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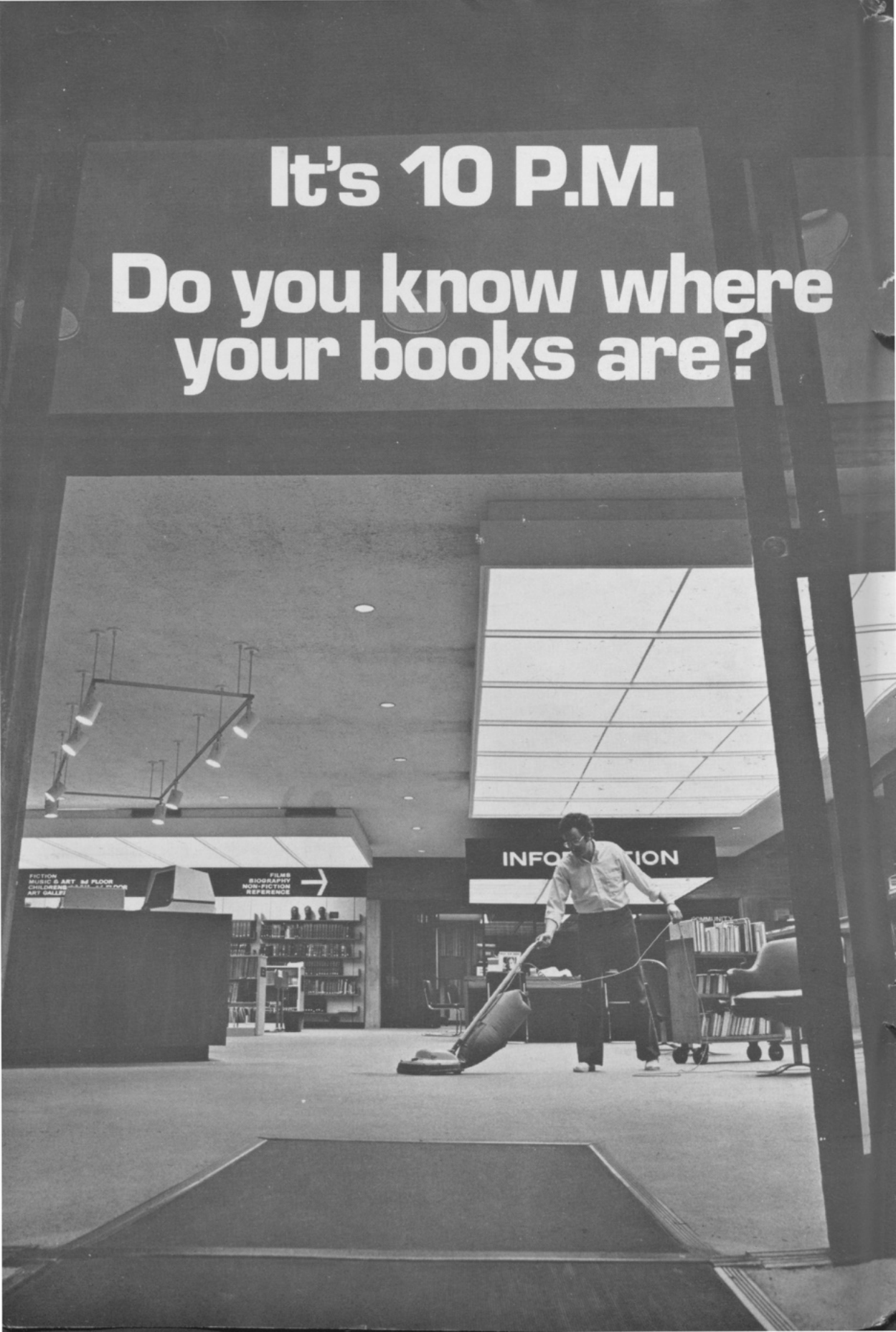
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FILMS
BIOGRAPHY
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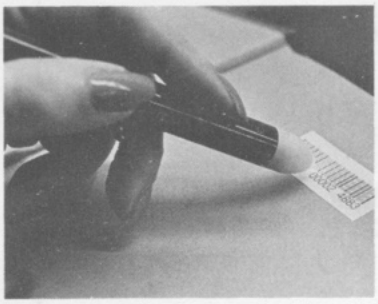

First, LIBS 100 speeds check-out. The book and patron information is quickly read with an electronic pen. It takes about two seconds.

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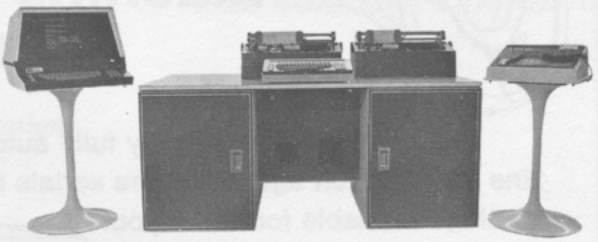

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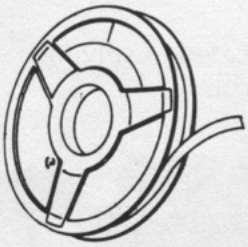

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The Best of All Possible Worlds

When the establishment of the Joint Advisory Committee on National Bibliographic Control was announced earlier this year by the Council on Library Resources and the National Science Foundation, many librarians were upset at the apparent lack of balanced representation. Of six committee members, only one is a practicing librarian. The publishers have one representative, information centers/services are represented by three people, and the sixth person is a library school faculty member.

Logic tells us that this community, while large and dispersed, has some fundamental commonalities. Libraries, information centers, publishers, and indexing and abstracting services all hold in some form the goal of distributing information to some public. All deal with data representing a variety of media (descriptive bibliographic data) and with data representing content. Practices of bibliographic control are generally stable within each segment of the community, but only rarely cross the boundaries between segments. Although the difference between profit-based and service-based motivations have driven a barrier between publishers and the "information industries" on the one hand and libraries and information centers on the other, a modern-day Candide might still hope for communication among all these groups in the better interest of not only the information community but also those who are served.

Therefore there may be some long-range advantages in the lopsided arrangement offered by the Joint Advisory Committee. A common fault with library services is their lack of in-depth description of content (Aveney's editorial in the June 1975 *JOLA* treats this problem). Perhaps it is reasonable, in attempting to establish concepts of national bibliographic control, to bring together the various segments of the information community to take advantage of the strength of each. Perhaps it is the hope of the Council on Library Resources and the National Science Foundation that the emphasis on service given by the information centers will be transmitted somehow to library services. Perhaps, after considering the problem, we librarians should also adopt this hope, rather than struggling alone with our acknowledged deficiencies in subject analysis and reference services.

A national program of bibliographic cooperation would be complex, expensive, exciting, and potentially extremely beneficial for information users. Before we allow our egos to respond too rapidly with antagonism to a project that "wasn't invented here," we should examine the reasons for the structure of the joint committee and its potential value. In the final analysis, we may need it.

SUSAN K. MARTIN

The Washington Library Network's Computerized Bibliographic System

Mary Jane Pobst REED: Washington State Library.

The Washington Library Network is developing a computer-assisted bibliographic system to speed and expand library operations throughout the state. Features include MARC format with all content designators, subject and name authority files, sorting by LC rules, and stringent quality control. Future modules will add acquisition/accounting and circulation support. On-line capabilities are currently under development.

This paper describes the present batch-mode cataloging support subsystem, its history, operation, impacts, problems, costs. Present developmental efforts toward on-line integrated acquisitions and cataloging support are indicated.

INTRODUCTION

The Washington Library Network (WLN) is developing a computer system to speed and expand library operations. The WLN emphasizes the sharing of resources among all types of libraries and the economies of a centralized computer-communications system to provide assistance for libraries' internal functions, boosting the power of libraries to respond to today's rapidly increasing information demands within ever-tighter funding patterns. Such a system would incorporate at least the following qualities:

- Adaptability to various computer configurations and library requirements;
- Ability to access and update current data in an on-line mode;
- Assistance to most library functions: order and receipt, cataloging and processing of materials, accounting, circulation, reference searching;
- Ability to handle all kinds of bibliographic records;
- Careful quality control for accuracy and completeness of data;
- Ability to intake and output MARC II formatted records, for standardized communication with other libraries' computer systems;
- Capacity to serve multiple libraries in a network configuration.

This computer-communications system is designed with the potential to be broadened to a multistate network, to be interfaced with or be emulated

by other libraries' or states' computer systems, and subsequently to become an integral part of national and international information networks.

A basic assumption is that the totality of library information in any area or state or region or in the entire nation is a people's resource which, as with the educational system, should be sustained and made available equally to all in the public interest. All citizens, regardless of domicile location or economic or physical problems, should expect convenient access to library resources and information services for their self-enrichment, economic well-being, and entertainment. With the help of new technologies, the ability of libraries to provide their constituents with wanted resources can be improved. The Washington Library Network is the outgrowth of statewide planning to realize this overriding concern.

ENVIRONMENT OF SYSTEM

Library development in Washington encompasses a long history of intrastate and interstate cooperation. An early expression of the latter is the establishment of the Pacific Northwest Bibliographic Center in 1940 to serve Montana, Idaho, Oregon, Washington, and British Columbia (later adding Alaska); PNBC was reorganized in 1970 to improve the interlibrary loan flow throughout the region. Based on a long-range library development plan initiated by the Washington Library Association in the 1930s, fifteen district library systems now coordinate public library services to over 60 percent of the state's population. (Only 4 percent of the population lack public library service at present, with 36 percent served by municipal and club libraries.) Active cooperation continues to expand with such endeavors as community college consortia, area programs involving various types of libraries, liberalized interlibrary loan procedures, and multidistrict patron cards. Various intrastate serials listings have been published: e.g., a statewide serials title list, a serials holdings list at the University of Washington, and a union list of serials holdings for the libraries in the Spokane area. The State Controlled Area Network telephone service has been extended to public and academic libraries throughout Washington to facilitate resource sharing. Leaders in the library profession have over the years sustained the vision and the climate for such a statewide effort as the Washington Library Network's computer system.

The chronology of data processing in Washington libraries goes back at least to 1951, when the King County Library began publication of the earliest continuous machine-based public library book catalog in the nation. From 1966 to 1968, the Washington State Library (WSL) participated in the Library of Congress' MARC I pilot project, utilizing the MARC I tapes to produce catalog cards, book cards, pocket and spine labels, and a rudimentary book catalog. In 1967 the state's library profession accepted in principle the Becker and Hayes report, *A Proposed Library Network for Washington State,* and designated the State Library as responsible for spearheading development of the Washington Library Net-

work.[1] Additional studies by State Library personnel laid the groundwork for more specific decisions.[2-4]

On the basis of these studies and experiences, Washington librarians agreed on the desirability of developing a computer system to aid the state's libraries in coping with the ever-growing problems of handling information. A prime goal of the system was to expedite the sharing of resources among all libraries of the state, so that a citizen anywhere in the state might have access to material in any library of the state. At the same time, the system was expected to improve the efficiency and economy of libraries' operations through reduction of duplicate acquisitions, better control of bibliographic records, and improved interlibrary communication. In general, service to users was to be improved without proportional increase in expenditures.

The system must assist all types of libraries in their appropriate internal functions and must be capable of dealing with various types of materials. Structurally, a centralized computer hardware facility was envisioned with subcenters for some area cooperative functions such as materials processing or bibliographic referral, these functions to be determined on the basis of evolving experience. Additionally, the system must be capable of becoming a node in a national bibliographic network. As a corollary, adherence to the MARC II communications format was a stated requirement as the basis for external compatibility.

With these requirements in view, computer-assisted library systems throughout the nation were surveyed and evaluated. Each system failed in some aspect to meet all the basic criteria: most were designed for utilization by a single library, e.g., Bibliographic Automation of Large Library Operations using a Time-sharing System (BALLOTS); or were limited to serving only some of the desired library functions, e.g., New York Public Library (NYPL); or lacked adequate provision for quality control, e.g., Ohio College Library Center (OCLC). The one weakness seemingly common to all was an inability to create local records in the MARC II format with all content designators, and to output records in the same standard communications format. On the basis of this evaluation, it was decided that no existing system should be adapted, but a computer system must be developed to match the Washington Library Network's specifications.

PILOT SYSTEM

In 1971 the Washington State Library Systems Group and a team of consultants completed the preliminary design of a Basic Bibliographic System for the Washington Library Network. In this study the file structure and the file access and retrieval methods were defined, the major program modules were identified, and the data flow was described. This work was the basis for the computer system design for the Resource Directory Pilot Project.

In spring 1972, funding was provided by the state legislature, and a con-

tract was entered with Boeing Computer Services (BCS) for technical design and development, pursuant to a decision that WSL would establish an in-house technical staff only for operations, not for development. The Boeing Technical Library and BCS had prior experience in library automation, having developed and operated the MECCA (MEchanized Card CAtalog) system since 1963.[5] To insure that library need would override technological convenience, WSL specified that a librarian must be head of the technical team to fulfill the contract, and the director of the Boeing Technical Library was transferred to BCS to manage the team. The contract provided that the system, when developed, would be installed in the state Data Processing Service Center (DPSC) and that the software would be under the control of Washington State.

The Resource Directory Pilot Project had the following deliverable objectives:

1. create a data base of bibliographic and location records for monographs acquired by participating libraries;
2. produce a pilot resource directory for the participating libraries;
3. maintain a data base of all Library of Congress MARC records;
4. provide cataloging information so that duplication of searching and original cataloging are minimized;
5. provide experience in the operation of computerized systems for producing a directory;
6. provide a cost analysis to determine the economic feasibility of a statewide resource directory and/or custom directories for areas or for individual libraries.

The pilot system as outlined in early 1972 was to evaluate the feasibility of the generalized system design and specifically to test the practicality of the resource directory function. State-level professional groups reached consensus on other requirements: rigorous quality control, development of an authority file, capability of sorting by library rules rather than the usual computer style. The form of the resource directory was defined; input, output, system logic, file layouts, and record formats were described.

The products of the proposed network included publication of a directory of the holdings of libraries throughout the state (resource directory); cataloging and processing materials; bibliographic information; and assistance for acquisitions, circulation, and reference functions. Resource directory production was evaluated as the most complex and difficult of these tasks; it was therefore selected as the focus of the pilot system, since if resource directory publication were not feasible, then the network structure as envisioned would have to be modified radically.

In 1972 the computer programs were designed, coded, and checked out, with technical expertise provided by BCS under contract. Program modules were integrated, and the system was tested. An Input Center was established at the State Library and personnel were trained in MARC editing and keyboarding for input. A Resource Directory Advisory Committee was

set up, with representation from the participating libraries, consultants, and all types of libraries within the state. This group and its subgroups conferred frequently to assess progress and to discuss policy decisions. The State Library's technical services personnel worked closely with Boeing Computer Services to implement decisions and to provide detailed interpretations for programmers. In May cataloging records in proofsheet form began to be provided from the computer for participating libraries to establish a standard pattern for local cataloging and to integrate machine-produced cataloging with extant systems. A two-day workshop was held in June 1972 for catalogers and other staff from the participating libraries. This session included an introduction to MARC editing and orientation in the system's operation.

Participants in the pilot project were six district system libraries and the Washington State Library (representing ninety libraries altogether). Early plans had included all types of libraries, but time pressures allowed for minimal training and standardization efforts, and it was therefore decided to limit participation to a relatively homogeneous group. The system libraries were chosen primarily on the basis of need: branch libraries had no information on the total system's holdings, and in two of the headquarters no central card catalog existed; the resource directory was thus an immediately useful tool to the participants. The pilot system was in action from July through September 1972, using Library of Congress MARC tapes, receiving acquisitions information from the participating libraries, and providing cataloging information from MARC records or local input for the titles ordered. The pilot development concluded in December 1972 with the publication of the pilot resource directory, BCS completing the contract within the nine-month schedule and at a cost below the contract bid. The system was installed in the State Data Processing Service Center (DPSC) in January 1973 for on-going operation; political considerations dictated the hardware environment, though for some months service was unreliable. The tight schedule and cost restrictions necessitated some compromises in development: insufficient attention could be devoted to system design (e.g., three of the four main segments of the weekly run required human examination of output prior to starting the next segment); alternative file structures and data manipulation procedures could not be thoroughly investigated; documentation and cost analysis were delivered at a later date; optimizing of the system was not possible within the time frame; the manual operation's details could not be sufficiently analyzed; and, as mentioned above, only public library systems were included in the pilot. Of these potential problem areas, the manual interface presented the most immediate limitations to the system's operation, and will be described below.

The computer system was installed at the Washington State DPSC on an IBM model 370/145 and subsequently, when the DPSC changed computers, shifted over to a 360/65 with OS/MVT. Operation in 1973 required

200K core, four nine-track magnetic tape drives, four (now six) IBM 3330 disc drives, a 1403 printer, and an ALA print train. Programs were written in PL/1 (seventy-five routines, 16,800 statements), and BAL (thirty-two routines, 15,900 statements). Input is via punched cards, modified IBM Magnetic Tape Selectric Typewriter (MTST) and Digidata converter, and LC MARC tapes.

SPECIAL FEATURES OF THE WLN SYSTEM

The Washington Library Network computer system is designed to serve most internal library functions in a network of all types of libraries. Other networks, such as OCLC, have been limited to a few functions such as cataloging and interlibrary loan support, and single library systems, such as Stanford's BALLOTS, have provided support to most library functions; WLN was undertaken with both aspects as major considerations. (Both mentioned systems are now moving toward this combination of aspects.)

A machine-readable authority file with names, subjects, and cross-references has been incorporated. The WLN authority subsystem is now a single set of authorities; it is expected that as the on-line network expands to more participants, a multiplicity of authority files may exist, some shared by several libraries and some unique to a specific library or unit within a library. Central monitoring will be necessary to maintain shared authority files.

The WLN system maintains the complete MARC data base, with no records eliminated or curtailed and with all content designators retained. WLN's system has the ability to output records in the fully coded LC MARC communications format; in fact, a test tape, sent in the spring of 1973 to the Library of Congress, containing WLN locally input records was run through LC's system with no problems. The data were read into LC's programs which translate from the MARC communications format to LC's internal format, and catalog cards were then produced from LC's programs. The necessity for communication among systems has become evident as national bibliographic exchange is envisioned, and other major systems (e.g., OCLC, BALLOTS) are now making the effort to develop this capacity for outputting in standard communication format.

The sort programs enable the computer to produce listings based on filing rules developed by John Rather at the Library of Congress; these sorts are used for the resource directory, two-week interim listings of titles received, and vocabulary lists, and can sort records for CRT display.[6] The Library of Congress has purchased these sort key generating programs and incorporated them into its internal system for terminal display and book catalog production.

The quality control routines of the WLN system require stringent manual screening procedures for content and content designators. Some alterations in methods will be necessitated by the on-line operation, but centralized control will continue to maintain high standards. At present, input of

a local record averages about twenty minutes in manual effort, including tagging, vocabulary searching, MTST keying, proofing MTST hard copy, and proofing computer listings against worksheets, but not including cataloging time.

SYSTEM OPERATION

Although the pilot system was set up in batch mode, the long-term plan is to establish an on-line computer network in a telecommunications environment. Since funding was unavailable for immediate development of the on-line system following the pilot, the WLN system has operated in a weekly batch pattern during 1973 and 1974. The 1974 state legislature voted funding for the on-line design and development; these efforts are under way at the present writing (spring 1975). Current operations continue in the interim batch mode as diagrammed in Figures 1 and 2 and are more fully described below.

Since the pilot project ended, two more district libraries and a four-year college have become participants in the system, bringing the total number to ten (representing approximately 120 member libraries):

Evergreen State College, Olympia
Fort Vancouver Regional Library, Vancouver
Kitsap Regional Library, Bremerton

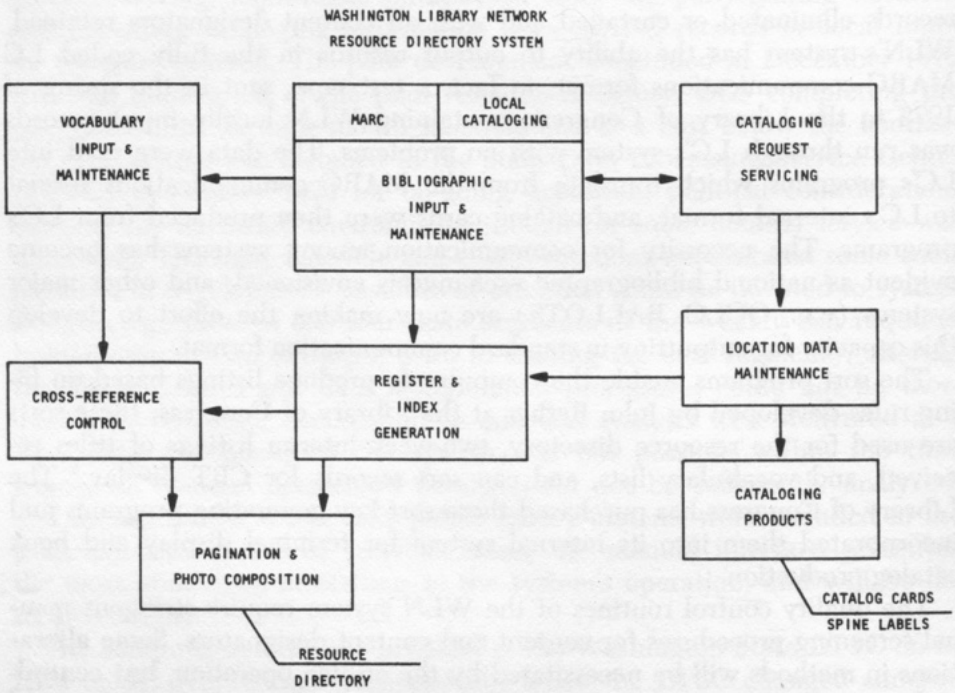


Fig. 1. Generalized Diagram.

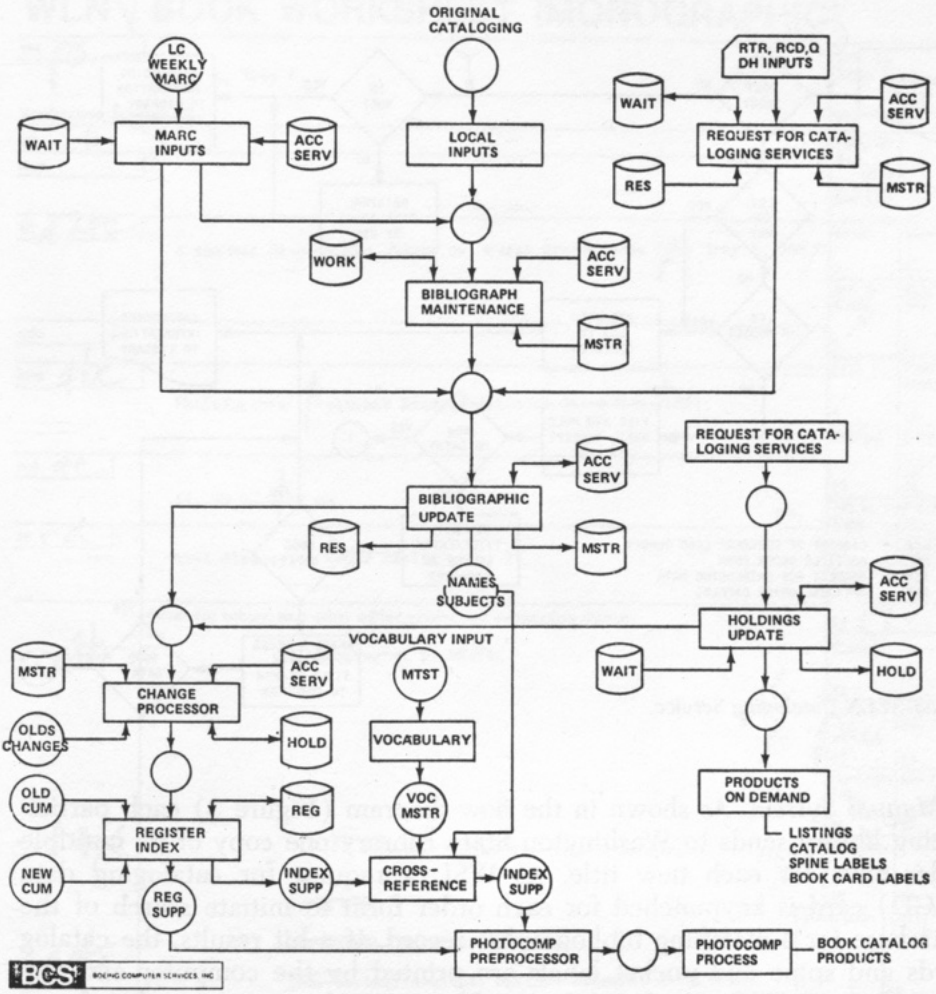


Fig. 2. Bibliographic Data System Flow Diagram.

Mid-Columbia Regional Library, Kennewick
North Central Regional Library, Wenatchee
Pierce County Library, Tacoma
Sno-Isle Regional Library, Marysville
Spokane County Library, Spokane
Timberland Regional Library, Lacey
Washington State Library, Olympia

The data base now includes records for films as well as for monographs, and serials records will soon be added. Production of catalog cards as well as computer-printed labels for processing has been ongoing since 1973. Refinement of system capabilities has been a continuous process, as problems and needs have become evident.

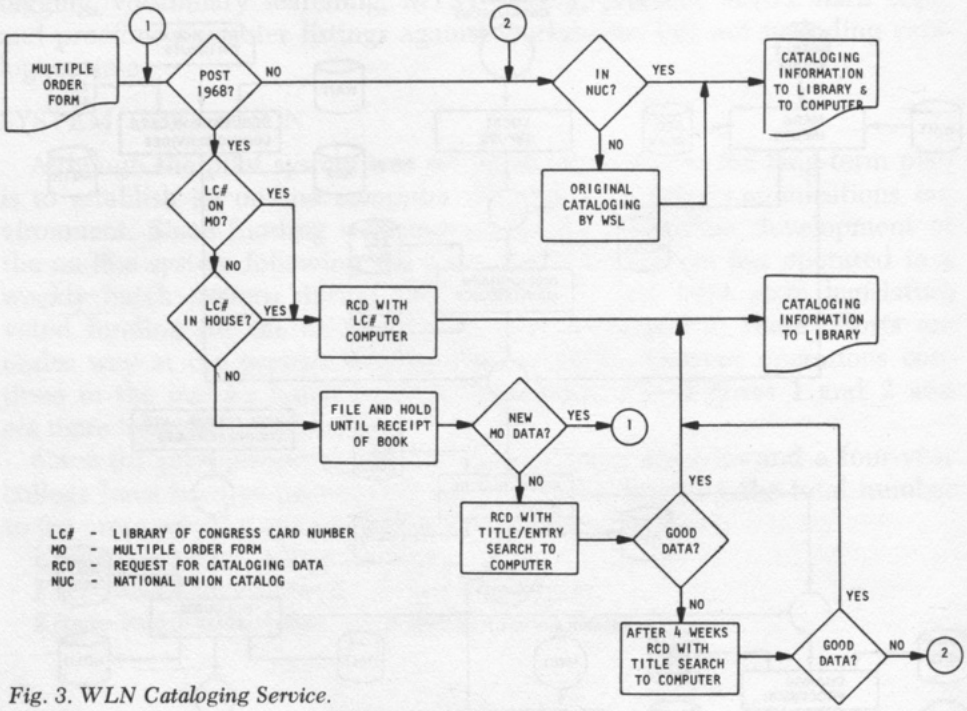


Fig. 3. WLN Cataloging Service.

Manual System. As shown in the flow diagram (Figure 3) each participating library sends to Washington State Library one copy of its multiple order form for each new title. At WSL a request for cataloging data (RCD) card is keypunched for each order form to initiate search of the data base for a matching bibliographic record. If a hit results, the catalog cards and spine and pocket labels are printed by the computer and forwarded from WSL to the ordering library, with a computer-produced punched report of title received card (RTR), which is to be returned by the library at time of receipt of book. This second punched card triggers the linking of the holding library's symbol to the appropriate bibliographic record. Hits by title, or title and main or added entry, are printed for manual matching. Failure to match the item against the data base results in placement of the RCD on the waiting file, to be matched against each week's incoming LC MARC tape either until a hit occurs or until four weeks after receipt of the book, at which time original cataloging is initiated. Several libraries may be awaiting cataloging copy by this time; one library is designated to supply copy for all, so that each title in the system is cataloged only once.

Locally created catalog records, whether from LC NUC source or original cataloging, are filled in on a worksheet by the cataloger (Figure 4).

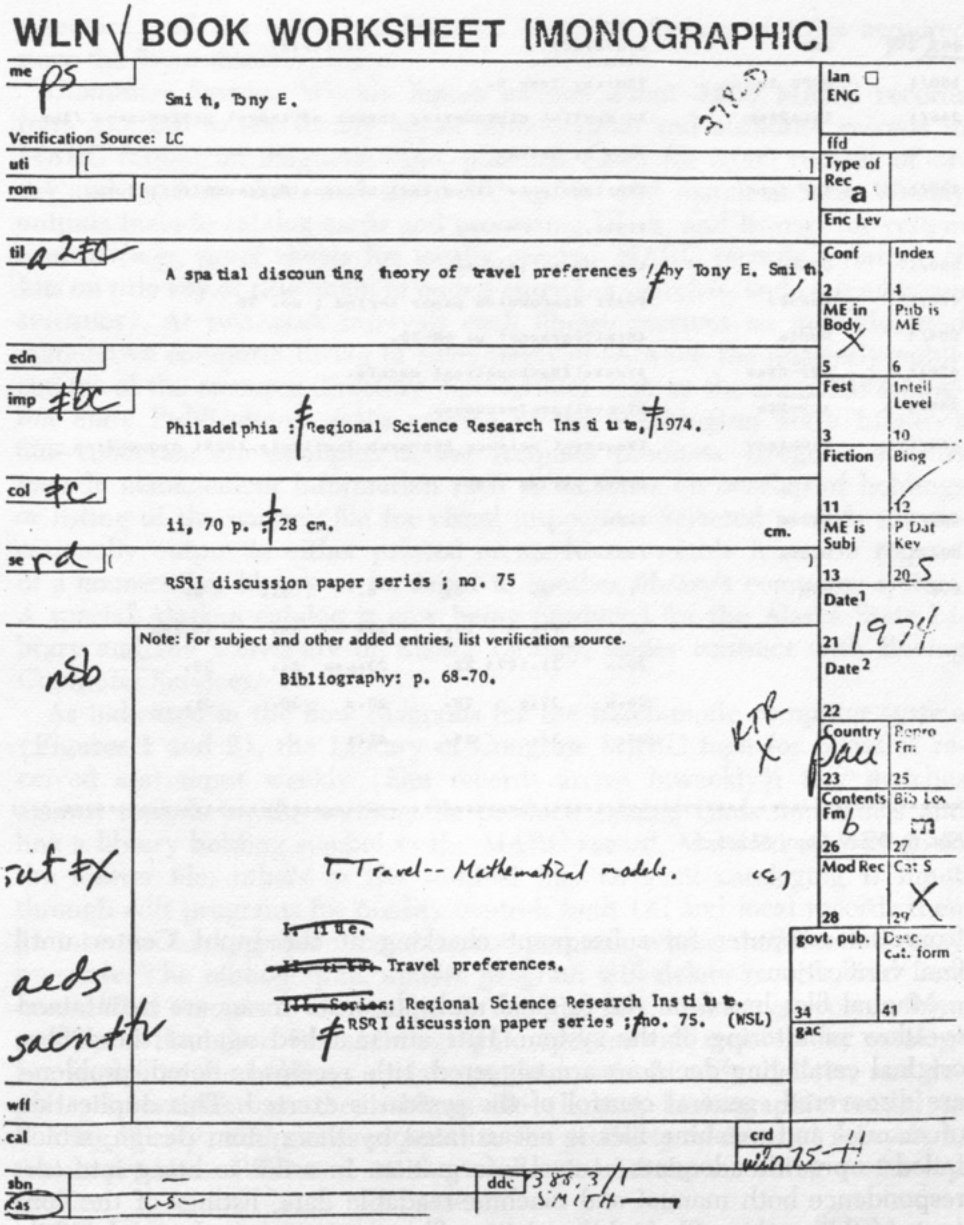


Fig. 4. WLN Book Worksheet (Monographic).

These records are edited for content (since some participants lack adequate cataloging tools) and tagged by WSL Input Center staff, then keyed onto an MTST cassette and translated via Digidata machine to a magnetic tape acceptable by the computer. Proof sheets (Figure 5) are produced

001 VER	CRD	wln75-467	02/14/75 1
100/1	MEPS ‡a	‡Smith, Tony E.	
245/1	TILA2‡ac	‡A spatial discounting theory of travel preferences /‡by Tony E. Smith.	
260/1	IMP ‡abc	‡Philadelphia :‡Regional Science Research Institute, ‡1974.	
300/1	COL‡ac	‡ii, 70 p. ;‡28 cm.	
490/1	SERD‡a	‡RSRI discussion paper series ; no. 75	
504/1	NOB‡a	‡Bibliography: p. 68-70.	
650/1	SUT-L‡ax	‡Travel‡Mathematical models.	
740/1	AED-S‡a	‡Travel preferences.	
810/1	SACN‡atv	‡Regional Science Research Institute.‡RSRI discussion paper series ;‡no. 75.	
040/1	CAS‡a	‡WSL	
082/1	DDC‡a	‡388.3/1	
008	FFD	1. 2. 3. 4. 5.x 6.	
		10. 11. 12. 13. 14. 15.eng	
		20.s 21.1974 22. 23.pau 24. 25.	
		26.h 27.m 28. 29.x 30. 31.	
		32. 33. 34. 41.1	

********** **********

Fig. 5. WLN Proof Sheet.

from the computer for subsequent checking at the Input Center until final verification.

Manual files based on the original multiple order forms are maintained to allow monitoring of the system. Hits are matched against these files, original cataloging decisions are triggered, title receipt is noted, problems are discovered: general control of the system is exerted. This duplication of manual and machine files is necessitated by the system design, which failed to provide adequate control information. In order to bring into correspondence both manual and machine-readable data, listings of the contents of the working file and the waiting file are printed on demand. While the problem could be solved by some reprogramming, it was decided to turn efforts to development of the on-line capacity, which will obviate the manual file and allow machine files to be monitored via CRT terminals.

Careful quality control is exerted throughout this manual operation in the areas of bibliographic content, adherence to accurate MARC II content designators, authority file verification, detection of keying and computer errors, and output quality of cards, labels, the quarterly resource

directory, and the individual libraries' biweekly listings of titles acquired since the latest directory issue.

Computer System. Weekly inputs include about 3,000 MARC records from LC, 250 to 300 locally keyed bibliographic and authority records in MARC format on magnetic tape, punched cards for 5,000 records of order and holdings data, and about 200 update and search notices. Weekly outputs include catalog cards and processing labels, and listings for system control (e.g., proof sheets for locally created MARC records, printout of hits on title key or title/main or added entry key searches, and computer run statistics). At two-week intervals each library receives an individualized cumulative computer listing of titles received between the quarterly publications of the resource directory. Special lists such as the annual *Washington State Publications* and a catalog of the Washington State Library's film collection are examples of less frequent products. Irregular outputs include management information such as statistics on overlap of holdings or listing of the waiting file for visual inspection. Selected records are occasionally output in either printed or machine-readable form, on request of a nonmember library or for input to another library's computer system. A special Alaskan catalog is now being produced for the Alaska State Library and the University of Alaska Library, under contract with Boeing Computer Services.

As indicated in the flow diagrams for the batch-mode computer system (Figures 1 and 2), the Library of Congress MARC tape for books is received and input weekly (film records arrive biweekly); any matches against records on the waiting file produce catalog cards and labels and link a library holding symbol to the MARC record. Matched records go to the master file; others to the residual file. Original cataloging is input through edit programs for quality control; both LC and local records then go into the bibliographic maintenance program where modifications may be made. The bibliographic update program will delete records, add new or modified records to the master or residual files, and move records from one file to the other. Both bibliographic updates and requests for cataloging feed into the holdings update program, which adds, deletes, and replaces information on the holdings file (linking bibliographic record to holding library) and passes requests to the products-on-demand subsystem, which produces RTR and catalog cards and labels according to library profiles.

The bibliographic update program also provides input to the change processor program which maintains all changes to bibliographic content and holdings information.

The access service programs permit an LC card number search, title search, or title/main entry search. This set of routines will search any of the files. It is also possible to search by title/main entry and receive the ID number of the record from the computer.

The above programs are operated weekly and in early 1975 required

38.75 minutes of CPU time and six hours of off-line printing. Additionally, biweekly runs for local bibliographic input and two-week title listings require 8.75 minutes of CPU time and two hours of off-line printing. Monthly runs, such as authority input and merge of LC MARC cumulated tapes, require 14 minutes of CPU time and three-and-one-half hours of off-line printing.

Maintenance of the computerized name and subject authority file requires manual intervention. Terms in newly input records (1xx, 6xx, and 7xx fields) are matched by computer against the existing authority file and nonhits listed for human decision. On demand, a complete vocabulary listing is printed by the computer (Figure 6) for human monitoring. Verification and cross-references (see and see also) are determined by consulting the *Subject Headings Used in the Dictionary Catalogs of the Library of Congress (LCSH).* As indicated in the flow diagrams of Figures 7 and 8, vocabulary data (verification of headings, cross-references, and scope notes) are input as necessary via the MTST with Digidata translation, creating and maintaining the vocabulary master file. Reciprocal records are machine generated for all reference terms (i.e., see and see from, see also and see also from).

The resource directory is produced in quarterly cumulative supplements, with annual total cumulations. Sample pages are shown in Figure 9. An additional list is produced every two weeks between supplements: a separate computer printout for each library, listing titles acquired since the previous supplement was produced (Figure 10). The resource directory contains all titles acquired by the participating libraries since July 1, 1972. The register-index structure is used; that is, the register volume contains complete bibliographic records numbered sequentially in order of input to the computer, and the indexes (author, title, and subject volumes) contain limited bibliographic information plus holdings and call numbers attached to each record. This arrangement permits changing holdings and call numbers without the necessity for reprinting the entire record; it also avoids the need for reprinting the register, since a record may be deleted simply by eliminating its index references, or it may be altered, reprinted, and given a new ID number so that the incorrect record is no longer indexed. Thus, each quarterly printing of the resource directory includes an additional volume of the register and the appropriate cumulative indexes. This structure has proved satisfactory; problems lie in the area of massive growth (as for any ongoing book catalog), and microform production is under investigation. Also, a book catalog is never up to the minute, requiring four to six weeks from data base cutoff date to book-in-hand.

The computer programs which produce the resource directory are diagrammed in the lower left corner of Figure 1. Input comes through the change processor program and the previous cumulation tape. The register and index supplements go onto a tape, with the indexes then run against the cross-reference program. Both register and index data are then put

VOCABULARY MASTER FILE -- NAMES 22 JAN 75 PAGE 289

vop2-‡a	‡Creagh-Osborne, Richard.‡	voc2-‡a	‡Creative Educational Society, Mankato, Minn.‡	vop1-‡a	‡Cresse, Elsa Bartlett.‡
vop1-‡adx	‡Cream, Thomas Neill,‡1850-1892‡Fiction.‡	voc2-‡a	‡Creative Film Society.‡	vop1-‡ad	‡Cressey, Donald Ray,‡1919-‡
vop1-‡ad	‡Creamer, Daniel Barnett,‡1909-‡	voc2-‡a	‡Creative Visuals (Firm)‡	vop1-‡ad	‡Cressman, Luther Sheeleigh,‡1897-‡
vop1-‡ad	‡Creamer, J. Shane,‡1929-‡	vop1-‡ad	‡Credle, Ellis,‡1902-‡	vop1-‡a	‡Cresswell, Helen.‡
vop1-‡a	‡Creamer, Lex.‡	vop1-‡a	‡Creed, Virginia.‡	vop1-‡a	‡Cresswell, John.‡
vop1-‡a	‡Creamer, Robert W.‡	vop1-‡a	‡Creekmore, Betsey Beeler.‡	vop1-‡a	‡Creswell, Clifford J.‡
vop1-‡a	‡Creasey, John.‡	vop1-‡ad	‡Creeley, Robert,‡1926-‡	vop1-‡a	‡Cretan, Gladys Yessayan.‡
ufp10‡a	‡Ashe, Gordon.‡				

Fig. 6a. Names.

VOCABULARY MASTER FILE -- SUBJECTS 27 SEP 74 PAGE 954

vot-0‡ax	‡Sea-water‡Analysis.‡	vot-0‡az	‡Sealing‡Newfoundland.‡		countries, states, cities, etc., e.g. Washington--Seal; and also under names of
xxt-0‡ax	‡Water‡Analysis.‡	vot-0‡a	‡Sealing (Technology)‡		religious bodies, e.g. Netherlands Hervormde Kerk--Seal; and also under names of famous persons.‡
vot-0‡ax	‡Sea-water‡Pollution.‡	uft-0‡a	‡bonding (Technology)‡		
set-0‡a	‡Marine pollution.‡	sat-0‡a	‡Brazing.‡		
		sat-0‡a	‡Ceramic to metal bonding.‡		
		sat-0‡a	‡Plastics.‡	sat-0‡a	‡Emblems, National.‡
vot-0‡a	‡Sea-water, Distillation of.‡	sat-0‡a	‡Rubber coatings.‡	sat-0‡a	‡Signatures (Writing)‡
xxt-0‡a	‡Saline water conversion.‡	sat-0‡a	‡Solder and soldering.‡	sat-0‡a	‡Signets.‡
		sat-0‡a	‡Welding.‡	xxt-0‡a	‡Emblems, National.‡
		xxt-0‡a	‡Containers.‡	xxt-0‡a	‡Heraldry.‡
vot-0‡a	‡Sea waves.‡			xxt-0‡a	‡Inscriptions.‡
set-0‡a	‡Ocean waves.‡			xxt-0‡a	‡Intaglios.‡
		vot-0‡ax	‡Sealing (Technology)‡	xxt-0‡a	‡Numismatics.‡
			Handbooks, manuals, etc.‡	xxt-0‡a	‡Signatures (Writing)‡
vot-0‡a	‡Seabed.‡				
set-0‡a	‡Ocean bottom.‡				
		vog-0‡az	‡Seals (Numismatics)‡ California.‡	vot-0‡a	‡Sealyham terriers.‡
vot-0‡a	‡Seafaring life.‡			xxt-0‡a	‡Terriers.‡

Fig. 6b. Subjects.

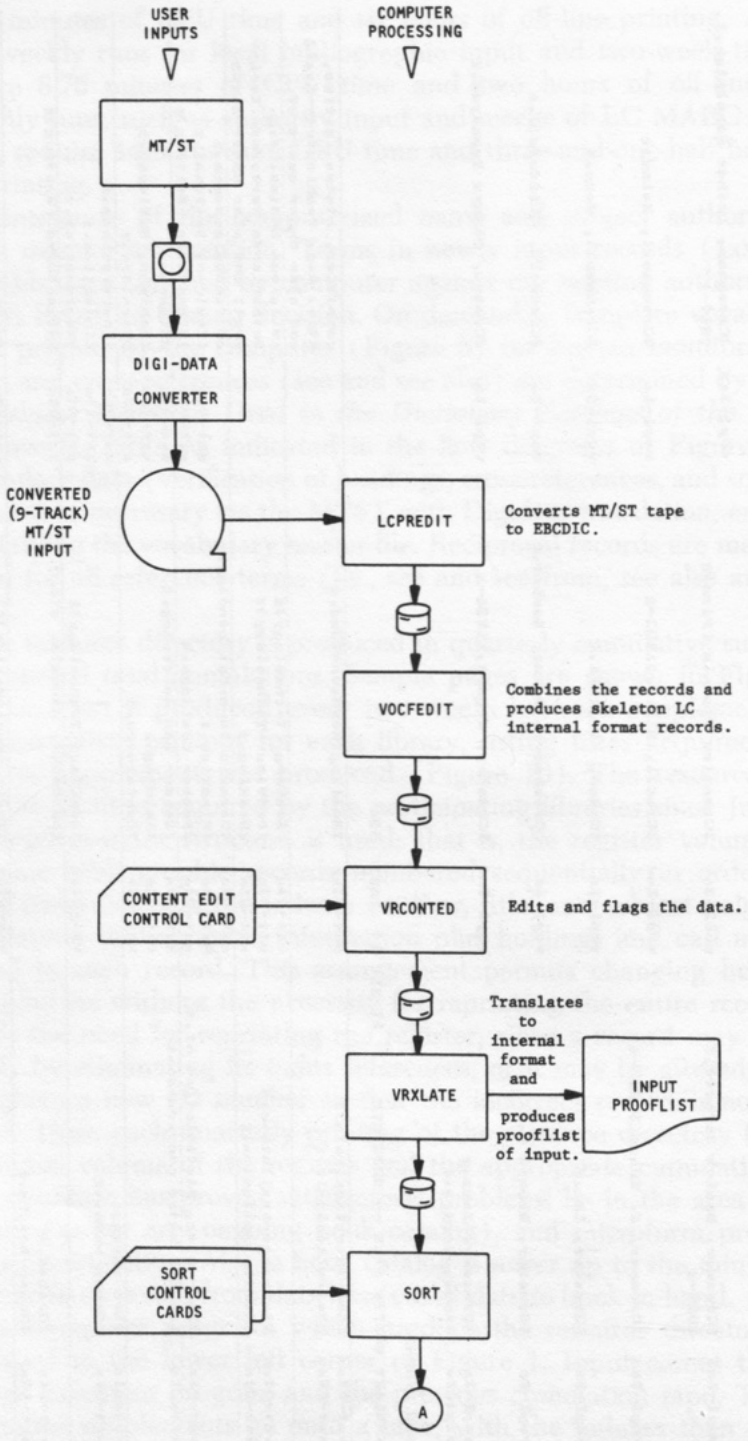


Fig. 7a. Vocabulary System Flow.

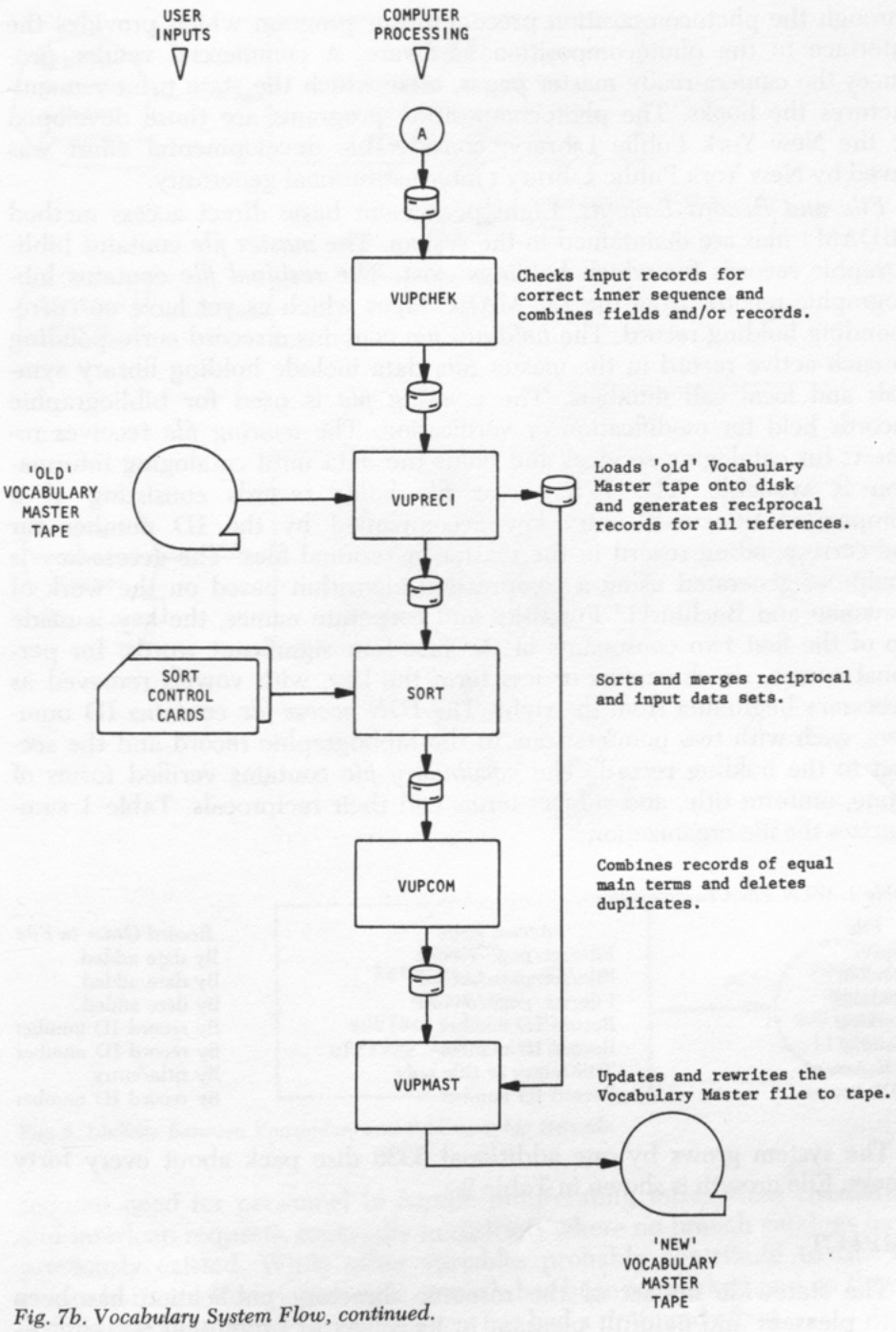


Fig. 7b. Vocabulary System Flow, continued.

through the photocomposition precompressor program which provides the interface to the photocomposition hardware. A commercial vendor produces the camera-ready master pages, after which the state printer manufactures the books. The photocomposition programs are those developed at the New York Public Library; considerable developmental effort was saved by New York Public Library's interinstitutional generosity.

File and Record Layouts. Eight permanent basic direct access method (BDAM) files are maintained in the system. The *master file* contains bibliographic records for which holdings exist. The *residual file* contains bibliographic records from the LC MARC tapes which as yet have no corresponding holding record. The *holdings file* contains a record corresponding to each active record in the master file; data include holding library symbols and local call numbers. The *working file* is used for bibliographic records held for modification or verification. The *waiting file* receives requests for cataloging services and holds the data until cataloging information is available. The *T/E access file* holds records consisting of a compressed title/main entry key accompanied by the ID number for the corresponding record in the master or residual files. The access key is computer-generated using a compression algorithm based on the work of Newman and Buchinski.[7] For titles and corporate names, the key is made up of the first two consonants of the first four significant words; for personal names, six characters or less form the key, with vowels removed as necessary beginning from the right. The *IDN access file* contains ID numbers, each with two pointers: one to the bibliographic record and the second to the holding record. The *vocabulary file* contains verified forms of name, uniform title, and subject terms and their reciprocals. Table 1 summarizes the file organization:

Table 1. WLN File Characteristics

File	*Access Key*	*Record Order in File*
Master	File/set/page/record	By date added
Residual	File/set/page/record	By date added
Holdings	File/set/page/record	By date added
Working	Record ID number	By record ID number
Waiting	Record ID number	By record ID number
T/E Access	Title/entry or title only	By title/entry
IDN Access	Record ID number	By record ID number

The system grows by one additional 3336 disc pack about every forty weeks. File growth is shown in Table 2.

IMPACT

The statewide impact of the resource directory publication has been both pleasant and painful: pleasant in its aspect of promoting the circulation of library materials within systems and on the interlibrary level, and in saving man-hours in cataloging and processing, and painful in the con-

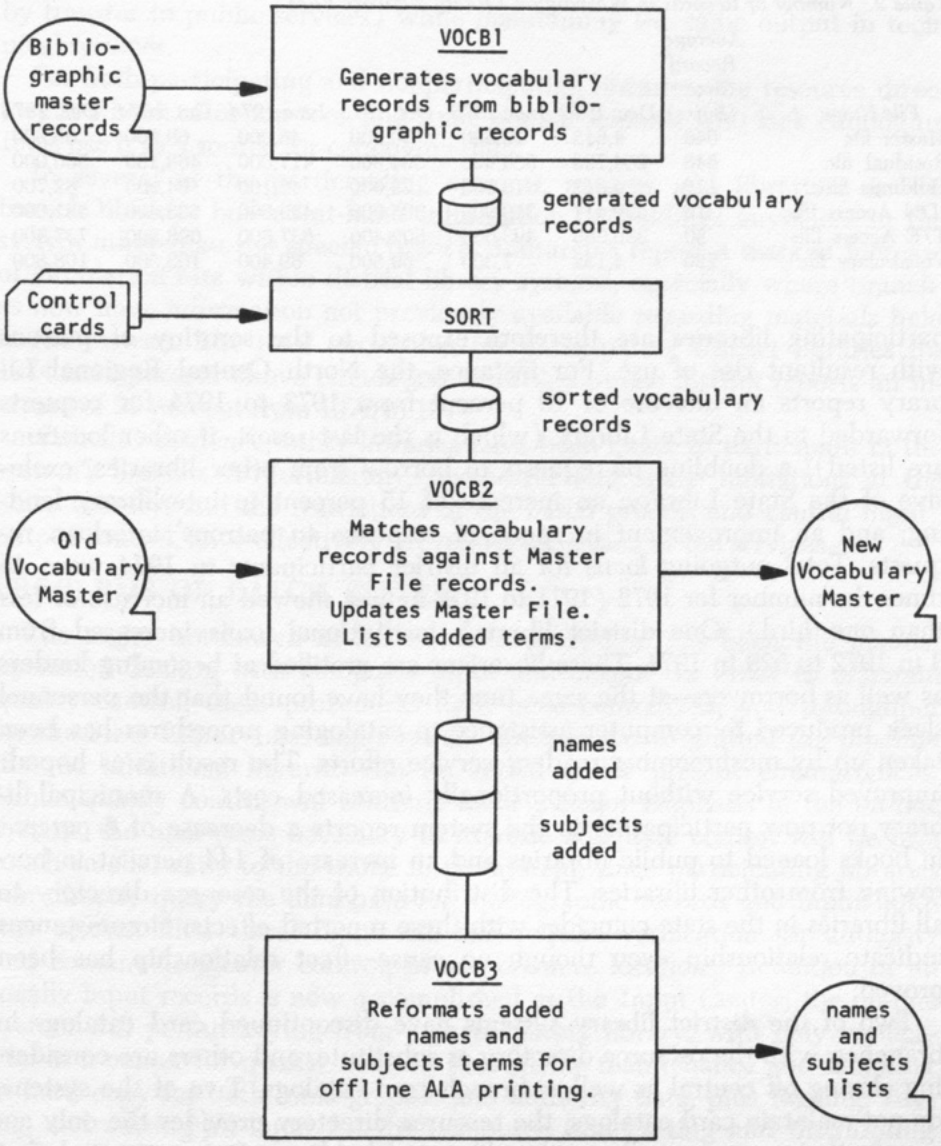


Fig. 8. Linkage between Vocabulary and Bibliographic Records.

sequent need for personnel to handle proliferating intrasystem circulation and interloan requests, especially in districts where no branch catalogs have previously existed. While other variables probably contribute to the increase in use of library materials, growth has been so marked and so timely as to assure that the resource directory has had a profound effect.

The resource directory has from the onset been distributed to all libraries of the state; it travels on bookmobiles as well. The holdings of the

Table 2. Number of Records in Washington Library Network Files

File Name	*Average Record Size (Bytes)*	*Dec. 1972*	*June 1973*	*Oct. 1973*	*June 1974*	*Oct. 1974*	*Dec. 1974*
Master file	648	4,613	16,500	30,600	48,000	60,600	68,900
Residual file	648	234,798	334,000	364,900	417,000	468,100	500,000
Holdings file	110	4,613	13,500	29,000	46,100	64,900	82,700
IDN Access file	16	239,411	350,000	395,000	459,600	503,400	531,000
T/E Access file	50	330,280	493,000	502,400	637,300	698,800	737,500
Vocabulary file	220	4,132	7,300	59,500	89,400	103,500	108,800

participating libraries are therefore exposed to the scrutiny of patrons with resultant rise of use. For instance, the North Central Regional Library reports an increase of 10 percent from 1973 to 1974 for requests forwarded to the State Library (which is the last resort, if other locations are listed); a doubling of requests to borrow from other libraries, exclusive of the State Library; an increase of 15 percent in interlibrary lending; and an improvement in speed of response to patrons' interloan requests. Total outgoing loans for all district participants in 1974 were 4½ times the number for 1972 (1971 to 1972 figures showed an increase of less than one-third). One district library's institutional loans increased from 3 in 1972 to 529 in 1974. These librarians are gratified at becoming lenders as well as borrowers—at the same time they have found that the personnel slack produced by computer assistance to cataloging procedures has been taken up by mushrooming readers' service efforts. The result is as hoped: improved service without proportionally increased costs. A municipal library not now participating in the system reports a decrease of 6 percent in books loaned to public libraries and an increase of 144 percent in borrowing from other libraries. The distribution of the resource directory to all libraries in the state coincides with these reported effects; circumstances indicate relationship even though no cause–effect relationship has been proved.

Two of the district library systems have discontinued card catalogs in branches, with the resource directory as substitute, and others are considering closing off central as well as branch card catalogs. Two of the systems do not maintain card catalogs; the resource directory provides the only access to their own as well as other libraries' holdings. It is estimated that card catalog maintenance to provide information equivalent to that in the resource directory in headquarters and branches for participating libraries would cost $1,263,800 per year.

Availability of cataloging data has also benefited participants; the bibliographic record is available from LC MARC for more than 90 percent of the titles and in the remaining cases is provided by one library for the use of all. One participating system eliminated a six-month cataloging backlog within eight weeks after joining the system. This system has since eliminated three persons from technical services (two by attrition and one

by transfer to public services) while maintaining the same output in technical services.

For both participating and nonparticipating libraries, the resource directory is a book selection tool, and some nonparticipants who lack cataloging tools use it as a source for cataloging data.

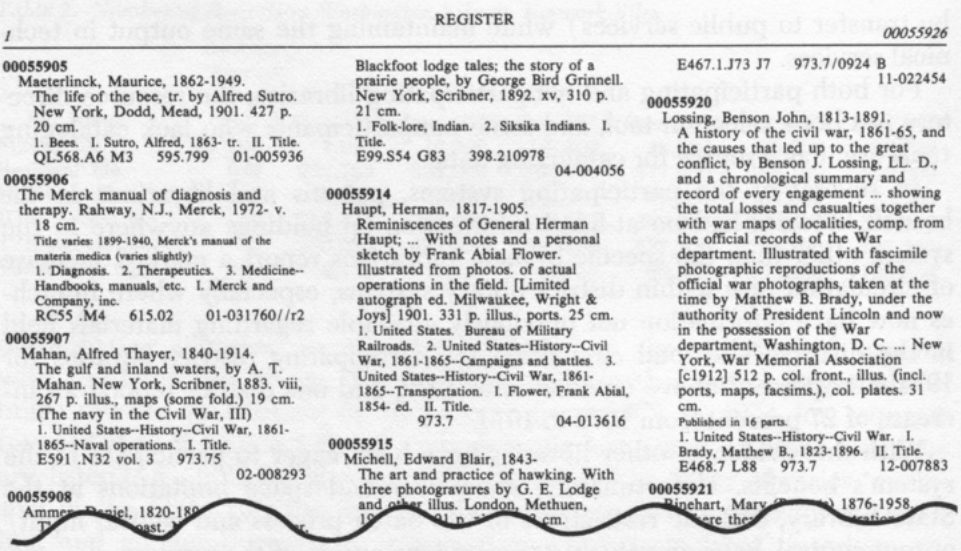
In several of the participating systems, patrons and librarians in the branch libraries had no at-hand information on holdings anywhere in the system other than the specific branch. Librarians report a marked increase of circulation rate within district library systems, especially where branches now have information not previously available regarding materials held in the district. The total circulation for participating district libraries for 1974 is 12 percent above circulation in 1972, and one district reports an increase of 27 percent from 1972 to 1974.

With this evidence, other libraries have been eager to participate in the system's benefits. Unfortunately, manpower and space limitations at the State Library, and the restrictions of the batch process and central input/output control, have effectively prevented expansion of the services.

PROBLEMS OF BATCH SYSTEM

The major bottleneck in the batch-mode system has been the manual operation dealing with computer input and output. In order to maintain quality control, these procedures have been centralized, and throughput for the State Library and eight system libraries has so glutted the pipeline that no additional libraries can be added under present circumstances. While quality control will continue to be a major emphasis in the on-line system, the man-years necessary to exercise adequate control will be in a much smaller ratio to the traffic in the system, since participating libraries can directly query the data base for bibliographic records and input holdings against files. Local input will still require verification for authority and content designator control, in one or more locations. Retention of all locally input records is now accomplished at the Input Center; the on-line system will permit keying from a participating library, with only verification at a center for quality control. Present file maintenance and handling of hard copy for both bibliographic and authority data, plus tagging, keying, and editing all input for the computer, and cutting and distributing cards and labels require a staff of 7.3 full-time equivalents. It is estimated that four F.T.E. might maintain quality control for the throughput of fifty-five to seventy-five libraries, when the participating libraries will deal directly with the system via on-line terminals.

Another burden in the manual operation has been updating of the vocabulary system; any new name or subject which does not match a term in the file is printed out for human inspection. An added subfield on an already verified term will cause the entire subject to be printed out and requires verification. Any changes in the LC authority listing necessitate manual input of changes. These problems will be alleviated in the design



REGISTER

1 *00055926*

00055905
Maeterlinck, Maurice, 1862-1949.
The life of the bee, tr. by Alfred Sutro. New York, Dodd, Mead, 1901. 427 p. 20 cm.
1. Bees. I. Sutro, Alfred, 1863- tr. II. Title.
QL568.A6 M3 595.799 01-005936

00055906
The Merck manual of diagnosis and therapy. Rahway, N.J., Merck, 1972- v. 18 cm.
Title varies: 1899-1940, Merck's manual of the materia medica (varies slightly)
1. Diagnosis. 2. Therapeutics. 3. Medicine--Handbooks, manuals, etc. I. Merck and Company, inc.
RC55 .M4 615.02 01-031760//r2

00055907
Mahan, Alfred Thayer, 1840-1914.
The gulf and inland waters, by A. T. Mahan. New York, Scribner, 1883. viii, 267 p. illus., maps (some fold.) 19 cm. (The navy in the Civil War, III)
1. United States--History--Civil War, 1861-1865--Naval operations. I. Title.
E591 .N32 vol. 3 973.75 02-008293

00055908
Amme[illegible] Daniel, 1820-188[illegible]
T[illegible] past. [illegible]

Blackfoot lodge tales; the story of a prairie people, by George Bird Grinnell. New York, Scribner, 1892. xv, 310 p. 21 cm.
1. Folk-lore, Indian. 2. Siksika Indians. I. Title.
E99.S54 G83 398.210978 04-004056

00055914
Haupt, Herman, 1817-1905.
Reminiscences of General Herman Haupt; ... With notes and a personal sketch by Frank Abial Flower. Illustrated from photos. of actual operations in the field. [Limited autograph ed. Milwaukee, Wright & Joys] 1901. 331 p. illus., ports. 25 cm.
1. United States. Bureau of Military Railroads. 2. United States--History--Civil War, 1861-1865--Campaigns and battles. 3. United States--History--Civil War, 1861-1865--Transportation. I. Flower, Frank Abial, 1854- ed. II. Title.
973.7 04-013616

00055915
Michell, Edward Blair, 1843-
The art and practice of hawking. With three photogravures by G. E. Lodge and other illus. London, Methuen, 1[illegible] p. [illegible] cm.

E467.1.J73 J7 973.7/0924 B 11-022454

00055920
Lossing, Benson John, 1813-1891.
A history of the civil war, 1861-65, and the causes that led up to the great conflict, by Benson J. Lossing, LL. D., and a chronological summary and record of every engagement ... showing the total losses and casualties together with war maps of localities, comp. from the official records of the War department. Illustrated with fascimile photographic reproductions of the official war photographs, taken at the time by Matthew B. Brady, under the authority of President Lincoln and now in the possession of the War department, Washington, D. C. ... New York, War Memorial Association [c1912] 512 p. col. front., illus. (incl. ports, maps, facsims.), col. plates. 31 cm.
Published in 16 parts.
1. United States--History--Civil War. I. Brady, Matthew B., 1823-1896. II. Title.
E468.7 L88 973.7 12-007883

00055921
Rinehart, Mary [illegible] 1876-1958
[illegible]

WASHINGTON LIBRARY NETWORK

ÀBD AL-HAMID II, SULTAN OF TURKEY, 1842-1918. *2*

dictionary: abbreviations; acronyms; anonyms; contractions; initials and nicknames; short forms and slang shortcuts; signs and symbols. New international 4th ed. American Elsevier Pub. Co. [1974] xiii, 428 p.
423.1 DE SOLA WaO (00061572)

ÀBD AL-HAMID II, SULTAN OF TURKEY, 1842-1918.
see
ABDÜLHAMIT II, SULTAN OF TURKEY, 1842-1918.

ABDOMEN.
see also
STOMACH.

ABDOMEN--ABSCESS.
Ariel, Irving M. Diagnosis and treatment of abdominal abscesses. Williams & Wilkins [1971] xxiii, 322 p. illus.
616.52 ARIEL Wa (00014922)

ABDUCTION.
see also
KIDNAPPING.

ABDUL-JABBAR, KAREEM, 1947-
Haskins, James, 1941- From Lew Alcindor to Kareem Abdul Jabbar.
thron[illegible]pard [c197[illegible]

ABILITY.
Broadley, Margaret E. Be yourself: analyzing your innate aptitudes. R. B. Luce [1972] 192 p.
658.407 BROADLE Wa (00010626)

ABILITY--TESTING.
see also
MENTAL TESTS.
PREDICTION OF SCHOLASTIC SUCCESS.
SCHOLASTIC APTITUDE TEST.
SELF-EVALUATION.

ABILITY--TESTING.
Byrne, John, 1910- Making the most of your abilities. Science Research Associates [c1973] 60 p. illus.
153.94 BYRNE Wa (00074925)

Holmen, Milton G. Educational and psychological testing; a study of the industry and its practices. Russell Sage Foundation [1972] ix, 218 p.
153.9 HOLMEN Wa (00011448)

Kinney, Jean Brown. 57 tests that reveal your hidden talents. Hawthorn Books [1972] 96 p. illus.
131.32 KINNEY Wa (00013721)

Liebers, [illegible] How to pass

ABOLITIONISTS.

ABOLITIONISTS.
Chittenden, Elizabeth F. Profiles in Black and white; stories of men and women who fought against slavery. Scribner [1973] x, 182 p. illus.
JB-322 CHITTEN WaBr WaMaS WaTPC WaSpCo (00061082)

Conrad, Robert, 1928- The destruction of Brazilian slavery, 1850-1888. University of California Press [1972] xviii, 344 p. illus.
322.44 CONRAD Wa (00014296)

Filler, Louis, 1911- comp. Abolition and social justice in the era of reform. Harper & Row [1972] xiii, 367 p.
322.44 FILLER Wa (00026964)

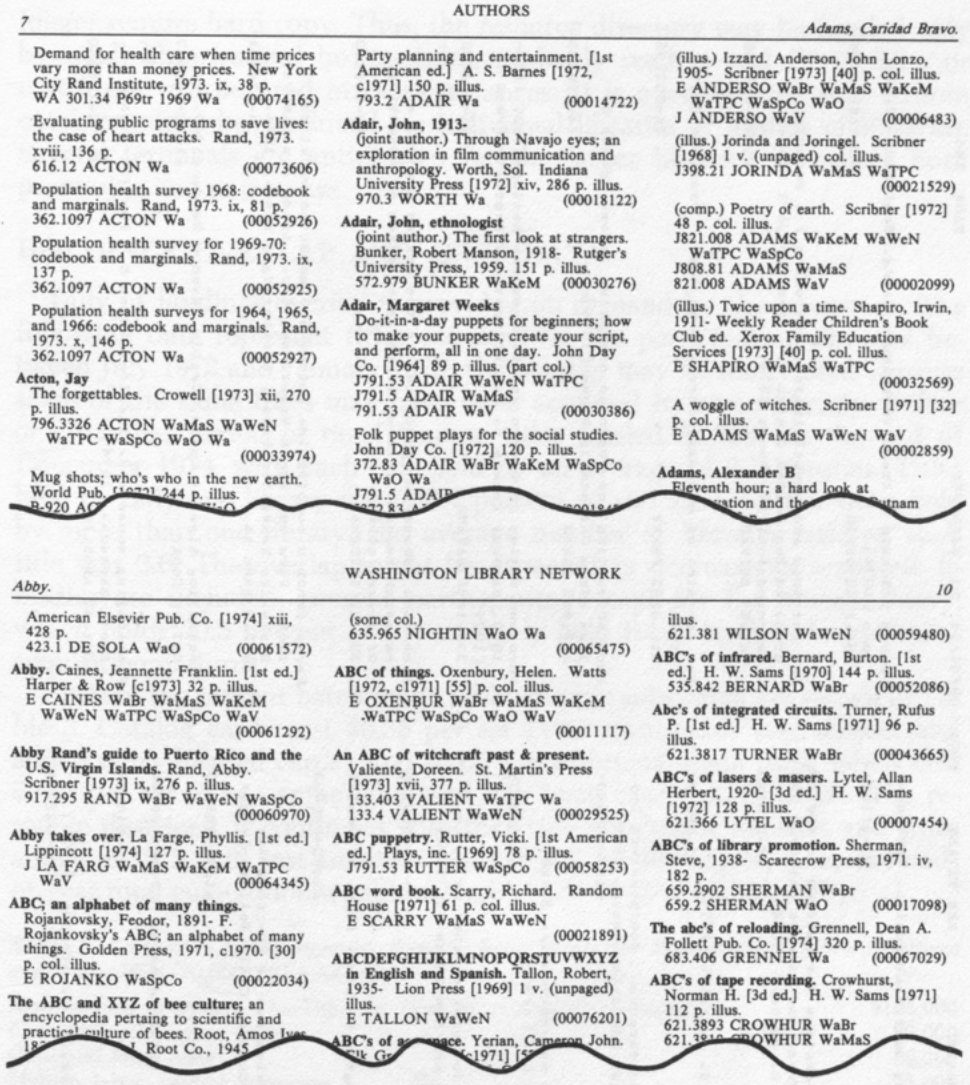
Hawkins, Hugh, ed. The abolitionists; means, ends, and motivations. 2d ed. Heath [1972] xv, 230 p. illus.
973.7114 HAWKINS Wa (00005625)

Perry, Lewis. Radical abolitionism; anarchy and the government of God in antislavery thought. Cornell University Press [1973] xvi, [illegible]
322.44 PERRY [illegible] (0002269[illegible]

Fig. 9. Sample Pages from Resource Directory.

of the on-line system, so that previously verified subfields may be appended to previously verified main terms and accepted by the computer even though they have not appeared together previously, and one-for-one substitution of a new name or subject can be made to the vocabulary file and then be reflected automatically in each related record.

Receiving, sorting, and mailing the catalog cards and labels is also a chore which is expected to be decentralized with the on-line system. Area processing centers are anticipated; these would have the capability of printing products and distributing materials to the area libraries. Some processing centers may serve a single large library. Specific patterns of implementation are still under discussion.



7 AUTHORS *Adams, Caridad Bravo.*

Demand for health care when time prices vary more than money prices. New York City Rand Institute, 1973. ix, 38 p.
WA 301.34 P69tr 1969 Wa (00074165)

Evaluating public programs to save lives: the case of heart attacks. Rand, 1973. xviii, 136 p.
616.12 ACTON Wa (00073606)

Population health survey 1968: codebook and marginals. Rand, 1973. ix, 81 p.
362.1097 ACTON Wa (00052926)

Population health survey for 1969-70: codebook and marginals. Rand, 1973. ix, 137 p.
362.1097 ACTON Wa (00052925)

Population health surveys for 1964, 1965, and 1966: codebook and marginals. Rand, 1973. x, 146 p.
362.1097 ACTON Wa (00052927)

Acton, Jay
The forgettables. Crowell [1973] xii, 270 p. illus.
796.3326 ACTON WaMaS WaWeN WaTPC WaSpCo WaO Wa (00033974)

Mug shots; who's who in the new earth. World Pub. [1972] 244 p. illus.
B-920 AC[illegible]

Party planning and entertainment. [1st American ed.] A. S. Barnes [1972, c1971] 150 p. illus.
793.2 ADAIR Wa (00014722)

Adair, John, 1913-
(joint author.) Through Navajo eyes; an exploration in film communication and anthropology. Worth, Sol. Indiana University Press [1972] xiv, 286 p. illus.
970.3 WORTH Wa (00018122)

Adair, John, ethnologist
(joint author.) The first look at strangers. Bunker, Robert Manson, 1918- Rutger's University Press, 1959. 151 p. illus.
572.979 BUNKER WaKeM (00030276)

Adair, Margaret Weeks
Do-it-in-a-day puppets for beginners; how to make your puppets, create your script, and perform, all in one day. John Day Co. [1964] 89 p. illus. (part col.)
J791.53 ADAIR WaWeN WaTPC
J791.5 ADAIR WaMaS
791.53 ADAIR WaV (00030386)

Folk puppet plays for the social studies. John Day Co. [1972] 120 p. illus.
372.83 ADAIR WaBr WaKeM WaSpCo WaO Wa
J791.5 ADAIR [illegible]

(illus.) Izzard. Anderson, John Lonzo, 1905- Scribner [1973] [40] p. col. illus.
E ANDERSO WaBr WaMaS WaKeM WaTPC WaSpCo WaO
J ANDERSO WaV (00006483)

(illus.) Jorinda and Joringel. Scribner [1968] 1 v. (unpaged) col. illus.
J398.21 JORINDA WaMaS WaTPC (00021529)

(comp.) Poetry of earth. Scribner [1972] 48 p. col. illus.
J821.008 ADAMS WaKeM WaWeN WaTPC WaSpCo
J808.81 ADAMS WaMaS
821.008 ADAMS WaV (00002099)

(illus.) Twice upon a time. Shapiro, Irwin, 1911- Weekly Reader Children's Book Club ed. Xerox Family Education Services [1973] [40] p. col. illus.
E SHAPIRO WaMaS WaTPC (00032569)

A woggle of witches. Scribner [1971] [32] p. col. illus.
E ADAMS WaMaS WaWeN WaV (00002859)

Adams, Alexander B
Eleventh hour; a hard look at [illegible]ation and the [illegible]utnam

Abby. WASHINGTON LIBRARY NETWORK 10

American Elsevier Pub. Co. [1974] xiii, 428 p.
423.1 DE SOLA WaO (00061572)

Abby. Caines, Jeannette Franklin. [1st ed.] Harper & Row [c1973] 32 p. illus.
E CAINES WaBr WaMaS WaKeM WaWeN WaTPC WaSpCo WaV (00061292)

Abby Rand's guide to Puerto Rico and the U.S. Virgin Islands. Rand, Abby. Scribner [1973] ix, 276 p. illus.
917.295 RAND WaBr WaWeN WaSpCo (00060970)

Abby takes over. La Farge, Phyllis. [1st ed.] Lippincott [1974] 127 p. illus.
J LA FARG WaMaS WaKeM WaTPC WaV (00064345)

ABC; an alphabet of many things. Rojankovsky, Feodor, 1891- F. Rojankovsky's ABC; an alphabet of many things. Golden Press, 1971, c1970. [30] p. col. illus.
E ROJANKO WaSpCo (00022034)

The ABC and XYZ of bee culture; an encyclopedia pertaing to scientific and practical culture of bees. Root, Amos Ives, 182[illegible] Root Co., 1945

(some col.)
635.965 NIGHTIN WaO Wa (00065475)

ABC of things. Oxenbury, Helen. Watts [1972, c1971] [55] p. col. illus.
E OXENBUR WaBr WaMaS WaKeM WaTPC WaSpCo WaO WaV (00011117)

An ABC of witchcraft past & present. Valiente, Doreen. St. Martin's Press [1973] xvii, 377 p. illus.
133.403 VALIENT WaTPC Wa
133.4 VALIENT WaWeN (00029525)

ABC puppetry. Rutter, Vicki. [1st American ed.] Plays, inc. [1969] 78 p. illus.
J791.53 RUTTER WaSpCo (00058253)

ABC word book. Scarry, Richard. Random House [1971] 61 p. col. illus.
E SCARRY WaMaS WaWeN (00021891)

ABCDEFGHIJKLMNOPQRSTUVWXYZ in English and Spanish. Tallon, Robert, 1935- Lion Press [1969] 1 v. (unpaged) illus.
E TALLON WaWeN (00076201)

ABC's of ar[illegible]nance. Yerian, Cameron John. [illegible]k Gr[illegible]c1971] [5?

illus.
621.381 WILSON WaWeN (00059480)

ABC's of infrared. Bernard, Burton. [1st ed.] H. W. Sams [1970] 144 p. illus.
535.842 BERNARD WaBr (00052086)

Abc's of integrated circuits. Turner, Rufus P. [1st ed.] H. W. Sams [1971] 96 p. illus.
621.3817 TURNER WaBr (00043665)

ABC's of lasers & masers. Lytel, Allan Herbert, 1920- [3d ed.] H. W. Sams [1972] 128 p. illus.
621.366 LYTEL WaO (00007454)

ABC's of library promotion. Sherman, Steve, 1938- Scarecrow Press, 1971. iv, 182 p.
659.2902 SHERMAN WaBr
659.2 SHERMAN WaO (00017098)

The abc's of reloading. Grennell, Dean A. Follett Pub. Co. [1974] 320 p. illus.
683.406 GRENNEL Wa (00067029)

ABC's of tape recording. Crowhurst, Norman H. [3d ed.] H. W. Sams [1971] 112 p. illus.
621.3893 CROWHUR WaBr
621.3[illegible] CROWHUR WaMaS

Fig. 9.—Continued

The weekly operation of the system has resulted in such attenuated turnaround that input of local records, from tagging and editing to keying to proofreading to final verification, spans a minimum of two weeks, and often four or more weeks when corrections must be input between proofing and verification. Vocabulary update can occasion similar overlong delays in availability of the information. The on-line system, with immediate update and access, should not be subject to these difficulties.

The physical growth of the resource directory has already been mentioned. While microform production is one potential solution, it is also expected that libraries having display terminal access to the data base will no

Family communication; a guide to emotional health. Wahlroos, Sven. Macmillan [1974]
158.24 WAHLROO 73-011831

Family council: the Dreikurs technique for putting an end to war between parents and children (and between children and children) Dreikurs, Rudolf, H. Regnery [1974]
301.427 DREIKUR 73-018183

Family crimes. Neuhaus, Robert H. Merrill [1974]
362.82 NEUHAUS 73-085104

Family day care : report of a conference. Southeastern Day Care Project, Southern Regional Education Board, 1974.
362.733 FAMILY wln74-008404

The family, from institution to companionship. Burgess, Ernest Watson, American Book Co. [c1960]
301.42 BURGESS 60-003276

The family guide to children's television: what to watch, what to miss, what to change, and how to do it. Kaye, Evelyn, Pantheon Books [1974]
791.455 KAYE 73-018726

Family homes for adults. Washington (State). Dept. of Social and Health Services. 1972
WA 360 Soifha 1972 wln72-000733

The Family Reception Center: evaluation of the program. Sherman, Edmund A. Research Center, Child Welfare League of America, 1973.
362.7097 SHERMAN wln74-005527

The family story in the 1960's. Ellis, Anne W. Archon Books [1970]
028.5 ELLIS 79-010596

Family therapy. Bell, John Elderkin. J. Aronson, [1974]
616.8915 BELL 74-022276

Fig. 10. Interim Title Listing.

Famous pianists & their technique. Gerig, Reginald, R. B. Luce [1974]
786.1082 GERIG 73-018804/MN

Far infrared and submillimeter scattering : a report prepared for United States Air Force Project Rand. Deirmendjian, D. Rand, 1974.
551.57 DEIRMEN wln74-007549

The far side of madness. Perry, John Weir. Prentice-Hall [1974]
616.8982 PERRY 74-002035

Farm accounting and business analysis. James, Sydney C. Iowa State University Press [1974]
657.863 JAMES 74-016443

Farm and nation in modern Japan: agrarian nationalism, 1870-1940. Havens, Thomas R. H. Princeton University Press [1974]
338.1095 HAVENS 74-003475

Farm land assessment practices in the United States; a research report. International Association of Assessing Officers. c1966
336.22 INTERNA 68-000413

Farm, ranch & countryside guide; 500 selected vacation ideas. Farm and Ranch Vacations, inc. trade distributor: Berkshire Traveller Press, Stockbridge, Mass., 1974.
917.3 FARM AN 74-174454

Fascinating Alaska. Cooke, Cecil. Reed & Reed, c1947.
917.98 COOKE wln75-000047

Fascinating womanhood. Andelin, Helen B. Pacific Press Santa Barbara, [1974]
301.42 ANDELIN 74-186358

longer require hard copy. Thus, the resource directory may be needed only by small libraries and bookmobiles; probably readers and COM fiche or cartridges will be used in these instances. It is contemplated that custom catalogs might be produced for individual libraries or groups of libraries. Several terminals are anticipated for the larger libraries, to satisfy both processing and patron use.

HOLDINGS OVERLAP AND COST DATA

Tally of holdings overlap is provided on demand by the computer. The following data represent titles acquired by the participating libraries between July 1972 and January 1975; the overlap may be underrated because some of the same titles may have been acquired by some libraries before or after that period of time. Unique titles totaled 54,528* at the end of December 1974, with each title held by an average of 2.1 libraries. Titles held by only one library were 58.4 percent of the total. Of the titles held by more than one library, the average number of libraries holding each title was 3.6. The overlap might be expected to decrease as academic libraries are included; present participants, except for the State Library, which holds 30.5 percent of the uniquely held titles, tend to have similar acquisition patterns.

Costs of the present batch-mode bibliographic subsystem are shown in Table 3. Catalog cards cost $0.35 per set (two main cards and subject and added entry headed cards) and $0.05 per additional main card; labels cost $0.07 per set of one spine label and two book card/pocket labels. The resource directory, if continued with the same number of libraries and titles added in 1975, will cost an additional $26,500 for 400 copies, since the end-of-year total cumulation would be larger (July 1972 to end of 1975).

Table 3. Costs—WLN Bibliographic System, Batch Mode for Eight District Library Systems and WSL, 1974 (70,000 Titles Added)

Maintenance of system (backup, file cleanup, tuning of programs)	$104,000
Computer production costs	90,000
Card and label costs	39,000
Human labor, central operation	75,000
Resource directory (400 copies) and two-week listings	125,000
Postage and miscellaneous	15,000
TOTAL	$448,000
= $49,800 average per library	
= $6.40 per title	

CHRONOLOGY OF RECENT DEVELOPMENTS

The Washington Library Network system was from its inception intended to be eventually transformed into an on-line operation; the original

* This figure does not match the 68,900 in Table 2, since the master file contains some records to which no holdings have yet been attached.

batch construct was adopted under time and money pressures. After the pilot resource directory was produced in December 1972, a request was made to the state legislature in 1973 to fund the next developmental stage, which was to bring the cataloging module on-line and to add the acquisitions module to the system. Funding was not appropriated at that time. The Council on Library Resources granted $25,000 in spring 1973, which was used to make a survey of statewide library needs relative to an acquisitions module.[8]

In 1973 the state legislature created a new agency, the Data Processing Authority (DPA), to improve the efficiency of computer utilization throughout state government. Under the auspices of the DPA, a Library Automation Committee was formed in 1974 with representatives from the universities, four-year and community colleges, public libraries, and the State Library. This committee is charged with overseeing the development of an integrated computer system to assist the operations of all libraries of the state of Washington. Areas of investigation and coordination include the on-line development of the bibliographic system, integration of the cataloging module and the acquisitions/accounting module which is in operation at Washington State University, design of circulation and serials control modules, and evaluation of approaches to retrospective conversion.

In 1974 the state legislature appropriated funds for on-line development of the bibliographic system; this effort is now in the advanced design stage along with design for integration of cataloging and acquisitions.

The on-line acquisitions system developed at Washington State University will, with some modifications, become the next module to be added to the bibliographic data subsystem.[9] The integrated system will furnish preorder search and verification services, maintain in-process records for all forms of materials, maintain fund accounting records, furnish management information, and create products for participating libraries in accordance with profiles: purchase orders, claims, fund reports, acquisition lists, and such; and will attach holdings information to bibliographic records as materials are acquired.

The integrated acquisitions/bibliographic modules are planned to be implemented by the end of 1975, with some fifty libraries participating within the following year-and-a-half via CRT terminals. During the autumn of 1975, pilot operations of the acquisitions system will be undertaken at Western Washington State College and Seattle Public Library.

The on-line system will incorporate machine-readable authority files, full MARC coding at both input and output points, location symbols for titles held, bibliographic information, order and claim routines, an accounting subsystem, and catalog cards and book processing materials, with the capability for custom book catalogs on demand. Quality control continues to be a major emphasis.

CONCLUSION

The foregoing is a description of the Washington Library Network's computer system as it has functioned for about three years, assisting eight district library systems and the State Library in cataloging/processing materials and producing union book catalogs.

Admittedly a cumbersome procedure at present, the batch system is being redesigned and will be implemented by December 1975 in an on-line mode. This style of operation will permit decentralization of input and initial editing, and obviate the extensive manual files now maintained centrally. In the on-line operations, the center will function chiefly for final quality control and for system monitoring and adjustment, with search of data base, input of order and receipt notifications, and local cataloging in full MARC format input from remote terminals for central verification. In combination with an on-line acquisitions/accounting subsystem, this segment of the WLN will become a powerful tool for library operations. In 1976, circulation and serials control subsystems are to be added.

ACKNOWLEDGMENTS

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State of the Nation in Networking*

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INTRODUCTION

There is little so ephemeral as a "current review" in an area so rapidly changing as library networking. Yet this very characteristic of rapid change makes valid the effort of providing an overview at a point in time.

The first task, then, is *network definition and description,* necessary because a large number of library activities have been described as "networks" and only a limited number are covered here. The chapter on "Library and Information Networks" in volume seven of the *Annual Review of Information Science and Technology* provides a "normative list" of "essential characteristics":

1. A network's function is to marshal resources . . . to accomplish results beyond the ability of any one of its members.
2. A network has developed an organizational design and structure that allows it to establish an identifiable domain. . . .
3. It has a base in communications technology.[1]

The authors observe that analogous definitions in the literature are conflicting: that observation can be used to justify another definition, for purposes of this paper. A library network, herein, is seen as defined by four characteristics: it is a *d*ependent organization and system providing *d*uplex *d*igital *d*istribution. To expand on the alliteration:

1. A *d*ependent system is one which is operated multilaterally "in concert" in response to the common desires of a group of member libraries, as opposed to various shared or cooperative services which are offered unilaterally to libraries of all types by vendors or other libraries.
2. The *d*uplex element is a way to avoid the much-overused phrase "feedback"; it describes a two-way communication which separates a network from a publication or one-way dissemination such as an information service.
3. *D*igital defines the exclusion of various multilibrary functions which fulfill the other characteristics, but do not involve some use of computer, telecommunications, or digital data manipulation (specifically

* This paper is based on a presentation given at the ISAD Institute on Networking, New Orleans, March 1975.

excluding from our discussion those cooperatives and consortia which operate manually).

4. The *d*istribution of information or materials may take many forms (catalog cards, printed information, CRT screen images) but is the essential service of the network.

The definition of a dependent system also implies an important complementary point: the network must be an *in*dependent organization separate from the administrative, political, and fiscal bounds of its several members. I will not touch here on those potential networks which are so far only a fond hope gleaming on the title page of a planning study. We have had "networks" in a general sense in libraries for many decades. But this specific form of network is a new phenomenon in American libraries. So we will attempt three major tasks in the balance of this paper: a brief survey of the current status of the alphabet soup of present network groups in the U.S., including a few "seminetwork" efforts of particular interest; some observations on how library networks got where they are today; and enumeration of technical and management problems confronting continued successful network development.

Another definition must be interjected here because much of the literature on networks fails to make a distinction which is useful in understanding where networks are today. I will use the word "network" to discuss only that *d*ependent system which is providing some type of interactive computer-based service for its members. A "network resource" is the computer system, data base, or service which is available for use by that organization. The former is the multilibrary organization, the latter the production system *used by* the library network. We tend to talk of the wide variety of network resources as if *they* were the network. This problem becomes especially difficult because there are various levels of computer resources which get a common label:

- telecommunications networks (i.e., AT&T and related phone lines)
- custom versions of these (i.e., TYMNET, other Value Added Networks)
- linked computers which in turn service utility networks (ARPANET)

The Ohio College Library Center can be described as one of a number of network resources. What we call "OCLC" can then be seen as an on-line bibliographic reference, cataloging, and card production service which is used by a number of regional library networks. One of those groups is its developer and proprietor, the Ohio College Library Center. In sum, a *network* entity *need not create and operate all its resources*—and in fact, none of them do or are likely to do so.

LIBRARY NETWORKS

By any approximate measure, the libraries which represent most of the collections of U.S. academic and public libraries are already participating

to some degree in one or more networks. Even this incomplete survey will cover efforts involving almost eight hundred libraries, and including almost all of the major collections and budgets in the nation among academic libraries, albeit a somewhat smaller proportion of the public library systems. This observation alone marks a remarkable change in the way that libraries are planning, cooperating, and operating. While Patrick and Markuson have surveyed academic and federal library consortia and library cooperatives numbering in the hundreds, the authors of the *ARIST* chapter noted above, which covered the reported literature for the calendar year 1971, were able to report only one network which focused on library operations and met the rather stringent and rigorous network definition we have outlined.[2-4] That system, which on October 18, 1971, had initiated on-line cataloging of member libraries' non-MARC local cataloging (and thus had become fully *d*uplex), was the Ohio College Library Center.

The Ohio College Library Center cannot be seen as the first operating library network in the U.S. NELINET, for one, was contracting off-line network services from Inforonics, Inc., before OCLC was operating, and a number of state/public library combinations in New York and other locations were working out some network functions during the mid-1960s. The Ohio College Library Center is, however, clearly the largest and most dominant library network in the U.S.; its functions are almost entirely limited to the operation of the OCLC system. It is a nonprofit Ohio corporation and is not organized directly under either the Ohio higher education system or the state of Ohio. It publishes a corporate annual report and related financial information; the annual report should be a model to other library groups for its reporting of costs, and the information in it is a boon to observers.[5] The center is a large organization today; its 1973/74 staff expenses were just under $390,000; its income from Ohio member libraries alone was over $700,000. And at the end of that fiscal year its "fund balance" (which would be "net worth" in a corporate report) was $328,221. However, it should also be noted that it reported $620,000 of long-term debt at that time. The center is, by standards of the business community, presently managing a relatively large information service with a heavy capital investment in equipment assets. Its businesslike management is made evident by the fact that the center paid over $75,000 in bank loan interest during 1973/74 and, in recognition of the rising cost of money during that period, announced a prepayment discount program of up to 6 percent off normal charges, to minimize its cost of obtaining the necessary working capital. The functions of OCLC's network services will be discussed below, after some further survey of network groups.

The New England Library Information Network (NELINET) is an agency of the New England Board of Higher Education; its members represent most of the academic libraries in this geographic area. In addition to its pioneering efforts in obtaining access to OCLC services, NELINET headquarters staff have coordinated a number of noncomputerized local network projects and are administering funding for an experimental proj-

ect, Northeast Academic Science Information Center (NASIC), evaluating the "brokering" of automated information retrieval and reference services to library patrons.

SOLINET (Southeastern Library Network), based in Atlanta, is perhaps the youngest but largest regional group. After an initial network study stimulated regional interest by detailing projected regional costs, support was organized rather rapidly. The initial technical decision to "replicate" or reproduce the OCLC computer system was deferred because of technical problems, and SOLINET is presently in the process of installing OCLC terminals in its member libraries.

A number of other library network groups grew up rapidly after the demonstration of the OCLC on-line system became widely known in the library community. Some of these were organized loosely or were activated from relatively moribund cooperative groups, primarily with the goal of obtaining access to the OCLC system. Others were existing cooperative organizations which, though using OCLC to perform their existing operations in a different manner, evolved into networks almost as a side issue. Almost everybody in this group gets an acronym:

CCLC—is the Cooperative College Library Center, a processing center for five colleges in the Atlanta area;

FAUL—is a long-time cooperative/consortium effort among Five Associated University Libraries in upstate New York, including Cornell, SUNY at Buffalo and at Binghamton, Syracuse University, and the University of Rochester. Its functions outside of subscription to OCLC have focused on manual cooperative acquisition and resource sharing efforts; it has supported an organization in the person of a coordinator for some time;

The Federal Library Committee—is a resource and planning center for all federal government libraries, with special emphasis on needs of the widespread and varied agency special libraries. It is presently engaged in a one-year test of the OCLC system which has several special features: the stress is on access by lower-cost teletype, a very wide variety of library needs is represented, and the planning and evaluation procedure includes both a study and receipt and evaluation of machine-readable records produced by FLC libraries from the OCLC system;

PALINET—the Pennsylvania Area Library Network, is a group which was originally organized almost entirely to contract for OCLC services. The Pittsburgh Regional Library Center has a somewhat similar situation and was, in fact, the first non-Ohio organization to connect to OCLC.

The State Libraries of Illinois and New York have, through providing funds for OCLC subscriptions to libraries within their domains, provided the basis for network operations, although the libraries themselves are serving solely as the funding agencies and not the network organization *per se*.

A group which originally organized as the Interuniversity Council (IUC) of the North Texas area has contracted for network services with OCLC. This group has expanded its scope to include the University of Texas, Austin, in its contract, and plans to grow into the "AMIGOS Bibliographic Cooperative," covering a broader area of the Southwest. The AMIGOS network overlaps in geographic scope some of the area covered by the Southwestern Library Interstate Cooperative Endeavor (SLICE) project of the Southwestern Library Association, and the recently announced plans of the Western Interstate Commission of Higher Education (WICHE) to pull together a seventeen-state bibliographic network.

It was the policy of the Ohio College Library Center until quite recently to negotiate only with *group organizations* regarding provision of OCLC services outside Ohio. This policy undoubtedly hastened the development of other regional network groups and minimized the problems for OCLC. Until a January 1974 decision by the Ohio College Library Center Board to "continue to extend services outside Ohio," all access by other networks to OCLC had been (legally at least) on a short-term, experimental basis.

At least one special-purpose library network, although using OCLC as a resource, was conceived as a network operation independent of that resource. As such, it provides a nice "bridging" illustration between the networks already discussed, which are closely linked at present to the OCLC system, and others to be mentioned below. This is the CONSER (CONversion of SERials) project, which has come into being to provide creation of a large machine-readable data base of serials cataloging. From an initial beginning as a "grass-roots" meeting of a few professionals involved in automated serials efforts in mid-1973, CONSER has undergone a rapid metamorphosis into an independent entity housed in, and funded by, the Council on Library Resources.[6,7] Its stated goal is to convert 200,000 serials records over a two-year period, utilizing cooperative input from ten major libraries. Although not all libraries involved in the early discussions are part of the CONSER network effort at present, the intent is to expand the number of libraries inputting and sharing records, and to transfer the administration to an appropriate library agency after the initial stages are completed. Thus, CONSER is essentially a network of the libraries which will be building its data base. And, its organization and development was not solely on use of the OCLC system; negotiations with OCLC, in fact, were protracted and not without difficulty.

Another group of library networks is a little difficult to classify because they have organizational status only within an organizational system to which a number of library members belong. That is, there is a common larger organization to which all of this network's members belong, and thus their participation in its "network" is not an independent decision. In these situations some local autonomy exists in the individual libraries, so they are not strictly in a single system.

In California, for instance, the University of California Universitywide

Library Automation Program (ULAP) is developing a number of network operations on behalf of the nine campus libraries. These libraries are participants in this network by virtue of ULAP's status as a universitywide development project; at the same time they have a degree of local autonomy in some decisions relating to network services and products, and most have their own systems staffs in addition to that at ULAP. The California State University and Colleges system (which operates as a parallel academic structure to the university) has a central Library Systems Project which is implementing systemwide shelflist conversion and a common minicomputer-based circulation system on a nineteen-campus basis. CSUC libraries have a voice in development of systems but do not have the option of "no participation." These two California systems and the California State Library are investigating the necessary prerequisites to establishing a statewide bibliographic network including functions of some twenty-odd county or local public library systems which are partly supported by federal funds administered by the State Library but which are locally governed. These investigations are largely centered on a set of parallel experiments currently in process, and on "intersegmental" task force efforts defining feasible steps. An informal network entity has recently been established.

The California network situation seems representative of what is the current status in several of the larger states, particularly New York, insofar as objective observation is possible from a distance.

In New York, the State University of New York (SUNY) system has most of its constituent academic libraries participating in its blanket contract with OCLC, but at the same time is developing some thrust toward independent services, similar to NELINET's current approach. The New York State Library and other major research resources in the state, including notably the New York Public Library, are also carefully participating in "intersegmental" network planning.

In summary, we may say that the network situation in our two largest states is a reflection of the picture of network development at the national level: in New York, California, and nationwide there are many network-related activities, but the vision of a coherent, cohesive statewide or nationwide library network is as yet cloudy.

Meantime, there are a number of almost totally independent regional or special network programs which underscore the complexity of federal-state-regional-jurisdictional planning and development.

While the Research Libraries Group (RLG) is not at present operating a computer-based network, it is one of the most significant cooperative developments of recent years.[8] A consortium of Harvard, Yale, and Columbia universities, and the New York Public Library, RLG has already been well publicized in the library press, largely because of statements regarding cost savings expected to be obtained from reduction of duplicate monograph and serial holdings. While this statement provoked a natural reaction from the publishing world, it is simply the most evident tip of the

cost-saving or cost-containing iceberg which has been chilling expectations in the publishing-information community for some years. With long-standing automated systems programs at all four libraries, the development of automated network operations of some type can be expected from RLG, although they will not be its entire focus. Direct TWX communications have been established as a first step.

The Washington State Library (WSL) has developed a very high quality book catalog production system which includes the current acquisitions of many public library systems in the state; this system is presently being expanded and upgraded in capability to provide on-line bibliographic access.[9] Its development is being "linked" with an existing on-line acquisitions system at Washington State University, Pullman, and a proposed on-line circulation system being studied by the University of Washington Library. The ultimate goal is a multifunctional automated system for libraries of all types in the state of Washington.

The WSL system is one illustration of a growing number of cooperative book catalogs which fulfill all the definitions of a network, but lack the instant, "duplex" communication of on-line systems. In San Francisco's area, for instance, the East Bay Cooperative System, comprising two county and two city libraries, has published a common book catalog and supported a common interlibrary loan system for a decade. Numerous other examples exist, some of which fail to qualify as "networks" only because the central organization is provided by a book catalog service vendor rather than a library agency.

NETWORK RESOURCES

Having described briefly the status of library network *organizations*, we will focus on current library network *resources*.

OCLC presently maintains over one million MARC and locally generated bibliographic records in an on-line file.[10] Using a CRT terminal or (more recently) a teletype, a library enters an abbreviation of the author and title information desired. The OCLC system then displays all records which match this code, and the library can select the desired catalog record for its local use. The cataloging needed, whether drawn from the existing data base (modified or unmodified) or entered by the local library, is then formatted into catalog card sets which are sent the local library.

In addition, and of considerable importance, each title cataloged by a local library causes the addition of a library "holding" code within the on-line data base, at an average of slightly less than three holdings for each record maintained on-line. Thus an on-line union catalog is created as a by-product of current cataloging done by OCLC members.

Including members of the Ohio College Library Center and other networks contracting with it, the OCLC system is providing these services to almost 400 locations; its geographic reach extends from New England

through the South and Midwest and into the West, and its volume of activity is considerable.

The very rapid three-year expansion of OCLC, increasing the data base almost fivefold and driving catalog card production from under 500,000 cards in 1971 to over 7 *million* in 1973–74, has brought about changes in the initial system to handle library demands and has illustrated both the benefits and difficulties of network library services.

With the growth of the data base above three-quarters of a million records, the OCLC search-key code began to deliver a lower degree of unique retrieval, as more and more records were created with identical search keys. An "extended search" function allowing more detailed searching in a large group of retrieved records was implemented in 1973. While this improved retrieval, the computer processing time required became substantial, as one search out of ten required the "extended search" capability. Response time was slowed down considerably; although it was subsequently improved through provision of additional parallel programs, it appears that more expensive and extensive indexing will be necessary to provide item retrieval as OCLC files continue to grow.

The creation of over half a million local OCLC records by a wide variety of member and subscribing libraries has highlighted a number of administrative network difficulties which, while not specifically related to the OCLC computer system operation, affect its costs and services.

One problem perceived rather early was that sharing of records could be inhibited if one library's input were unacceptable to other libraries for various reasons. Minimum acceptable levels of content and "tagging" were established in *Standards for Input Cataloging*, which was developed by an Ohio College Library Center membership committee in mid-1972.[11] Enforcement of these input content standards remained the concern of an Ohio "Peer Council" in 1974, and was approached in other ways by other networks using OCLC.

A related and potentially serious problem was the creation of multiple cataloging records for holdings of titles in fact identical. This can occur in OCLC because any member library has two alternatives after searching the existing data base for a catalog record:

1. accept an existing record, making local modifications to desired fields such as main entry; or
2. create an entirely new cataloging record, thus making a new entry in the data base.

Since it would be almost impossible for the computer system to determine whether a new record was in fact "the same" as an existing one, control of this type of duplication must be done administratively if at all. No such control has been implemented among networks using OCLC.

Because of the acceptance of local cataloging which may be done before LC MARC cataloging is distributed, there is also a potential problem with "matching" incoming MARC records against local cataloging; a human re-

view of imperfect matches is required. (Titles that match on LC number, name-title, and title keys have the local record replaced by the MARC record.) OCLC's present replacement system has operated off-line and, because it has created something of a backlog, is scheduled to be replaced with an on-line edit. There seems to be, however, no alternative to the human post-edit of data. This problem will become more complex if other machine-readable MARC-format data bases are ever merged into the OCLC system.

Reported experiences to date allow three observations about the nature and use of the OCLC data base.

First, it seems clear the primary use of the OCLC system—in terms of the computer system resource at any rate—is not for the catalog card production function which is its primary physical product. Kilgour has estimated, based on card production volumes and directly related search levels, that almost 60 percent of the search and communication messages handled by the OCLC computer system (almost 100,000 daily in late 1974) were related to other library functions. Foremost among these is the interlibrary loan "union catalog" search function, with other uses including bibliographic verification and book selection. The estimate seems reasonable and emphasizes the point that the actual functions of the OCLC network resource for an individual library are much more extensive than the basis on which the library may have originally chosen it, that of producing customized catalog cards.

Second, the distribution of cataloging records demonstrates a much higher degree of unique use than many libraries might have anticipated. That is, less than half the data base has been used for catalog card production, and a smaller proportion of OCLC-input records has been used than of MARC records. Detailed statistics summarized for a 1974 report for the California State University and Colleges system are given in Tables 1 and 2.[12]

Only 25 percent of OCLC-input records were used again by any other library for its cataloging needs, and less than 2 percent of the records were used by five or more other libraries. On a similar basis, 40 percent of the available on-line MARC records were used by one or more libraries. Only 27 percent of the total were used by two or more libraries, and 12 percent by five or more. These levels of average use have climbed during the last year with increase in the number of libraries on the OCLC system, and are reported at 32.0 percent and 50.2 percent respectively for 1973/74. Nonetheless it is clear that "shared cataloging" *per se* does not represent the bulk of OCLC system use if we define that as sharing of local library cataloging records.

Third, the nature of the data base itself is of considerable interest for those evaluating network resources. The most striking statistic is the language composition of the data base: as of June 1974, 88 percent of the

Table 1. OCLC Usage of OCLC-Member-Created Catalog Records

1. OCLC data base sample = 304,770 records.
2. Number of OCLC holdings, cumulative = 438,254.
3. Each OCLC-member-created record was used an average of 1.48 times. A record was used by member libraries other than the library creating the record an average of .48 times.
4. Usage Distribution Table:

Number of Uses	*Total Number*	*Percent of Sample*
0	0	0
1 or more	304,770	100
2 or more	72,120	23.7
3 or more	26,311	8.6
4 or more	11,793	3.9
5 or more	6,244	2.0
6 or more	3,917	1.3
7 or more	2,779	0.9
8 or more	2,092	0.7
9 or more	1,584	0.5
10 or more	1,237	0.4

Table 2. OCLC Usage of LC MARC Catalog Records

1. LC data base sample = 324,506 records.
2. Number of records with OCLC holdings = 131,447.
3. 40.5 percent of LC MARC records have been used by OCLC members.
4. Usage Distribution Table:

Number of Uses	*Total Number*	*Percent of Sample*
0	193,059	59.5
1 or more	131,447	40.5
2 or more	86,497	26.6
3 or more	63,613	19.6
4 or more	49,790	15.3
5 or more	40,489	12.5
6 or more	33,548	10.3
7 or more	28,142	8.7
8 or more	23,879	7.4
9 or more	20,286	6.3
10 or more	14,699	4.5

data base (MARC + OCLC) is reported to be in English, with the next highest languages (German and French) under 4 percent each. By contrast, the University of California *Union Catalog Supplement* data base, a five-year cumulation of universitywide cataloging 1963–1967, contains 46 percent English-language records.[13] It can be expected that the participation of some of the large research libraries now on the OCLC system will change this ratio, and confirmation of this seems to be provided by OCLC's report that for records with current dates (1968+), the level of input of local participating library input increased from 21 percent in 1973 to 31 percent in 1974.

The composition of the OCLC data base by date of publication is also of interest, providing some information on the degree of retrospective cataloging provided by MARC and member libraries. A brief breakdown provides:

Date	*Percent by Type*		*Total Percent*
Before 1900			4.6
	LC MARC	1.4	
	OCLC	3.5	
1900–1961			12.8
	LC MARC	2.2	
	OCLC	10.6	
1962–1967			27.2
	LC MARC	5.1	
	OCLC	22.0	
1967–1973			55.3
	LC MARC	43.3	
	OCLC	12	

This illustrates that, of the cataloging not provided by MARC, OCLC members' input through 1973 was most concentrated in the five-year publication period just prior to MARC, almost half (46 percent) of the total local input. The balance was divided almost equally between older material and current non-MARC cataloging.

In 1974, with the increased participation of some large research libraries, the non-MARC portion of the data base grew from 321,000 to 521,000 records during 1973–1974. This input was almost equally divided between the current (1968 forward) period and the pre-1968 dates, showing a considerable emphasis on current non-MARC cataloging, while retaining the non-MARC 1900–1967 material at about one-third the size of the total data base (32.9 percent).

The growth of the OCLC system has led to development of plans and programs to expand and adapt its services. As mentioned briefly above, terminal equipment other than the standard OCLC 100 CRT unit is now being used on the OCLC system, in conjunction with an additional minicomputer and the Tymshare Corporation's TYMNET telecommunications network. Teletypes are being used by the Federal Library Committee and other libraries in standard OCLC processing. Two remote printing terminals, including one which can use the widespread IBM Selectric typing unit, are now usable on the OCLC system.

The central OCLC computer system is being structured to communicate with a regional minicomputer which has been obtained by the NELINET network. This opens up additional technical options for multiple network access.

A serials check-in processing module is expected to be available to OCLC libraries in late 1975, to join the serials cataloging functions presently available. The initiation of CONSER operations, expected to begin in mid-1975, will also expand serials processing at OCLC.

An author key index has been created for the OCLC data base, providing direct access to personal and added-entry names. An authority file ref-

erence system is also in the process of development. Most interesting, however, in terms of index access, is that OCLC has purchased the BASIS-70 computer programs from Battelle Institute with the intent to build a subject index to the full data base. This would add a whole new dimension—including expanded potential for public use—to OCLC services. The end of 1975 is discussed as a target for this service. As the index system develops more functions, it also seems likely that the often-discussed establishment of a separate charge for OCLC searches which are not accompanied by a card-production request will become fact.

But probably the most significant service for most network library members will be implementation of the system's capability to transmit interlibrary loan requests automatically through OCLC to another member library whose holding of a given title is indicated in the data base. This will eliminate an almost totally overlapping investment in equipment and telecommunications for most network libraries.

Like any major computer effort, the OCLC system has had its difficulties; it has recently, for instance, suffered through a period of degraded service while awaiting delayed installation of a larger central computer. But the important point is that OCLC has been successful and effective both technically and politically with a major new service. There is no longer any reason to expect that the technical difficulties they will no doubt face with new equipment or processes will defeat the reliable provision of their present services.

While the OCLC system at present has the largest number of active users, there are at least three other major automated library services capable of network operations, and many more network resources which can be used in support of library networks.

BALLOTS has been under development at Stanford University since 1967, and during the past year has become fully operational on all modules planned for its use at the Stanford University Libraries.[14] It is the most complex and sophisticated automated library application yet brought into full daily operation. Its on-line terminals provide virtually all major library technical processing functions, excluding only fund accounting and serials check-in. Four major on-line files of bibliographic data form the heart of all BALLOTS functions. The in-process file (IPF) controls materials on order or received and not yet cataloged; the MARC data base provides reference for cataloging; the catalog data file (CDF) carries on-line records cataloged by Stanford since the inception of BALLOTS' production operations; and the reference file (REF) contains a sophisticated cross-reference and authority reference data base. Index access is very powerful and flexible, and in fact uses a separate set of computer retrieval programs (SPIRES) also developed at Stanford and used for other general information retrieval purposes. Virtually any word in most fields of the bibliographic record can be used for searching in SPIRES/BALLOTS, and combinations of words, partial words, or

phrases may be specified initially or in response to an initial search to locate the bibliographic citation desired. This capability is particularly useful in a large research library with extensive acquisitions, and where BALLOTS is used initially at acquisitions verification without the book in hand. SPIRES searches are available to any library—without access to the balance of BALLOTS programs—through teletypewriter access.[15]

The California State Library has funded a preliminary network project which will provide BALLOTS cataloging support to six of the largest public library systems in the state. Five of these systems already have a variety of internal automated functions including production of major book catalogs, so the test will be involved in delivery of machine-readable data from BALLOTS directly to library systems, as well as production of catalog cards.

The University of California (UC) systemwide BibCenter is working with BALLOTS in efforts designed to extend their joint resources in a complementary manner. These efforts include: provision of SPIRES/BALLOTS on-line search to supplement the BibCenter batch search system; mutual sharing of UC and Stanford data bases for independent operations; and sharing of program functions.

But from a network perspective the most significant BALLOTS operations are those which have been recently funded to include all necessary protocols, multiple files, and special functions to extend BALLOTS to multilibrary network operations. With this funding, which will support development much less conceptually complex than that already developed, there is little doubt BALLOTS' extensive service capability will make it a major factor in future network operations, at least in the West.

The Washington State Library network program has been briefly mentioned, but two elements of its program are worth noting even before its plans develop into production operations. First, WSL is already working with BALLOTS and regional groups including the Western Interstate Council for Higher Education (WICHE) to do as much as possible to insure that internetwork communication will be technically feasible when its development is complete. Second, the WSL system is being developed by Boeing Computer Services, and some preliminary efforts regarding distribution, sale, or lease of the system have already been made by Boeing, which already operates one of the largest computer-service-bureau networks in the country for general data processing.

New York Public Library's Systems and Data Processing Office (SADPO) manages one of the few dedicated computer facilities in the library world and has operated for several years the complex and sophisticated computer programs which produce the book catalogs of the Research and Branch libraries.[16] SADPO is presently involved in at least three directions with efforts that make it appear that its operations, which are now beginning to include on-line access, will be available outside NYPL as network resources. The participation of NYPL in the Research Libraries

Group has already been noted. The library is also involved with the New York State Library and SUNY in their developing network plans. And METRO, the regional-area cooperative, has recently let a study contract investigating the feasibility of producing a common book catalog, using SADPO resources, for a group of area public libraries including Brooklyn Public Library. In addition, the SADPO system has been used to produce the Hennepin County Library's book catalog.

Information Dynamics Corporation has for many years produced the widely used MCRS microfiche reference system, which has had author/title computer-generated indexes included in print form to some 1.25 million LC catalog records since 1969. In late 1973 IDC announced an on-line service accessing these indexes, their more extensive 3.5 million-item LC number index, and LC MARC data; this service was coupled to a complex of locally controlled minicomputer processing and printing programs. The complex of services was termed BIBNET. The on-line index searching was coupled with off-line retrieval and subsequent display of full bibliographic data for various processing steps, including catalog card production.

Portions of the BIBNET system have been contracted for and partially implemented at the New Mexico State Library, which plans to use the system for input of State Library cataloging; creation of holdings information for multiple state, public, and academic libraries; and bibliographic search. The BIBNET 2000 system is also in use at Northern Virginia Community College for retrospective conversion of five campuses' collections to a MARC-format machine-readable record and subsequent local catalog publication. In addition, IDC is preparing machine-readable cataloging under contract for two programs: North American Shared Cataloging (involving a consortium of nine Canadian libraries) and Legal Bibliographic Data Services (involving the Harvard Law Library); the volume of titles approximates 12,000 and 6,000 records/year respectively.

Recently IDC has contracted with System Development Corporation to handle computer processing and access for its on-line index and MARC files.[17] This provides a two-step service wherein a library may search (without BIBNET associated processing) the IDC files and MARC records, or may search and process records through the BIBNET system. The search-only service is available from either SDC (LIBCON) or IDC; the full service is available only from IDC. The major access difference is that BIBNET-client libraries input and may access holdings statements for their network group within the on-line system, whereas the search-only service provides no holdings and is a pure reference service like others supplied by SDC. In a reverse distribution agreement, all SDC data bases in reference areas (about twenty, including NTIS, etc.) are available from Information Dynamics also.

The most recent communications from IDC stress the potential of the subject search capability of the IDC/SDC search-only service for library reference, particularly the ability to search interactively from a selected

subject term or key to a related class number, and then browse through the data base's collection of identical or related class numbers. This service is then coupled with the BIBNET holdings index for interlibrary loan.

The remaining major network development effort which has potential for nationwide impact is that of the University of Chicago; the Library Data Management Project has a broader intended scope even than BALLOTS but is somewhat further away from production network operations. While many batch automated functions have been operating at Chicago for some time, and a data base of about 200,000 MARC-format records has been built from current cataloging, the project's intent is to build an extended on-line service with considerable flexibility in use of specific central and peripheral computer equipment. A circulation module utilizing a library-developed circulation terminal with light-pen bar-code label scanning is being implemented.[18]

A recurring inquiry regards costs of these major network resources; some comparison of OCLC and BALLOTS operations, perhaps the two major current production systems, can be made (see Table 3).

Table 3. BALLOTS/OCLC Cost Comparison, 1973–74

BALLOTS		OCLC	
Hardware and Software			
IBM; noncurrent		*Xerox;* current	
Custom OS monitor		Custom OS monitor	
PL/360 programming		Assembly programming	
Full system documentation		Scant system documentation	
Scant program documentation		Scant program documentation	
Accepts MARC input		Accepts MARC input	
Does not generate MARC		Does not generate MARC	
Development and Operating Costs			
BALLOTS grants:	$1,800,000	OCLC grants:	$1,100,000
Stanford funds:	$500,000	Member fees:	$1,600,000
SPIRES grants:	$1,000,000	Card charges:	$530,000
Stanford funds	$500,000		
Total development	$3,800,000	Total funding	$4,230,000
Operating budget	$600,000	1974–75 Budget	$2,200,000
Average cost/title	$6.57	Average cost/title	$2.21
Marginal cost	$2.47	Marginal cost	$2.21

FACTORS IN NETWORK DEVELOPMENT

Some rules may be proposed to describe what the factors are that aid or hinder library network development and some specific situations in which large, well-funded groups are moving less rapidly than other places where effective network cooperation would not be expected.

1. *A network's development time in planning is inversely proportional to the number of skilled, experienced library planners involved, but the minimum number of planners is two.* That is, the more large staffs with experience in automated systems, the more opportunity for divergent views.

2. *Network development is inversely proportional to the time required to produce the first network product.* That is, the longer the network group is required to support development without production of a valuable output, the less likely it is that the network will survive.
3. *Network development is directly proportional to the level of funding and centralized administrative management.* That is, money is significant (and by many library program standards, quite large), and there must be a strong central administration—which means decision-making power—and management—which includes planning, developing, *and marketing* the network's functions.

As with other segments of this paper, the Ohio College Library Center provides the significant illustration, although examples abound of other successes *and* failures.

OCLC had had its original impetus in the existence of an organization similar to many others: a Librarians' Committee on Library Cooperation of the Ohio College Association. While the historical record shows that the efforts of most similar groups have had, as Kilgour notes, "limited success," the chronology of the development of this group into the first successful computer-based bibliographic network is worthy of review.

In 1963 this group obtained funds to back a small study on academic library cooperation. The concept of a computer-based union catalog developed from this initial study, and in 1965 a further study was conducted by Ralph Parker at the University of Missouri and Fred Kilgour, then at Yale.[19] They recommended concepts of development which were the initial technical design behind the OCLC system.

In reporting on the initial formation of the Ohio College Library Center, Kilgour noted but did not expand on the elements which were brought together to make the success of OCLC possible:

> The committee . . . proposed to OCA that the recommendations of the report be acted upon. In its turn, OCA approved the report at a meeting on October 30, 1966, and empowered its president to appoint a committee of implementation to form a corporation, to employ a director, to choose a location for the center, and to arrange for the receipt of funds. A year later, the Center was a fully organized, corporate entity, with its director embarking on design of a computerized regional library center.[20]

Buried in this sparse commentary was the creation of a number of powerful elements which made it possible for OCLC to subsequently operate during the development period between its initial incorporation and production of the initial on-line services.

". . . [the Ohio College Association] . . . empowered its president . . . to form a corporation, to employ a director, to choose a location for the center, and to arrange for the receipt of funds." While these elements of support certainly did not assure the success of OCLC, taken together with the leadership of its director they made it possible for OCLC to operate subsequent-

ly for five years during the development of the on-line services which are so widely known today.

The first element is probably the most significant; OCLC was formed not by a group of cooperative librarians, but by an association of their superiors, college administrators. It is observable that the provision of consistent long-term support and the lack of peer-group dissension among librarians in a cooperative effort are much more predictable in a cooperative effort dictated by managers or administrators of the larger organizations of which libraries are but an element.

Secondly, through the organization of a corporate (nonprofit) entity and the appointment of a full-time director of stature, OCLC gained an independent existence which allowed it to operate with a third-party relationship even to the largest libraries among its membership. The advantages of such a status are subtle, but the positive effects are observable.

Third, both the membership and the timing of OCLC favored its success. Only one large academic library was an initial member of OCLC; the great majority were small college libraries with no intent of developing an ambitious network scheme such as was proposed in the original 1966 Parker and Kilgour report. And, while it is generally conceded that OCLC stretched the state of the art at the time in the initial plans for on-line service, gains in computer technology have in fact favored the OCLC on-line concept during the near-decade required for the marketing of the system concept.

It is a fine balancing act to judge the time needed to develop the *idea* of a new innovative service, and to balance against that the technology available to support the service when it reaches a growth stage. OCLC has demonstrated this capability, focusing closely on a specific valuable but limited area of library service. The challenge for future network development will be to match the performance on more complex services.

THE FUTURE OF LIBRARY NETWORKS

There is little question we are going to see considerable growth in operating library networks in the next five years. Kilgour projects 750 OCLC terminals in operation by June 30, 1975, and 1,550 by June 30, 1976—and OCLC has the purchase orders outstanding for OCLC terminals to demonstrate the seriousness of their intent. A recent effort at Stanford Research Institute projected four to five thousand libraries with some remote or local telecommunication network connection by 1980. And, preparation for a multiclient study of the library automation "market" suggests over $100 million is already being spent annually on library automation applications.

While the exact size of these developments, and their configuration, is of keen interest to network planners and network service vendors, I want to focus here briefly on the existing difficulties in library network operations which will make life more painful in your library as a potential user unless they are resolved before this rapid growth is accomplished. These

network problems fall in four major areas: technical, administrative, policy management, and cost-benefits.

Technical issues of major import cover the following areas:

Authority control in some form is being recognized as a necessary precondition to continued sharing of bibliographic data *among* peer libraries (as contrasted to the superior exercise of bibliographic authority provided by LC) in wider network development.

Conforming or evaluation of multiple data bases and the cataloging policies used in their creation will be more necessary as multiple operating systems try to relate to each other. This issue also involves development of quantitative measures of bibliographic efficacy.

Multiple system communication will be a requirement as networks invade the production systems already in operation in large academic and public library systems. The problem here is to develop methods to allow a common network resource to provide data to widely varying local acquisitions, circulation, or catalog publication systems.

Network communications—the direct communication between various networks—will be an important issue but will be longer in development unless the economic incentives for growth of individual networks favor sharing with other network resources.

Growth strategies will be subject to detailed consideration. The common pattern of almost total communication to a distant network resource will diminish with the development of cheap local resources. Replication or nonidentical copying of existing network operations will be limited by the desire to provide custom localized development.

The access delivery systems in the planning stages in many systems will integrate bibliographic search and the actual process of item delivery, and will require connection of the systemwide search and system/local circulation control functions.

The technical problems hinted at in these issues—whether the network be on-line or batch publication, regional or contained to one multiple-location library system—are nontrivial and require the exercise of a more sophisticated level of design than will be commonly found available to most libraries.

But the technical problems pale beside the administrative and policy problems; there are at least five systems development groups in the U.S. that may be expected to solve these problems in the next few years, given appropriate information from library and network administrations. The management of sophisticated cooperative efforts among libraries representing very disparate organizations and a multitude of funding bases is a problem for which answers become less clear as the participation of the organization in the network becomes more central to the operation of the individual library. (It is possible to maintain that one of the reasons for the substantial success of OCLC is that it is a system which has minimum impact on the operation of the overall library—from the point of view of

all but the cataloger, its main notice of existence is the peculiar type font of the otherwise perfectly traditional catalog card.)

Shared cataloging standards must be determined by the participants in a network, with regard to both content and technical format. Inadvertent or conscious duplication of bibliographic records and incompatibility with other networks' efforts will result if such standards are not worked out *before* specific applications are implemented.

The legal and organizational structure of any substantive cooperative effort must be established in such a way as to provide for efficient management. This will rarely be through simple agreements and voluntary committee governance, which has characterized many noncomputerized networks. The level of capital investment and operating management required will necessitate a formal organization and administration.

Long-term funding must be organized; few network-related projects can be planned and implemented in the one-year time span common to most library budgeting. Any dependence on the provision of external funding must recognize the transient nature of such support.

Management resources must be provided to support the technical, administrative, *and* political efforts necessary to build an operating network service. This effort can be expected to become *more* complex, rather than less, as the number of libraries and number of functional operations within the library addressed by the network increases.

Interlibrary loan and delivery policies will have to be developed for all network participants which recognize the relevant costs of provision of document services as well as sharing of bibliographic information.

Data base ownership is an issue which has surfaced only in the relatively few libraries which have already made major investments in creation of bibliographic records. But in the absence of any nationally funded comprehensive program (that is, until MARC provides complete nationwide coverage of its *and others'* cataloging), the local organizations funding creation of records will have an obligation to minimize their investments by sale of license of their proprietary records to others. This issue has been latent until the clarification provided by recent OCLC library contracts that (a) records created by local libraries are the property of that library, and (b) records funded nationally (MARC and especially CONSER) are in some form of common title.

Network service determination will be perhaps the most complex issue to resolve in the areas of administrative and policy management. As more libraries participate in the development of a network, as more library applications prove themselves in production systems, and as more unorthodox library services are developed, the task of deciding which focus a given network should have will become continually more difficult.

CONCLUSION

Nothing has been said in this discussion about international networks,

particularly the very active Canadian libraries, and nothing about the Library of Congress. The current state of networks in the U.S. can in no way be described as a national or international effort.

It may be that the forthcoming National Commission report and the associated White House conference on libraries will germinate, develop, or define a national network plan. Certainly the efforts of the Council on Library Resources, many staff at the Library of Congress, and many librarians and information professionals in the automation and network fields are pointed toward this goal. But at this time we have no single, coherent, specific document that we can take from the library community to the academic deans, county administrators, and legislators who represent our library patrons and say, "Here is how a library network should grow and why it is valuable." And, as we've discussed, we certainly don't have all the facts to support our arguments and efforts.

Two efforts are potentially the most valuable in the continuing development of both the plans and the performance of library networks. First, the MARC Development Office at the Library of Congress is currently pursuing two study projects of considerable importance to this subject. One is the definition of a Library of Congress MARC format tailored to the specific needs of the production of the *National Union Catalog*. The second is a pilot project to test the feasibility of processing Library of Congress cataloging keyed into machine-readable form at other libraries through the library's internal computer programs. The combined effect of these two projects, if determined feasible for implementation, could be beneficial both to the cost of cataloging input and to the breadth of data base development.

Second, although it is currently organized on a most modest scale, there has emerged as an organization a Council of Computerized Library Networks, a group presently basically composed of networks contracting with OCLC. This group, though, potentially provides the organizational framework to address some of the technical and management problems of networking which depend on consensus among groups of libraries. I hope this council will receive strong support from library networks and individual libraries in networks.

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Initial Article Filing in Computer-Based Book Catalogs: Techniques, Problems, and Article Frequencies

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This report is concerned with one part of the problem of computer implementation of library filing rules, namely the handling of initial articles in many languages. A brief review is given of the general computer-based methods used for filing catalog records. With a catalog for an academic library collection of approximately 750,000 title entries and over 50,000 initial article character strings, an empirical study was made of the frequency of misfiling that would occur for each article if simple table lookup procedures were used for the ninety-three different articles studied. Including all of these articles in a simple table lookup program without language codes would result in the computer misfiling of approximately 6.3 percent of the title entries according to library filing rules. A strategy is suggested which reduces this error rate.

I've got some good news and some bad news. The good news is that for your book catalog a simple table lookup program for initial articles can file 51,000 title entries correctly; the bad news is that it will misfile 3,000 title entries!

INTRODUCTION

Computer-based filing rules for library catalogs are a relatively complex subject and have received considerable attention already in the research reports of Nugent, Harris, and Hines.[1–3] Particularly good reviews and suggestions for additional readings are given in the works of Cartwright and Koubourlis.[4, 5] This report concerns itself with only a segment of that problem, namely the filing treatment of initial articles.

Library filing rules are usually explicit regarding the way in which initial articles (e.g., a, an, the) are to be considered for filing purposes. In general, the procedure is to ignore the initial articles in filing. The ALA publication states, for example, "The following table lists definite and indefinite articles in various languages in the nominative case only (all genders and both numbers) which should be disregarded according to the rule for articles (Rule 4)."[6] The LC filing rules provide a table of ". . . defi-

nite and indefinite articles in various languages in the nominative case only (all genders and both numbers), which should be disregarded whenever they occur as the initial word of a title."[7] For computer-based book catalog programs, some of the designers have tried to follow these rules with their computer programs, often using simple table lookup programs to see if the initial character string of a title is included in a master table of initial articles. However, there have been difficulties in exactly following the standard manual practices, particularly when the machine records do not include language codes. The blind obedience of the computer programs in following the tables and the stated rules leads to the misfiling of titles such as *A Is for Apple, As You Like It, De Facto School Segregation, Die Like a Dog,* and *To the Bitter End* where a character string otherwise identified as an initial article in some language by a table lookup program should in fact be considered for filing purposes instead of being disregarded. This problem is particularly severe in a library that handles titles in many languages. This report provides an estimate of the frequency of occurrence of initial articles in titles in many languages, an estimate of the extent to which they might be considered for filing purposes, and suggests a strategy to handle this initial article problem.

Computer filing programs have generally followed one of four courses with regard to initial articles, namely:

1. Suppress initial articles at time of input keyboarding.
2. Manually edit and annotate the filing terms or prepare a filing title before keyboarding.
3. Perform simple computer table lookups for complete and automatic exclusion of all tabled articles.
4. Perform computer table lookups with additional considerations such as language codes.

Each of these techniques is reviewed briefly below. A more detailed description of several ways to handle the sorting and file handling of bibliographic records is given in a recent review article of Goossens.[8]

Omit Articles at Time of Keyboarding.—The simplest technique is to ignore the initial articles and not keyboard them at the time of original input into machine-readable form. This requires that a judgment (perhaps assisted by previously prepared reference tables) be made by the keyboard operator or by an editor prior to keyboarding. This method results in the absence of the article in the machine record, for printing as well as for filing or any other purposes, and works rather well when dealing primarily with English-language material. However, because of the large number of decisions to be made by the keyboard operators, this approach might not work well if a large amount of foreign-language material were to be processed.

Manual Editing Prior to Keyboarding.—Many book catalog or file conversion efforts have made use of editors to review, edit, and annotate the source records before they were keyboarded. Typical editorial actions in-

clude deleting parts of the record, exercising some authority control, and consolidating duplicate records. As part of this review of each source record, the editor in some installations can also annotate the initial articles with special nonprinting symbols that are keyboarded immediately before and after the article, and interpreted by the computer program as a signal to include the article in any printouts, but ignore it for sorting or filing purposes.

Another variation is to construct a separate sorting field in the machine record that contains the entry with the article removed. This field can be prepared manually, but as demonstrated in several systems, it can also be computer-generated from the record itself. The Sort Key/Edit (SKED) programs used in the book catalog programs of the Institute of Library Research (ILR) are examples of programs to automatically generate separate sort keys from the record contents.[9]

Florida Atlantic University was one of the earliest book catalog producers to use this technique of "nonfile symbols."[10] Stanford also used this approach for its book catalog.[11]

Simple Table Lookup.—In the event that no editing is performed before keyboarding, another straightforward approach is to construct a table of initial articles to be checked by the program while processing the records for input or sorting. The comparison is done on a character-by-character basis without considering the language, context, or meaning of the article. For this reason, it is possible with this simple approach to make the type of error that ignores or deletes the "A" in the title *A Is for Apples.* Table lookups on a character-by-character basis, without any other clues or context information, will operate correctly for some articles but introduce error for some other articles. For most applications, the tables can be relatively small, say 20 to 30 entries; but for the larger research libraries that process a considerable amount of foreign-language material, it would not be unusual to use tables of up to 100 initial articles.

Augmented Table Lookup.—This approach uses a table of initial articles but does not rely only on a character-by-character match. Instead, consideration is also given to other indicators such as the recorded language of the publication or catalog record, or the language or meaning of other words in the catalog record. This extra degree of refinement has been used in some places, but not universally perhaps because the necessary language information is not always available in the machine record prepared or used at various libraries, and because the programming and processing would necessarily be slightly more complex. It is true that LC MARC records include language codes; however, many of the prior and present retrospective file conversion efforts of other libraries have not included provision for an explicit language code for each record.

This table lookup approach was suggested for the New York Public Library (NYPL) catalog: "All initial articles in titles are disregarded, even indefinite articles used as numerals. . . . (Computer has a table of articles

to disregard when 1st word in title.)"[12] A later publication about this library noted that, "A great many of the filing requirements have been condensed into tables which can be regularly updated. The tables now in use are: . . . 5) Articles to be dropped as first words in title headings or as first words in an author/title combination, arranged by language (some 30 languages included)."[13] For the NYPL application, some manual editing is also done prior to keyboarding when the cataloger determines it to be appropriate.[14]

For the Ontario New Universities Library Project (ONULP) book catalogs, "A comprehensive list of articles in 27 languages is used. Omission of an initial article found in this list is activated by the corresponding language code."[15]

OBJECTIVES

Keeping in mind the needs of large research libraries that are concerned with large computer-produced book catalogs for material in many languages, the objectives of this study were to:

1. Determine the frequency of incidence of initial articles in major languages.
2. Determine the nature and degree of error caused by the use of simple table lookup procedures for initial article suppression.
3. Suggest techniques that would improve the computer handling of initial articles for library filing purposes.

METHOD OF APPROACH

This study was an empirical one, and the data for the study were obtained from the recently completed *University of California Union Catalog Supplement* (UCUCS) project.[16] The UCUCS project converted many catalog records into a MARC-compatible format for the production of a book catalog and other products and services. The UCUCS data base consists of the roman alphabet catalog records for monograph titles that were cataloged by the nine University of California (UC) campuses during the period 1963–67. The catalog data base was assembled from a total of over 1.04 million source catalog card records received from the nine UC campuses. Because some records were duplicates submitted by two or more campuses, the file was eventually consolidated into a union catalog resulting in a final total of approximately 750,000 unique monograph titles, of which about 50 percent are for non-English material. A book catalog was photocomposed from this data base and printed in a combined author/title section (thirty-one volumes) and a subject section (sixteen volumes). Entries in the author/title section were made for first, second, and third authors, titles, and some series. A sample of an author/title catalog page is given in Figure 1. Some aspects of these record processing programs have been described in recent publications.[17–18]

No input editors were used during the file conversion effort, and the key-

CARELL, Paul.
—Invasion-and they're coming! The German account of the Allied landings and the 80 days' battle for France. Translated from the German by E. Osers. [1st American ed.] New York, Dutton, 1963. [c1962] 288 p. illus. 22 cm. 1. World war, 1939-1945—Campaigns—France (1944-1945). D761.C333 1963 940.5421 62-7823 1669643. D761 C333—D.
—Invasion-they're coming! The German account of the Allied landings and the 80 days' battle for France. Translated from the German by E. Osers. [1st American ed.] New York, Dutton, 1963 [c1962] 288 p. illus. 22 cm. 1. World war, 1939-1945—Campaigns—France (1944-1945). D761.C333 1963 940.5421 62-7823 1539968.
D 761 C3 1963—SB; D756 C313—B; D 761 C185E—L

CARELL, Paul, pseud.
—Hitler's war on Russia; the story of the German defeat in the East. Translated from the German by Ewald Osers. London, Harrap [1964] 640 p. illus. (part col.) maps (1 col. fold.) ports. 23 cm. Translation of Unternehmen Barbarossa. Bibliography: p. [625]-629. 1. World war, 1939-1945—Campaigns—Eastern. D764 C3613 1964 65-808 1225676.
D 764 C182uE—L; D 764 C3 1964—SB; D 764 C3613 1964—SD.

CARELL, Victor, joint author.
—Dust for the dancers. 1956. *See* Carell, Beth Dean. DU120 C3—R; DU120 C3—D
—Softly, wild drums. 1958. *See* Carell, Beth Dean. DU 742 C18s—L; DU742 C3—B.

CARELLA, Tulio.
—Cuaderno del delirio. Buenos Aires, Editorial Goyanarte [1959] 172 p. 20 cm. PQ7797 C28148C8 62-25244 CU 64 2038039. PQ7797 C2833C8—B.
—El tango: mito y escencia. [Buenos Aires] Ediciones Dople P [1956] 127 p. 21 cm. Grandes escritores argentinos. Ensayos, v. 21 1. Tango (Dance). GV1796.T3C3 57-18478 2175753. GV1796 T3C3—B.
—Picaresca porteña. Buenos Aires, Ediciones Siglo Veinte [1966] 197 p. 21 cm. (LACAP) 1. Buenos Aires—Description 2. Buenos Aires—Social conditions. F3001.C277 918.21036 66-66388 1536827.
F 3001 C3—SB.

CARELLA, Tulio, ed.
—El sainete criollo; antología. Selección, estudio preliminar y notas de Tulio Carella. Buenos Aires, Hachette [1957] 433 p. 21 cm. (Colección "El Pasado argentino") 1. Argentine farces. PQ7770.F3C3 58-26472 1320723. PQ 7770 F3 C3—IR.
—El sainete criollo; antología. Selección, estudio preliminar y notas de Tulio Carella. Buenos Aires, Hachette [1957] 433 p. 21 cm. (Colección "El Pasado argentino") 1. Argentine farces. PQ7770.F3C3 58-26472 1404032. PQ7770 F3C3—R; PQ7770 F3 C3—D; PQ 7770 F3C3—L.

CARELLI, Mario E., ed.
—Sekoddesatīkā of Nadapāda (Nārpōḍī). 1941. *See* Nadapāda. PK 2971 G118 no.90—L.

CARELTON'S country. 1931. *See* Shaw, Rose. PR4417 S5—D.

CARÊME, Marie Antonin, 1784-1833.
—Le maître-d'hôtel franc*ais) traité des menus à servie à Paric, à Sint-Pétersbourg, à Londres et à Vienne. Nouvelle éd. Paris, Renouard, 1842. 2 v. in 1. illus. 1. Menus. 7-35656 1019180.
TX 728 C182m 1842—L.

CARÊME, Maurice, 1899-
—Maurice Carême. Étude par Jacques Charles. Choix de textes, poèmes inédits, bibliographie... [Paris] P. Seghers [1965] 192 p. illus., facsims., ports. (Poetes d'aujourd'hui, 128) Bibliography: p. [185]-189. 1. Carême, Maurice, 1899- 1. Charles, Jacques, 1882- ed. 2182423. PQ1184 A1P65 v.128—B.
—Maurice Carême: étude par Jacques Charles, choix de textes, poèmes inédits, bibliographie, portraits, fac-similes. [Paris] P. Seghers [1965] 189 p. illus. (Poetes d'aujourd'hui, no.128) Includes bibliography. 1. Charles, Jacques. 1074486.
PQ 1163 P73 no.128—L.

CARENA, Carlo. ed.
—Le supplici. 1960. *See* Aeschylus. PA 3828 I7 C3—SB.

CARENA, Cmesare, fl. 1645.
—Tractatvs de officio sanctissimae inqvisitionis, et modo procedendi in causis fidei ... avctore Caesare Carena cremonensi. Hâ' nouissima ed. addita fuit Praxis inquisitorum Francisci Pegnae, cum additionibus Carenae, & Tracatus de strigibus eiusdem Carenae, cum indicibus copiosissimis. Bononiae, Typ. I. Montij, 1668. 448 p. 1. Inquisition —History—Sources. 1. Pegna, Francesco, 1553-1661.
*BX 1700 C182t 1668—L.

CARENA, Giacinto, 1778-1859.
—Il piccolo Carena. 1875. *See* Fornari, Pasquale, 1817-. PC1625 F6—B.

CARENS, James Francis, 1927-
—The satiric art of Evelyn Waugh. Seattle, University of Washington Press 1966. 195 Includes bibliography. 1. waugh, evelyn, 1903-1966. 0010469.
PR6045.A97Z62—SC.
—The satiric art of Evelyn Waugh, by James F. Carens. Seattle, University of Washington Press, 1966. xvi, 195 p. 22 cm. Bibliography: p. 183-191 1. Waugh, Evelyn, 1908-1966. PR6045.A97Z62 823.212 66-13540 1675248. PR6045 A97 Z62—D.
—The satiric art of Evelyn Waugh, by James F carens. Seattle, University of Washington Press. 1966. xvi, 195 p. 22 cm. Bibliography: p. 183-191. 1. Waugh, Evelyn, 1903-1966. PR6045.A97Z62 823.912 66-13540 1035595.
PR 6045 W358C18—L; 961 W354 C27—B; PR6045 A93253—R; PR 6045 A35 Z64—SB; PR 6045 A97 Z62—SD.

CARENT de guerre. 1965. *See* Barbusse, Henri, 1874-1935 Le Feu; journal d'une escouade, roman. PQ2603 A32 F4 1965—D.

CARERI, G., ed.
—Liquid helium. 1963. *See* Varenna, Italy. Scuola internazionale di fisica.
QC 175.3 V424I—L Chemistry Library; QC1 V3 no.21—D; QC 175.3 V33—IR; Q101 V29r v.21 1961—SF.
—Varenna, Italy. *See* Careri, G. ed.
QC 2 V3 v.21—SB.
—Varenna, Italy. Scuola internazionale di fisica. Liquid helium. Edited by G. Careri.New York, Academic Press, 1963. vi, 442 p. group port., diagrs. 25 cm (Its Proceedings, course 21) At head of title: Italian Physical Society. Added t. p. in Italian. Course held July 3-15, 1961 Includes bibliographies 1. Liquid helium—Addresses, essays, lectures. I. Careri, G., ed. II. Societa italiana di fisica QC175.3.V33 532.51 63-14745 1541545.
QC 2 V3 v.21—SB.

THE CARETAKER, a play. 1960. *See* Pinter, Harold, 1930- PR6031 I6 C3—D.

THE CARETAKER, a play. 1963. *See* Pinter, Harold, 1930- PR 6031 I52 C3 1962—SB.

THE CARETAKER and The dumb waiter; two plays. 1960. *See* Pinter, Harold, 1930- PR6031.I525C32—SC.

THE CARETAKER and The dumb waiter. 1961. *See* Pinter, Harold, 1930- PR6031 I55C32—R; PR 6031 P6488c 1961—L; PR 6031 I52 C3 1961—SB.

CARETAS. v.1- (no.1-)
—Sept. 1950- Lima. "Ilustracion peruana" 1060678. AP 66 C186—L.

CARETON, Willard T.
—Measurement of risk attitudes of Wisconsin banks. Prepared by the University of Wisconsin under a Small Business Administration grant awarded to the State of Wisconsin Dept. of Resource Development. Project co-directors: James S. Early [and] John Korbel. [Madison? Wis.] 1962. 95 p. illus. 28 cm. (Small business management research reports) Includes bibliography. 1. Banks and banking—Wisconsin. 2. Risk. I. Wisconsin. University HG2611.W6C3 63-63738 1024125.
*HG 2611 W6C2—L Bus. Admn. Library.

CARETTE, A (Bouvet) 1844-
—Souvenirs intimes de la cour des Tuileries. Paris, P. Ollendorff, 1890-91. 3v. 1. ser., 28. éd.; 2. ser., 17. éd. 1890. 1. Eugénie, consort of Napoleon III, 1826-1920. 1677003. DC280.2 C28—D

CARETTE, Ernest, joint author.
—...Les régimes politiques au XX* siècle. 1907. *See* Soubies, Albert, 1846-1918. JC 458 S719r—L.

CARETTE, Mme. A (Bouvet) 1844-
—My mistress, the Empress Eugénie; or, Court life at the Tuileries. By her private reader, Madame Carette. London, R.E. King [n.d.] 336 p. ports. Translation of the author's Souvenirs intimes de la cour des Tuileries. 1. Eugénie, consort of Napoléon III, 1826-1920. 1510284. DC 280.2 C3 Stack—SB.

CARETTI, Lanfarnco.
—Avviamento allo studio della litteratura italian. In appendice: Profilo di storia linguistica italiana, di Giacomo Devoto. [2. ed.] Firenze, Nuova Italia [1953] 318 p. 22 cm. (Guide critico-bibliografiche, 3) 1. Italian literature—Bibliography. 2. Italian language —History. I. Devoto, Giacomo. Z2351.C3 54-34225 1542561. Z 2351 C3—SB.

CARETTI, Lanfranco.
—Ariosto e Tasso. Torino, Einaudi, 1961. 124 p. (Saggi, 292) "Il testo della 'Liberata': p. [91]-121. 1. Ariosto, Lodovico, 1474-1533. 2. Tasso, Torquato, 1544-1595. 1024198. PQ 4656 C18a—L.
—Dante, Manzoni, e altri studi. Milano, Ricciardi, 1964. 178 p. Bibliographical footnotes. 1. Italian literature —Addresses, essays, lectures. 2. Dante Alighieri, 1265-1321. 3. Manzoni, Alessandro, 1785-1873. 1226958. PQ 4029 C168d—L.
—Parini e la critica; storia e antologia della critica. [Torino] F. De Silva, 1953. 235 p. illus. 22 cm. (Maestri e compagni; biblioteca di studi critici morali, 20) 1. Parini, Giuseppe, 1729-1799. 1403742. PQ4724 C37—R.
—Parini e la critica; storia e antologia della critica. 2. ed. Firenze, "La Nuova Italia" Editrice [1962] 236 p. illus. 22 cm. (Maestri e compagni; biblioteca di studi critici e morali, 20) 1. Parini, Giuseppe, 1729-1799. PQ4724 C25 53-36525 1080038. PQ 4724 C186p 1962—L.

CARETTI, Lanfranco.
—Saggio sul Sacchetti. Bari, G. Laterza, 1951. 208 p. 21 cm. (Biblioteca di cultura moderna, n. 487) Bibliographical footnotes. 1. Sacchetti, Franco, ca. 1330-ca. 1400. 1790311. PQ 4555 A9 C37—SD.

CARETTI, Lanfranco, ed.
—Il 'fidato' Elia, e altre note alfieriane. 1961. *See* Alfieri, Vittorio, 1749-1803. PQ 4681 A5 1961—L.
—Opere. 1962. *See* Manzoni, Alessandro, 1785-1873. PQ4713 A1 1962—R.
—Opere, a cura di Lanfranco Caretti. 1965. *See* Manzoni, Alessandro, 1785-1873. PQ4713 A1 1965—B.
—Orlando furioso. 1963. *See* Ariosto, Lodovico, 1474-1533. PQ4201 L4 v.19—D.
—Poesie e prose, con appendice di poeti satirici e didascalici del Settecento, a cura di Lanfranco Caretti. 1951. *See* Parini, Giuseppe, 1729-1799. PQ 4721 A1 1951—SB; PQ 4721 A1 1951—IR.

CARETTO, Laurence Stephen.
—Catalytic oxidation of cyclic hydrocarbons. Los Angeles, 1963. 64 l. illus. 28 cm. Thesis (M.S.) - UCLA - Engineering. Bibliography: l. 32-34 1. Catalysis. 2 Oxidation. 3 Exhaust gases 4. Hydrocarbons. I. Thesis (M.S.) - UCLA - Engineering. 1024199
LD 791.8 E4 C186—L Engineering & Mathematical Sciences Library; T7 .7 C272—B Engrn. Library.

CARETTO, Laurence Stephen, 1939-
—Catalytic ethylene oxidation. Pore diffusion and reactor size effects with copper oxide-alumina catalysts. Los Angeles, 1965. 167 l. illus. 28 cm. Thesis (Ph.D.) - UCLA - Engineering. Includes vita and abstract. Bibliography: l. 132-138. Photocopy available from University Microfilms. 1. Catalysis. 2. Diffusion. 3. Particles. 4. Oxidation. I. Thesis (Ph.D.) - UCLA - Engineering. T. Copper oxide-alumina catalysts. 1048145
LD 791.9 E4 C1865—L Engineering & Mathematical Sciences Library.

CAREW, Elsie Muriel Gweneth, 1895-
—Elsie Carew, Australian primitive poet; a selection from her verse and prose. With a commentary by Nancy Keesing. Sydney, Wentworth Press, 1965. 39 p. 1. