DOBIS at the Bibliocentre

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DOBIS AT THE BIBLIOCENTRE

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To fully understand why and how the Bibliocentre came to use DOBIS one must first learn about how the Bibliocentre came into being, what it was intended to do and how it has evolved in relation to the emergent needs of its users.

In 1966 the Ontario Government perceived a need for education of a technical and vocational character as opposed to the traditional academic university education for post-secondary students. An act was passed to create a community college system throughout the Province of Ontario. The result was the establishment of a network of 22 Community Colleges dedicated to providing job related post-secondary education. It was recognized that library resources for these new colleges had to be acquired quickly and efficiently. During 1966, therefore, a short term project was undertaken by McMaster University, Hamilton, Ontario to select, order, acquire, catalogue and process a small basic collection of items which would be duplicated in each of the libraries at these newly created colleges. At the conclusion of the McMaster Project, the decision was made to create a centralized technical services facility to perform all of the tasks handled under the McMaster Project, with one exception; book selection would be the responsibility of each individual library. The College Bibliocentre was the name given to this centralized facility. Although funded initially by the participating colleges, it was later funded by the Ministry of Colleges and Universities. At that time it was managed by an executive group within its own corporate structure, but operated under the stewardship of one of the Community Colleges. Its mandate and objectives were clearly defined and to date read as follows:-

1. To act on behalf of the participating Colleges as the central processing and cataloguing unit for all College resource book and non-book materials.
2. To act, as requested, as the central acquisition unit for book and non-book materials required for resource centres.
3. To ensure that the Bibliocentre databases are restructured and information is retrievable to meet the information needs of the Colleges.
4. To act in consultation with the appropriate staff at the Ministry of Colleges & Universities as a publisher/distributor of College - produced learning packages establishing copyright procedures wherever necessary.

Its community of users was defined as the libraries within this Community Colleges structure and that of Ryerson Polytechnical Institute, a major technical college which had been training skilled technicians in many job related fields for many years prior to the establishment of the Community Colleges. The present day user population numbers 105 individual campus libraries.

The Bibliocentre was fortunate to be in existence prior to the opening of some of the colleges, and most of the libraries. Only one large collection existed, this at Ryerson Polytechnical Institute. It meant therefore that in establishing a centralized technical services facility, standardized procedures could be developed and implemented without conflicting with a multitude of existing user procedures. Standards and procedures were developed, and a concentrated effort was made to build expertise in all of the technical services functions. The object was to give the Bibliocentre a high standard of competence in ordering and acquiring resource materials, both book and non-book media,
verification of derived records, and original cataloguing according to Library of Congress subject headings and Anglo American Cataloguing Rules. By its mandate the Bibliocentre was made virtually a technical services extension of each library of its users group. The bibliographic and location details relating to the holdings of the basic collections acquired through the MacMaster Project were held at the Bibliocentre, but on a manual file. As items were ordered, received and catalogued through the Bibliocentre facilities, the bibliographic data and location detail for all such items were added to this manual union file, and over 13 years these unique bibliographic records have grown to a total of 400,000.

It was found that of all items being processed, 60% of the total Bibliocentre workflow had previously been processed through its facilities. The importance of this to the operation, lay in the fact that 60% of the workflow did not need to pass through the hands of editors or professional cataloguers, but could be identified and processed by clerical personnel.

Since the Bibliocentre had no control over individual library book budgets, it also had no control over incoming workflow. Therefore from the earliest days following the Bibliocentre's inception, it became apparent that the Bibliocentre must automate to cope with the large but variable number of items to be processed, 100,000 to 130,000 a year or 500 plus items a day. In 1971 the first automated system was installed. The manual order and acquisition facility was converted to a batch process computer system operating through computer time purchased from an outside agency. This system fully controlled an item from the ordering stage to shipping including the production of financial reports and statements as well as shipping invoices for the total cost of each item to the user.

