The Ohio State University Libraries Online Catalog

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INTRODUCTION

Unlike some of the libraries represented on this panel and others represented in the audience, the Ohio State University (OSU) Libraries have not closed their card catalogs. Although the closing of the OSU catalogs was announced in the early 1970s, the scheduled date for this event, July 4, 1976, was based on an assumption that OCLC, Inc. would have a subject search by that time. OCLC was working on subject search during 1975-76 but had not made promises as to an implementation schedule. In May 1976, when it became aparent that OCLC would not have subject search available in the summer, the OSU Libraries began developing our own subject search and full bibliographic record capability. Although the plans of the Library of Congress (LC) to adopt *Anglo-American Cataloguing Rules,* second edition *(AACR2)* and to undertake revisions of the LC Subject Heading List have confirmed the necessity of closing the card catalogs, other factors began OSU's move to an online catalog.

CONDITIONS LEADING UP TO DECISION

The OSU Libraries are composed of one main library, 26 department libraries, and two undergraduate libraries. The collection contains 3.4 million volumes representing 1.5 million titles and expands at a rate of 130,000 volumes per year. The libraries serve a user community of over 70,000 students, faculty, and staff.

A dictionary union catalog in the main library includes all titles held in the 20 library locations. New catalog cards are being added to the union catalog at the rate of 32,000 cards per month. The filing in the union catalog is approximately five months behind. Seven new card catalog cases have been added to the union catalog in the last three years. As we approach the often-mentioned "1984," information storage and access has been gradually overwhelming the OSU Libraries.

The size of the OSU campus and the number of department libraries, which in many cases have overlapping collections, have for years made document retrieval difficult for the Libraries' users. After locating a title in the main library union catalog, securing the title from a department library was often an exercise in physical fitness as the patron jogged from one library to another in hopes of securing a desired volume. There can be nothing more frustrating to a user than to develop a good bibliography from the union catalog and then to find, as s/he goes to the

department libraries, that the items on the bibliography are not available because they are charged to another user or are otherwise not on the shelf.

EVOLUTION OF THE ONLINE CATALOG

In November 1970, the OSU Libraries implemented the automated Library Circulation System (LCS). This circulation system was designed to control the circulation of the holdings in all 29 libraries and to provide remote access to the main library union catalog. The OSU libraries have allowed and even encouraged the system to grow like Topsy. The LCS programing staff have been called upon to make large and small changes which were perceived by the Libraries as improving the LCS. As a result of these changes and of the Libraries' increased dependence on the LCS, the system acquired the name Library Control System.

AUTHOR-TITLE ONLINE CATALOG

When LCS became available in 1970, the Libraries received a limited author-title online catalog. *(See Figure 1.)* The short bibliographic record, on which the 1970 online catalog was based, included call number, main entry, short title, edition statement, publication date, Library of Congress card number, and a holdings statement for each copy and volume. The holdings statements include copy number, volume number where applicable, library location, and circulation condition code. Also included is the FBR code which indicates when a full bibliographic record is available for the title.

These short bibliographic records are available for all 1.5 million titles listed on LCS. When a copy is charged to a library user, the display also includes the borrower identification, the date borrowed, and the date due.

FIGURE 1: LCS Short Bibliographic Record Retrieved Using a Detailed Search by Call Number

```
DSL/1
HN17.5T641971      TOFFLER, ALVIN        FUTURE SHOCK.
NOLC          1534121          1971          4          FBR
01          001  WTHDN UND
02          002          SOC
03          003  3WEEK UND RESENRCR 0 CHGD   790104/790405
04          004  3WEEK WCL
PAGE 1 END
```

AUTHOR-TITLE ACCESS

The author-title, title, and the author searches use nine character search keys. For the author-title search (ATS), four characters are taken from the first significant word of the author and five characters from the first significant word of the title. *(See Figure 2.)* For example, to search Toffler's *Future Shock,* the search key entered is TOFFFUTUR. A title search (TLS), includes four characters of the first significant word of the title and five characters of the second

significant word of the title. Thus, *Future Shock* is entered as FUTUSHOCK. The author search (AUT/author) key is composed of six characters of the first significant word and three of the second significant word. For example, Alvin Toffler is entered in the author search as TOFFLEALV.

FIGURE 2: The Display of Titles Retrieved from an Author/Title Search

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ATS/TOFFFUTUR
  PAGE 1        4 MATCHES        (ALL DISPLAYED IN 1 PAGE)
01  TOFFLER, ALVIN.        FUTURE SHOCK.              1971 FBR
02  TOFFLER, ALVIN.        FUTURE SHOCK.              1970
03*Toffler, Alvin.         Future Shock.              1970 FBR
04  TOFFLER, ALVIN, COMP.  THE FUTURISTS $1ST ED.     1972
```

The author-title, title, and author searches are considered general searches. A general search retrieves a list of titles which match the entered search. With an author-title search key, 90 percent of the LCS records display on a page of ten or fewer matches. With the AUT/author search, 83 percent of the records are displayed on three pages (fewer than 31 records). The information for each title displayed in a general search includes the author, title, publication date, and availability of full bibliographic records. If the author or title is longer than the allocated space, the word is truncated.

In the general search displays, each title is listed on a separate line which is identified by a line number. This line number is used in a detailed search by line number (DSL) to retrieve the short bibliographic record and circulation data.

SHELFLIST ACCESS

The shelflist position search (SPS) is another type of general search. In this search, the list of titles displayed is in sequence as on the library shelves. *(See Figure 3.)* The call number which was searched is displayed in the correct shelf sequence. The call number is followed, on the same line, by ten characters of the author's name, a portion of the book title, and the publication date. The same information is displayed for the other call numbers, which are displayed. If the requested call number is not present in the shelflist index, it is included in the proper sequence in the display followed by a blank line. The SPS display puts the holdings of all 29 OSU library locations in a single shelf order with all books available on the shelves.

FIGURE 3: A Display of the Retrieved Records in Response to a Shelflist Position Search (SPS)

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SPS/HN17.5T641971
11 HN17.5S36 /       / SAN SHIH NIEN HOU TI SHIH CHIEH/1976
12 HN17.5S51974 / SILVA, ANT / HIPPIES, DROGAS, SEXO, POLUICAO $2./
           1974
13 HN17.5S75 / STEIN, GEO/ THE INDIVIDUAL AND EVERYBODY ELSE/1973
14 HN17.5T5 / THOMASON, / THE PROFESSIONAL APPROACH TO
           COMMUNITY /1969
15 HN17.5T64 / TOFFLER, A / FUTURE SHOCK./1970
16*HN17.5T641971 / TOFFLER, A FUTURE SHOCK./1971
17 HN17.5T681 / TOURAINE, / THE POST-INDUSTRIAL SOCIETY/1971
18 HN17.5U44 / UNITED NAT / POPULAR PARTICIPATION IN DECISION
           MAKI/1975
19 HN17.5U45 / UNITED NAT / POPULAR PARTICIPATION IN
           DEVELOPMENT:/1971
1A HN17.5V57 / VIRILIO, P / ESSAI SUR L'INSECURITE DU TERRITOIRE //1976
1B HN17.5W42 / WEITZ, RAA / FROM PEASANT TO FARMER/1971
   PAGE 2 OF 3.   FOR OTHER PAGES ENTER PG AND PAGE NUMBER
```

Until June 1978, the shelflist position search was the only online subject search available on LCS. After June 1978, the shelflist position search continues to be the only subject access for titles cataloged before April 1978.

FUTURE CATALOG

When planning for the closing of the current card catalog, most academic libraries can assume that by 1981 they will be producing the majority of the catalog records in machine-readable form. These libraries can choose from one of the three computer-supported catalogs: computer output microform (COM) catalog, book catalog, or online catalog. The COM and book catalogs are not economically viable if the catalog is to be current, because these catalogs need to be regularly recreated in order to keep current with new titles added to the file. Thus, the Ohio State University Libraries have begun developing the Library Control System into a full online catalog for titles received in the Libraries after January 1974.

Capabilities identified which were needed in the previously described LCS in order to have a full online catalog are:

1. Display of full bibliographic records,
2. Access to the Libraries' holdings by subject,
3. Expansion of the author-title index to include joint author and title entries,
4. Provision of subject and name cross-references,
5. Full character storage and display of upper/lower-case alphabets and special characters,
6. Sufficient terminals to provide public access,
7. Tutorial instructions online available on request.

In June 1978, the OSU Libraries received three of these capabilities in the LCS system for titles cataloged since April 1978 throuch OCLC.

FULL BIBLIOGRAPHIC RECORD

The Full Bibliographic Record (FBR) display contains all elements which are included on an OSU Libraries catalog card. *(See Figure 4.)* The display format was designed to be compact

without loss of information. The call number appears on the first line, the author on the second. Indented two spaces, the title paragraph includes title, edition statement, imprint, and collation. All notes are in a single paragraph, which is also indented. The subject headings are in a paragraph which begins "SUB:" and are numbered with arabic numerals. The secondary name and title entries are in a paragraph which begins "AE:" and also are numbered with arabic numerals.

The full bibliographic record for a title, which has a FBR record in the file, can be retrieved by OSU call number (FBC), LCS title number (FBT) or by line number (FBL) after a previous general search.

FIGURE 4: A Display of the Full Bibliographic Record in Response to a Full Bibliographic Record Search by Call Number

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FBC/HN17.5T641971
HN17.5T641971
Toffler, Alvin.
    Future shock. New York, Bantam Books (c1971) 561 p. 19cm
    Bibliography: p. 522-540
SUB: 1. SOCIAL HISTORY—1945-    2. CIVILIZATION,
MODERN—1950-    3. SOCIAL LC CARD #:NONE
TITLE #:1534121 OCLC#:0556142        &bq781211
PAGE 1 END
```

SUBJECT ACCESS

The subject access in the LCS online catalog uses a subject index search (SIS) to display the subject headings available and also display the number of times each heading has been used. *(See Figure* 5.) The entered subject displays in alphabetical computer sequence as line 12 near the top of the second page. The user may request page 1 or page 3 to view additional headings.

FIGURE 5: The Display of a Response to a Subject Index Search

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SIS/SOCIAL CHANGE
11*   1 SOCIAL CASE WORK—RESEARCH
12   71 SOCIAL CHANGE
13   26 SOCIAL CHANGE—ADDRESSES, ESSAYS, LECTURES
14*   1 SOCIAL CHANGE—BIBLIOGRAPHY
15*   4 SOCIAL CHANGE—CASE STUDIES
16    4 SOCIAL CHANGE—COLLECTED WORKS
17    5 SOCIAL CHANGE—CONGRESSES
18    1 SOCIAL CHANGE—PERIODICALS
19    1 SOCIAL CHOICE—MATHEMATICAL MODELS
20   16 SOCIAL CLASSES
    PAGE 2 OF 3   FOR OTHER PAGES ENTER PS AND PAGE
                    NUMBER
                  FOR TITLES ON A SPECIFIC SUBJECT
                    ENTER SBL/ AND LINE NO.
```

A subject index search can be done on a Library of Congress subject heading or on any word or words which come to mind. The entered search displays on line 12 whether or not it has

been used as a subject heading in an LCS full bibliographic record. If the entered term has not been used, the number-of-items column is blank.

After the user has determined the subject in which s/he is interested, a subject search by line number (SBL) may be entered. *(See Figure 6.)* This display is in inverse order by publication date and within date in alphabetical order by the first four characters of the author. From this display, a line number search for either the full bibliographic record or a short record can be entered.

FIGURE 6: A Display of the Retrieved Records in Response to a Subject Search by Line Number (SBL/)

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SBL/12
  PAGE 1 OF 3
01  GN358E95 /       / EXTINCTION AND SURVIVAL IN HUMAN
          POPULATIONS /  /1978
02  HM101S626 /    / THE SOCIAL ECOLOGY OF CHANGE :/1978
03  HN57B455 / BENDER, TH/ COMMUNITY AND SOCIAL
          CHANGE IN AMERIC/1978
04  S.HN57B455 / Bender, Th / Community and social change in
          Ame/1978
05  HN80F18D58 / DIXON, MIM / WHAT HAPPENED TO
          FAIRBANKS? :/1978
06  HM281E37 / EISENSTADT / REVOLUTION AND THE
          TRANSFORMATION OF/1978
07  HV91G76 / GRONBJERG, / POVERTY AND SOCIAL
          CHANGE //1978
08  HN57J2479 / Janowitz, / The last half-century :/1978
09  S.HN57J2479 / Janowitz, / The last half-century :/1978
10  HQ734K33 / Kando, Tho / Sexual behavior & family life in
          tra/1978
SOCIAL CHANGE
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Although cross-references are not included in the current LCS online catalog capabilities, the subject file has been designed so that it can serve in the future as a subject authority file. *(See Figure 7.)* The plan is for subject cross-references to appear in the subject index display. When maintenance of the subject file is available, a single maintenance transaction can be specified to change a subject heading in all records in which it appears.

FIGURE 7: Subject Index Display with Cross-References

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Command:
          SIS/ABNORMAL CHILDREN—BIBLIOGRAPHY
Response:  11    3 ABNAKI LANGUAGE
           12      ABNORMAL CHILDREN
           13          see  EXCEPTIONAL CHILDREN
           14          see  HANDICAPPED CHILDREN
           15      ABNORMAL E (IONOSPHERE)
           16          see  SPORADIC E (IONOSPHERE)
           17      ABNORMAL PSYCHOLOGY
           18          see  PSYCHOLOGY, PATHOLOGICAL
           19      ABNORMAL REFLEXES, ABNORMAL
           20          see  REFLEXES, ABNORMAL
           PAGE 2 OF 3   FOR OTHER PAGES ENTER PS AND
           PAGE NUMBER
           FOR TITLES ON A SPECIFIC SUBJECT ENTER SBL/
           AND LINE NUMBER
```

JOINT AUTHOR ACCESS

As of June 1978, joint authors, for which full bibliographic records are in LCS, are included in the author-title and author search key indexes. The nine character keys are created from the joint author's name in combination with the title as it appears on the piece. When only a short bibliographic record is in LCS, the title cannot be retrieved by the second author's name.

CREATION OF LCS FILES

In 1970 the union shelflist of the OSU Libraries was converted into machine-readable form on contract by an outside vendor. Approximately 736,000 short bibliographic records were converted in this initial effort. In 1970 and 1971, the maintenance of the LCS records was done by keying onto magnetic tape the new cataloging records and other record changes.

In 1971 when OSU began cataloging through OCLC, the Libraries began receiving a weekly tape of its cataloging in machine-readable form. The LCS programers wrote the OCLC-LCS interface edit program which selects the cataloging records and data fields needed for LCS. When the OCLC-LCS interface was implemented, approximately 50 percent of the new cataloging added to LCS was from the OCLC tapes. Currently, nearly all of the new cataloging added to LCS is from the weekly OCLC tapes, including Slavic and Japanese. The other nonroman alphabet cataloging is not created through OCLC. Most nonroman cataloging is entered into LCS as short bibliographic records by optical character recognition typing and scanning.

In April 1978, we began storing complete cataloging to support the display of full bibliographic records and the LCS subject search. Initially this storage was in uppercase characters only. However, in December we began storing the full character set for the titles cataloged through OCLC. We made this decision to store the complete character set in anticipation of having terminals in two to ten years which would be able to display all characters. This change in storage was made before we began loading the retrospective file because we did not want to load the records twice, once in upper case only and the second time in full character set.

Until we have our own maintenance of the LCS full bibliographic records, we are maintaining these files through the OCLC-Machine-Readable Cataloging (MARC) Subscription Service. We have developed a relatively simple coding in the 910 field which tells the OCLC-LCS

interface program how to handle each record on the OCLC tape. One of our future requirements is to maintain LCS records online to LCS rather than through OCLC.

In December we also began the addition of approximately 200,000 State Library of Ohio records to LCS as full bibliographic records. The purpose of this cooperation was to permit State Library of Ohio to use LCS for circulation of their holdings. This change also increases library resources available to the patrons of both libraries as a result of 100 percent reciprocal privileges.

PUBLIC USE OF LCS

In 1970 the University Libraries had approximately 50 LCS terminals for staff use at circulation desks in the main library and in the department libraries. From the beginning, the LCS Telephone Center has used LCS terminals to provide library users, via the telephone, information regarding the Libraries' holdings by title, author, and call number.

In anticipation of replacing the card catalog with the online catalog, the number of OSU terminals has been increased to 87. Of these, 22 are public use terminals at which library users may do their own searching of the LCS online catalog. These public use terminals are serving an awareness function for current library users. They are also being used to project the total number of terminals needed and to test the current system and instructions. In October 227,800 transactions were entered into the LCS through the public terminals. This was approximately 30 percent of the total activity on the system.

RETROSPECTIVE CONSIDERATIONS

Currently OSU has author-title access and short bibliographic records for all of the Libraries' holdings except analytic records. We will have subject, added entry, and full bibliographic records for approximately 250,000 titles, those cataloged through OCLC back to January 1974. Thus, what we are lacking is subject and added entry access and full bibliographic records for approximately one million titles cataloged before 1974 and analytics. We have a plan for entering analytic records into LCS, which depends upon some relatively minor programing. However, the only way we can consider total retrospective full bibliographic records is to look for outside money, a source for which we are not holding our breath. Consequently, the card catalog will probably remain for some time, at least until we address the retrospective question in earnest.

LCS BONUS

The current LCS online catalog has capabilities which are not available in the OSU card catalogs.

Beginning in August 1975, titles which the Libraries have on order and those which have been received have been listed in LCS. Normally orders are not included in library catalogs and have not been included in the OSU Libraries card catalogs. The titles received but not cataloged may be borrowed by the Libraries' users through LCS.

The availability of the library holdings for borrowing has never been a function of a library catalog, but, with LCS, the user knows immediately if the book which s/he needs is available to borrow. The inclusion of the circulation information in the online catalog reduces the logistics problem caused by a decentralized library on a large campus.

LCS includes serial holdings. Many years ago, the OSU Libraries stopped recording the holdings of a serial title in the card catalog. These serial holdings were listed in a separate file which was not available during all hours of library opening. Since August 1977, nearly all of the retrospective serial holdings are listed on LCS, thereby giving access to all serial holdings from any LCS terminal.

LCS has records for titles in several microform sets which are not included in the card catalog. Examples of materials listed in LCS which are not included in the card catalog are ERIC documents, titles from Evans' *Chronological Dictionary of All Books, Pamphlets, and Periodical Publications Printed in the U.S.A. from 1639-1820, Wing's Short-Title Catalog,* the short catalog of *Early English Books, 1475-1640,* and the Human Relations Area Files.

Access to the OSU Libraries union catalog is available at all library locations and can be decentralized to academic departments, dormitories, and other institutions. This decentralization is saving staff time; the staff no longer must travel to a card catalog to provide service and answer questions.

The LCS file is constantly proofread. In LCS there is only one record which may be incorrect. In the card catalog, each card of a card set could have an error (not even a consistent error). With LCS the record is verified each time a title circulates. With the card catalog and a separate circulation system, the bibliographic record for the title is not seen at the time the book circulates.

LCS is current. LCS is updated weekly with an OCLC tape for cataloging done one to two weeks earlier. The online catalog does not require supplements to stay current.

LCS DISADVANTAGES

LCS has disadvantages as well. It is energy-dependent. The reduction in electrical power available to Ohio residents in the winter of 1977-78 forced the consideration of impact of energy shortage on any energy-based catalog. Microform catalogs are also dependent on electricity.

LCS is machine-dependent. OSU has been fortunate in that the computer has minimal downtime. The terminals have also been dependable. Our terminal response time is one to two seconds. However, we are dependent on a machine which is not organizationally under the control of the Libraries. Our optimistic picture could change.

LCS has experienced constant change because we did not completely design the online catalog before the programing began. Our staff and patron instruction has been complicated by the constant change. However, if OSU had waited for the design of a total library system, we probably would not have the online catalog today.

CLOSING THE CARD CATALOG

We are planning to close the card catalogs when the Library Control System online catalog provides at least the same search options as the card catalog. We have to provide name and subject cross-references, full bibliographic records for analytic records and nonroman cataloging, and sufficient terminals for user access before we plan to close the card catalogs. We would like to operate the online catalog in parallel with the card catalog, but the financial requirements to maintain two forms of catalog will be too great for the Libraries to support. When the LCS online catalog has proved itself to be at least the equal of the card catalog, the Ohio State University Libraries will close their card catalogs.