichel and Stephen Paul Harter. OCLC Research Report Series, OCLC/DD/RR-81/3. Dublin, Ohio: OCLC Development Division, October 23, 1981. 100p. "published and distributed through OCLC, until the report is available from ERIC (approximately six to nine months after publication). A maximum of three copies of any single research report is provided at no charge to interested persons and institutions.

Requests for Research Reports should be directed to OCLC, User Services Division, Customer Services Section, 6565 Frantz Road, Dublin, OH 43017."

Technical Report on Linking the Bibliographic Utilities: Benefits and Costs. Submitted to the Council on Library Resources, September 15, 1980, by Donald A. Smalley, William G. Griffith, Ann M. Walker, Michael B. Wessells. Battelle Columbus Laboratories, 505 King Avenue, Columbus, OH 43201. 169p. plus appendixes. (See *Linking Bibliographic Data Bases*, listed above.)

Telecommunications and Libraries: A Primer for Librarians and Information Managers. By Donald W. King and others. White Plains, N.Y.: Knowledge Industry Publications, Inc., 1981. 184p. LC: 81-6040. ISBN: 0-914236-51-2, hardcover \$32.50. ISBN: 0-914236-88-1, softcover \$24.50.

Videodisc/Teletext. Inaugural issue (V.1, no.1), Winter 1981. (Publisher's literature, subsequently received, states that with V1, no.3, the title was changed to *Videodisc/Videotex*.) George L. Abbott and Caroline M. Grills, editors in chief. Westport, Conn.: Microform Review, Inc. Volume 1 (four issues) \$52. ISSN: 0198-9456. ■■

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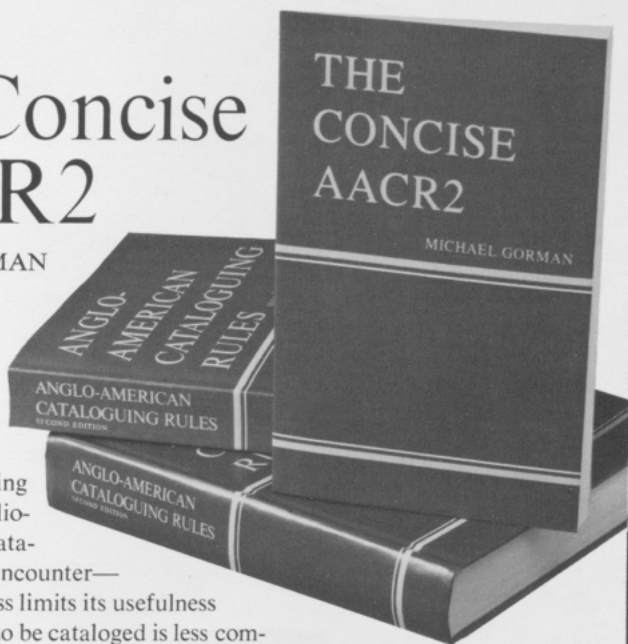
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The Concise AACR2

MICHAEL GORMAN



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Without disregarding the importance of properly cataloging the more difficult material, catalogers will recognize that most of their questions can be answered by a simpler version of the *Rules*. *The Concise AACR2* was designed for that purpose. It emphasizes essential principles, dropping separate treatment by medium and the less frequently used rules. In many cases it simplifies the wording of the rules while often giving additional explanation. *The Concise AACR2* should be consulted first when problems occur; it follows the rule numbers of AACR2 so that if it cannot provide the answer the complete version may be used.

176 pages Paper ISBN 0-8389-0325-8 (1981) \$6.50

Anglo-American Cataloguing Rules, 2nd ed.

Cloth ISBN 0-8389-3210-X (1979) \$15.00

Anglo-American Cataloguing Rules, 2nd ed.

Paper ISBN 0-8389-3211-8 (1979) \$12.00

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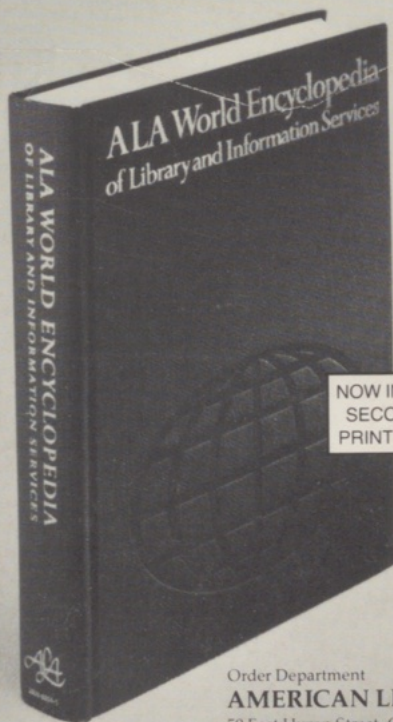
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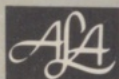
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