Between 1972 and 1973 the ability to automate all aspects of the operation was established when the retrospective bibliocentre data contained in the manual union catalogue was typed in MARC format and was either located on an LC-MARC tape, or read through an optical scanning device. All of these records were then mounted into the University of Toronto Library Automation System (UTLAS), an automated bibliographic service facility.

In 1973 the Bibliocentre switched from any further dependence on the manual system, to the completely on-line environment offered by UTLAS.

It was hoped that the Bibliocentre could now begin to offer benefits from the union database, which it had built up so carefully over the years, with the loyal support of its users. One such benefit was the capacity to produce a catalogue by Computer Output Microform (COM). Ryerson Polytechnical Institute was the first Bibliocentre user to make the decision to close its card catalogue. The Bibliocentre manipulated the bibliographic records in its automated database through the facility of its outside agency (UTLAS) and produced a COM catalogue for Ryerson in 1974 in three sequences, subject, name and title. Other users began to show interest in this and other developments and requests for computer produced subject and media listing, etc. followed.

In April 1975 the Bibliocentre became a fully operating division of Centennial College of Applied Arts and Technology. At that time the Order and Acquisition System was being handled in one service facility and the bibliographic database was being handled in another. This represented duplication and limited the capacity to respond to the growing demand for output from the librarians. Management realizing that accepted technical services functions were being rethought professionally and because of the size of the operation decided that every effort must be made to bring the two automated systems in house, and hopefully at some time to combine the two into one system. To this end, the order and acquisition system was mounted on the College's IBM 135 computer, during 1975, where it continues to run as a batch system. Investigations were carried out with the co-operation of the National Library of Canada on the Searching and Cataloguing modules of the DOBIS system. The version of DOBIS adapted for the National Library of Canada to include Canadian MARC format capabilities was mounted in a research mode, also, on the College's IBM 135 computer, and a period of vigorous testing commenced.
What did we find when we started looking at DOBIS? Briefly stated, we found the following. A highly sophisticated system which, using a single shared database concept, is designed at present to handle searching and cataloguing, and in the future all library automation requirements such as circulation, order and acquisitions, periodicals and serials control, and inter-library loan, all in an on-line environment. An important characteristic of the system lies in the acceptance of bibliographic data into two distinct but linked structures.

One structure consists of a series of eight basic access point files: names, titles, subjects, publishers, classification numbers, International Standard book numbers (I.S.B.N.), Library of Congress card numbers (L.C.C.N.), and Miscellaneous numbers. Any specific element of data is carried only once in its appropriate access point file regardless of the number of documents within which the specific element is contained. These eight access point files, as their names imply are immediate routes into the specific document within the database.

![DOBIS Access Points](image)

Furthermore, it was found that by changing an element once in the access point file, the element automatically appeared correctly in all the documents in which it occurred. It was also noted that an authority file structure existed for the data held within the access point files, and that such authorities could be established during the routines in cataloguing new documents. An exciting asset was recognized in the ability of the DOBIS system to permute entries in two of the access point files. This simplifies the search routine, making possible, for example, a search on a single word of a title.

The second structure contains the bibliographic files. Within this structure is found only the bibliographic data which relates uniquely to a particular document, i.e. the notes, etc., and the pointers to the shared data in the access point files. The way DOBIS manages data by eliminating repetitive data within each structured bibliographic record, makes it possible to mount records on less disc space than other systems.

Other benefits include the ability of the system to lead the terminal operator through all procedures including the MARC coding, in an easily understood dialogue type of communication, which is presented logically on the screens, the translation of such dialogue automatically into the DOBIS coding structure; and the existence of a security level system designed to enable different functions to be controlled according to an individual's designated function or capability to ensure security of data. The advantages of such facilities are significant. Easier and shorter training periods as well as fewer data entry errors are bound to increase productivity.

The outcome of this testing was the decision to purchase an IBM 1482 megabyte computer in 1978. This facility is now installed and fully dedicated to running DOBIS in-house at Centennial College for the Bibliocentre operation. A copy of the entire Bibliocentre database (400,000 records) was purchased from the external automated
system service (UTLAS), where it had been stored. Arrangements were made for a weekly up-date tape to be supplied to keep the total database current. It was requested that both the weekly up-date tapes and the entire database be supplied to the Bibliocentre as it had been input, in MARC. Programming and systems designing began in earnest to make the changes and modifications necessary for the Bibliocentre's specific operation. The first task to be tackled was the translation of the 400,000 record database existing in MARC format to the DOBIS structure. To decide where the data was to rest in DOBIS, decisions had to be made individually for each of the MARC tags plus each tag's individual subcoding and indicator structure. Differences between MARC format and the adaptation of the format by the agency housing the Bibliocentre database had to be reconciled, so the information would not be lost or misinterpreted into DOBIS.

**Fig. 2**

**MARC DOBIS CONVERSION**

A few examples

**MARC RECORD**

**LEADER & FIXED FIELDS**
- Cat. Source
- Publication Date
- Country of Publication
- Media Code etc., etc.

**NAMES**
- Personal
- Corporate
- Meetings
- Conferences
- Personal Added Entry
- Corporate Added Entry
- Conferences Added Entry
- Meetings Added Entry
- Series Added Entry
- Etc.

**TITLES**
- Statement $a & $b
- Overflow from $a & OR $b
- Remainder $c on Added
- Uniform
- Collective
- Series: Meetings or Conferences Etc.

**SUBJECTS**
- Personal
- Corporate
- Meetings or Conferences
- Uniform Title
- Topical
- Geographic
- Edition Statement
- Collation Statement
- Publishers
- Place of Publication
- Classification No's
- ISBN/ISSN
- LCCN
- Bibliocentre Local Accession No.
- Government Document No's
- Notes
  - Bibliographic
  - General
  - Contents
  - Analytic
  - Annotations & Summaries
- Date of Publication
- Holdings (Location Code)
The problem of the constraints within DOBIS to accommodate only 255 characters in the titles access point file was resolved. Two title note types (title overflow and title remainder) were created in the note structure. The title overflow note type handles the 255th character and those remaining in the MARC tag 245 $a and $b exceeding the character limited. The title remainder note type accommodates all characters in MARC tag 245 $c and on.
It was decided to permute only corporate names, and multiple surnames within the Names Access Point File, but in the Titles Access Point File to permute all entries on each word within the entry, up to 254 characters, except for those words appearing in the stop word list. A stop word list was compiled that commonly used words such as encyclopedia, handbook, history, science, etc., as well as articles would not be permuted. A table of symbols to be translated by DOBIS in the printing of diacritics was developed. Diacritics were entered into the bibliographic files by using the symbols of this table.

Once the decision making process was completed and the DOBIS format finalized, programmes were written to load the records onto DOBIS, to create error messages when the data being loaded did not meet pre-determined loading criteria, and to reject any record that obviously did not fit into the designed format. These loading programmes used the DOBIS batch programme "Reorg" which was already available, and not the DMARC interface facility, because production at the Bibliocentre could not stop whilst conversion was taking place. New programmes were added to DOBIS to accommodate Canada's bi-lingual situation and the handling of the location information for the 105 different user location codes. The existing copies facility available within DOBIS could not be used because it was not suitable to meet the location entry requirements relating to such a large number of users. Specifications were written for output products, including the actual formatting of all the catalogue cards (main entry, title, subject(s), added entries, analytics, etc.,), spine labels, book cards for manual circulation purposes and punched cards for automated circulation support. Output products programmes were written to these specifications to produce output in real time. The Bibliocentre allows for an individual profile for output products for each of its users. The combination of the number and type of cards within a card set therefore differs from user to user. Up to five main cards plus one card for each added entry, subject or title as well as analytic cards can be provided. In addition, users may request either French or English subject headings for French language material. The exclusion of any category is possible according to individual needs. The same user choice applies to the production of a spine label, a book card for a manual circulation system or punched cards for automated circulation control. Each users profile carries the local requirement for the output products available: all, none, or some. A table containing each user's output profile was built into DOBIS. These programmes were written for machine decision making to be modified by the operator, only in the case of exceptions to the profile.
Output programmes had to cope with the decisions already made in designing the DOBIS format. For example, although the decision was made to put title overflow and title remainder into the notes within the bibliographic file, this data had to be retrieved, and printed in its correct position on the catalogue cards.

The Bibliocentre through the years had been inconsistent in applying punctuation to its data. It was therefore decided that during the load programmes, DOBIS would strip all existing punctuation between fields and sub-fields, and that the output programmes would automatically print the correct punctuation in accordance with the rules laid down in the International Standard Bibliographic Description (I.S.B.D.). Programmes were written to make this possible.

Staff training on the DOBIS system was undertaken in a pyramid type mode. It was started at the Supervisory level and progressed downwards through the organization. The staff were enthusiastic with features such as the ability to move the cursor backwards and forwards to error positions, making it easy to insert and delete data. The ability to chain command was soon discovered, and the dialogue screen facility made the training easy. It took minimal instruction time, and two hours of practice to train a staff member to locate a correct bibliographic record for an item within the database, to add copy information, and to order output products. Before long, these terminal operators were forming chain commands and exercising them through the PF key functions available on the IBM 3278 terminals.

During March 1979 transition from the testing parallel mode to live production was successfully and easily made. The entire database (400,000 bibliographic records) was mounted onto DOBIS in approximately 48 hours. Some interesting statistics evolved from this load:

<table>
<thead>
<tr>
<th>Records totally rejected during load</th>
<th>148</th>
</tr>
</thead>
<tbody>
<tr>
<td>Records in Names Access Point File</td>
<td>444,941</td>
</tr>
<tr>
<td>Records in Titles Access Point File (includes permutations)</td>
<td>1,444,524</td>
</tr>
<tr>
<td>Records in Subjects Access Point File</td>
<td>162,439</td>
</tr>
<tr>
<td>Records in Publishers Access Point File</td>
<td>66,141</td>
</tr>
<tr>
<td>Records in Classification Access Point File</td>
<td>411,198</td>
</tr>
<tr>
<td>Records in Library of Congress Card Numbers Access Point File</td>
<td>219,936</td>
</tr>
<tr>
<td>Records in Miscellaneous Numbers Access Point File</td>
<td>436,771</td>
</tr>
<tr>
<td>College location codes added</td>
<td>approx. 1,500,000</td>
</tr>
</tbody>
</table>

At the present time DOBIS is being used to process any item located on the Bibliocentre (DOBIS) Database. As I have already mentioned, that accounts for 60% of the workflow, (350 plus items per day). All incoming items are taken from the receiving area directly to the six DOBIS IBM 3278 screens. The DOBIS terminal operators search the database for a record. If the record is located, the copies information is added to the bibliographic record and one command signals the output products requirement according to the user profile. These output products are produced in real-time. The catalogue cards are printed on an IBM 1403 printer equipped with an American Library Association (ALA) print train. The punched cards, for users who have automated circulation systems are produced on an IBM 1442 read/punch, while the book cards for manual circulation, and spine labels, are produced on two IBM 2741 typewriter terminals.
PRODUCTS IN REAL TIME

SEARCH DOBIS D.B.

MATCH ? 60%

UPDATE HOLDINGS GENERATE OUTPUT

MATCHBACK
- SPINE LABELS
- CAT. CARDS
- CIRC. CARDS
- BOOK CARDS

QUALITY CONTROL

TATTLE TAPE & JACKET

SHIP

100% OF ITEMS

SEARCH

DATA BASE?

PRINT

RECORD

VERIFY

30%

PHOTOGRAPH

PRINT

FOUND?

ORIGINAL
CATALOGUING

10%

ITEM AWAITS WEEKLY UPDATE TAPES.

UPDATE DOBIS D.B. WEEKLY

SIMPLIFIED C.B. WORKFLOW

MAY / 79

Fig. 4.
If the item is not located on the DOBIS database it passes to the bibliographic searching area where a search is made for an agency record such as Library of Congress or National Library of Canada. Necessary changes are made to any such record to reconcile it with Bibliocentre practices. If an agency record is not found the item is originally catalogued. In these instances the items are shelved to await output products through DOBIS processing, while the records are entered into the UTLAS facility in the MARC format, and are brought to the Bibliocentre weekly on an up-date tape. The records from this update tape are then fed through the load/update programmes into DOBIS. Once the records are mounted on to the DOBIS database, the correct record is located through DOBIS by the terminal operator, holdings details are added, output products are ordered in real time and the item joins the regular processing flow.

As items are processed through DOBIS they are collected at the matchback area and left in the six separate sequences identified by terminal operator number. Because output products are produced in real time, the number of actual items collected at any given time in any one sequence is very small. The catalogue cards have the same terminal operator number printed on the face of each card, so it is an easy task to band individual cards into card sets and match them to the other output. The call number is used as the identifier for the various output products and this matchback process creates no problems as all output is printed in the same sequence. The output "kit" is now matched to the item using the operator number as an identifier. The remaining stages of processing, quality control, jacketing and tattle-taping are completed, and the item is ready for shipping. The production of the output products in real time for all items on the DOBIS database decreases time required to hold an item in process from a minimum of 10 days to only 1 day.

Editing on-line through DOBIS to existing Bibliocentre records is a daily task. For the first time, like entries are gathered together for browsing in the access point files, and the inconsistencies are all too apparent. Many errors have been made over the years, not only input errors, but errors relating to the choice of entries and the form of entries used, as well as in applying MARC coding. Using the existing security level system, senior technicians are beginning to clean-up these errors, and are considerably helped by the organization of data within DOBIS. This clean-up work is progressing quickly and efficiently because of the ability of DOBIS to change the relevant data in all the documents sharing a common access point file entry, when the single access point entry is changed. Using the same mechanism, the Bibliocentre will be changing out-dated Library of Congress subject headings to current subject headings as such changes are announced. The implications of changing cataloguing rules as presented in Anglo American Cataloguing Rules2 are enormous and many technical service units are already wondering how they can cope with such changes. Through DOBIS the Bibliocentre feels it has some chance to make at least the most important changes retrospectively because of the access point file change facility.

Through the load programmes used for the conversion to DOBIS, some data was automatically entered into the access point file authority structure. As clean-up progresses, such authority files will be further developed by adding authority notes and cross references.

The Bibliocentre is using DOBIS for regular maintenance related to the location of the actual items held by the 105 users. The user notifies the Bibliocentre when items are withdrawn from the library, or are transferred to another campus location, and the relevant changes are made quickly and efficiently on the DOBIS database.

In preparation for LIBIS, one of our users has a remote screen installed and while waiting for LIBIS the screen is being used to access the database for order verification purposes, as well as a searching tool to support public service work.

The Bibliocentre has one other operation that I have not as yet discussed. It warehouses, distributes and prints Individualized Learning Packages on behalf of various levels of government or government sponsored agencies. These Learning Packages are structured
study courses in job related subject areas designed to be used both individually and in the classroom. The Bibliocentre, realizing the great flexibility of DOBIS, found that it was possible to structure the details of these Learning Packages into a compatible format with existing bibliographic records, and to enter the Learning Package details into the 400,000 DOBIS database. The individual numbers (put into the Miscellaneous numbers file), author, title, publisher, and subject information fitted into the existing bibliographic structure through the access point files. Anglo American Cataloguing Rules and Library of Congress subject headings governed the entry of this data into DOBIS. The choice of notes was extended, keeping these learning package notes not only completely separated from the bibliographic notes, but signaled differently and displayed on a separate screen after the bibliographic notes choice screen. The Learning Packages extended notes include, duration of course, learning objectives, related employment opportunities, details of diploma or certificate issued on completion, entry requirements, etc. The availability of such Learning Packages is now apparent by searching the access point files through the DOBIS on-line environment. To enable these Individualized Learning Packages to be quickly identified when browsing through the access point files, a set of initials depending on the government agency producing the package, was affixed to each title. A skip in filing was exercised at input, but as these initials display on the screens the Learning Packages data is easily found. Such a procedure was developed because of the large database, and the relatively small number of packages (2,000). To scatter such information throughout 400,000 records would have made quick retrieval difficult without the prefix initials. Because its data shares the same files as the bibliographic data, it is possible to see not only details on the availability of Learning Packages in specific subject areas, but at the same time the availability of library resource material to support such courses. The addition of more Learning Package data is continuing on-line through the cataloguing module. This data is already proving to be of great value to the departments who initiate and sponsor such packages. DOBIS on displaying the availability also demonstrates the lack of such learning packages in specific subject areas. It is expected that because of this high visibility the authors of Learning Packages will be better able to respond to such needs. Faculty and guidance counsellors will have the use of this data, as well as government agencies responsible for retraining.

CATALOGING

Fig. 5

NOTES

<table>
<thead>
<tr>
<th>BIBLIOGRAPHIC NOTES *** FOR LEARNING PACKAGES ONLY ***</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 DURATION</td>
</tr>
<tr>
<td>101 CERTIFICATE</td>
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<tr>
<td>102 ENTRANCE REQUIREMENT</td>
</tr>
<tr>
<td>103 OCCUPATIONAL POSSIBILITIES</td>
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<tr>
<td>104 PURPOSE</td>
</tr>
<tr>
<td>105 TERMINAL PERFORMANCE OBJECTIVES</td>
</tr>
<tr>
<td>106 INTERMEDIATE PERFORMANCE OBJECTIVES</td>
</tr>
<tr>
<td>107 INDIVIDUAL PROGRAM INSTRUCTION</td>
</tr>
<tr>
<td>108 JOB DEFINITION</td>
</tr>
<tr>
<td>109 RELATED OCCUPATIONS</td>
</tr>
<tr>
<td>110 ENVIRONMENTAL CONDITIONS</td>
</tr>
<tr>
<td>111 PHYSICAL ACTIVITIES</td>
</tr>
<tr>
<td>112 WORK WEEK</td>
</tr>
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<td>113 SALARY</td>
</tr>
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114 PERSONAL APPTITUDE FACTORS
115 PERSONAL INTEREST FACTORS
116 PERSONAL TEMPERAMENT FACTORS
117 FUTURE OUTLOOK
118 COLLEGES OFFERING THE PROGRAM
119 SEEKING EMPLOYMENT
120 GATB PROFILE
121 SOURCES OF INFORMATION
<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>DIAMOND CUTTERS A CABBAGETOWN PLAY</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>DIAMOND DRILL HANDBOOK</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>CCDO DIAMOND DRILL OPERATOR *</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>DIAMOND DRILLING INDUSTRY</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>TIP ASSISTANT - DIAMOND DRILLING OPERATOR'S PROGRAM (SURFACE) *</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>DIAMOND FEATHER; OR, THE DOOR IN THE MOUNTAIN A MA</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>DIAMOND GIRL (PHONODISC)</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>DIAMOND GRINDING RECENT RESEARCH AND DEVELOPMENTS</td>
<td>1</td>
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<tr>
<td>9</td>
<td>DIAMOND HITCH</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>DIAMOND HUNTERS</td>
<td>1</td>
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<tr>
<td>11</td>
<td>/ THE LION FEEDS THE DIAMOND HUNTERS. EAGLE IN THE SKY. GOLD MINE. S</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>DIAMOND IN THE ROUGH THE CAMPBELL RIVER STORY</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>DIAMOND IN THE ROUGH (PHONODISC)</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>/ ILLIAN RUSSELL AND DIAMOND JIM BRADY IN AMERICA'S GILDED AGE</td>
<td></td>
</tr>
</tbody>
</table>

*Denotes Learning Packages

<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>E 1</td>
<td>HORWITZ, HENRY WELDING PRINCIPLES AND PRACTICE</td>
<td>1979</td>
</tr>
<tr>
<td>E 2</td>
<td>AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE--STEEL</td>
<td>1979</td>
</tr>
<tr>
<td>E 3</td>
<td>ALLEN, B.M. SOLDERING AND WELDING</td>
<td>1978</td>
</tr>
<tr>
<td>U 4</td>
<td>CENTENNIAL COLLEGE LEARNI TIP WELDING TECHNOLOGY *</td>
<td>1978</td>
</tr>
<tr>
<td>U 5</td>
<td>NORTH WEST TERRITORIES TIP WELDING PRE--EMPLOYMENT COURSE DEVE *</td>
<td>1978</td>
</tr>
<tr>
<td>U 6</td>
<td>CENTENNIAL COLLEGE LEARNI CCDO LAYOUT, FITTING AND WELDING *</td>
<td>1978</td>
</tr>
<tr>
<td>U 7</td>
<td>CENTENNIAL COLLEGE LEARNI CCDO WELDING FITTER *</td>
<td>1978</td>
</tr>
<tr>
<td>U 8</td>
<td>CENTENNIAL COLLEGE LEARNI CCDO WELDING OPERATOR *</td>
<td>1978</td>
</tr>
<tr>
<td>E 9</td>
<td>LEAKE, KENNETH WELDING CRAFT SCIENCE</td>
<td>1967</td>
</tr>
<tr>
<td>E 10</td>
<td>LEAKE, KENNETH WELDING SCIENCE AND METALLURGY</td>
<td>1968</td>
</tr>
<tr>
<td>E 11</td>
<td>MASTERTON, ROBERT N. STUDY GUIDE FOR WELDING TECHNOLOGY</td>
<td>1973</td>
</tr>
<tr>
<td>U 12</td>
<td>OATES, JOHN ARTHUR WELDING ENGINEER'S HANDBOOK</td>
<td>1961</td>
</tr>
</tbody>
</table>

*Denotes Learning Packages
In the very near future, the Bibliocentre will be turning its attention to adding new bibliographic records immediately to DOBIS through its on-line cataloguing facility. The training of cataloguers is underway to achieve this end.

Programmes are presently being written to manipulate the data through DOBIS to provide Computer Output Microfiche catalogues in three separate sequences; author, subject, and title, as well as to provide Learning Packages details, also in COM format. It is hoped to be able to offer COM produced catalogues for all users by September 1979.

Activity is also underway to provide Circulation through LIBIS for some of our users. It is planned to have a LIBIS pilot project operating for Ryerson Polytechnical Institute in September 1979, and to extend the project to two other users by Spring 1980.

Further, in the future it is hoped to use DOBIS as a total library automated system. To further streamline the Bibliocentre operation, the order and acquisition module will be used and the existing automated batch order and acquisition system will be abandoned, thus merging the existing two automated systems into one. It is hoped to extend this facility out to the user's site, to enable the automated ordering cycle to start at the user level. An on-line facility to the database would enable a search to be made not only of the bibliographic data, but also of the items already on order. This would enable book selection criteria verification to take place through access to the entire database. The placing of an order on-line for a new item not previously on the database could be the beginning of the bibliographic data, further eliminating duplication of effort. Such order files are, of course, not available to the user on the present system resulting in much duplication of order verification at each user library. Hopefully at some future date it will be possible to turn resources towards utilizing the serials and periodicals modules as well as inter-library loan, if our users so desire.

Why are we so excited about DOBIS at Centennial College? DOBIS has made it possible to bring our entire operation in-house, resulting in measurable benefits already. We find items are being processed faster through DOBIS than ever before. This fact has to reflect favourably on service to our users. Items are not only moving faster through the system, but because of the quick search through the access point files more items are being processed by fewer staff. There is also a marked improvement in the level of operator accuracy in finding a matching record due to the almost catalogue card format of the on-line full bibliographic display screen. The security of the data has increased because of the DOBIS "layered" security system. The Bibliocentre is taking full advantage of this. On-line terminal operators have only the security level necessary to perform their specific function i.e. Searching only has the lowest level (level 1); Catalogue/Searching with ability to add holdings information to the bibliographic record (level 2); editing data in the document file (level 3); editing entries in the Access Point File (level 4); etc. As new data is input on-line, DOBIS demands that the integrity of the data be checked to the entries already available in the access point files, thus the possibility of creating inconsistent entries diminishes. Present inconsistencies of data elements can be systematically and quickly corrected because of the pointer facility between access points and document entries. Data can be kept up-to-date as national agencies such as Library of Congress implement changes to reflect our changing environment. Punctuation can be changed to reflect ISBD changes, automatically by programme changes implemented by the system, rather than by an operator looking at data segments. The bringing of our operation in-house has given us total control over our own destiny. Development of continued automation relate to our users needs, their priorities are our priorities, not influenced by any needs other than our users and Centennial College.

The Bibliocentre already has a networking facility operating for its users throughout Ontario. DOBIS is demonstrating its potential to be a very powerful database management tool within this network environment with many capabilities which we hope and plan to use in the future. In looking back over the history of the Bibliocentre to the present day, I realize the great strides that have taken place, from a small manual technical services project born hurriedly out of necessity, to a well planned highly sophisticated DOBIS facility employing 67 people, handling 100,000 plus items a year, able to respond to the needs of its user community. We look forward with confidence to the changing demands of the future, a confidence based on the demonstrable flexibility of DOBIS.
DISCUSSION

Mr. J.E. Skipper: DOBIS lacks components for acquisition, serials control, etc. Who is responsible for future development?

Carpenter: Louvain is working on the development of acquisition functions. The other lacking components are yet to be assigned.

Dr. D. Shaw: Are the file contents in fixed or variable fields? What is your total character storage?

Carpenter: All fields in the access point files are actually variable storage, key portions can be up to a maximum of 255 characters, but fields in the bibliographic file are not fixed. Total file storage is approximately 500 million bytes for the bibliocentre database of approximately 400,000 records.

Prof. A.J. Evans: Why did you use full MARC capability? Did you really examine the need for this?

Carpenter: Yes, we considered this necessary, in view of the fact that we serve 105 users with different requirements. So we wanted a highly structured flexible system.

Evans: Are the access point files fully updated inverted files, which is presumably fairly expensive, and do you really need them all, particularly for example the publishers' file?

Carpenter: It is no more expensive than repeating data over and over again, because of inverted files, storage is saved by elimination of redundancy. Once again, we wanted full capability of carrying out any search as quickly and easily as possible. The publishers' file may, for example, be useful when ordering system is implemented.

Mr. P. Durey: Would you comment, Mrs. Carpenter, on the kind of records your clients want?

Carpenter: Yes. Enquiries have been so varied - lists of AV material, phonotapes, videotapes, subject listings, listings by LC classification. With DOBIS we can now hopefully produce these products, and are programming to this end.

Mr. G.A. Hamel: You are going to provide COM fiche for your users. What cataloguing hard copy do you provide?

Carpenter: We produce catalogue cards. Colleges get one complete set of cards for each record (main entry, subject cards etc.) or COM catalogues three times a year. We plan to offer a COM catalogue author, subject, title in three separate sequences monthly on demand for all users if required. We will supply complete catalogues each run. We will not be providing supplements.

Mr. F. Boeckx: Your chose microfiche. Did you examine other forms of physical output?

Carpenter: We gave the choice to the users, and they preferred microfiche. But as the system goes on-line, we hope to realize a real dialogue user-system. This may not be possible for all colleges, because some are a great distance from the central processing unit and therefore data transmission costs are involved.

Mr. M.J. Pees: How many staff are there in your organisation?

Carpenter: There are 67 people in the Bibliocentre and 5 systems engineers.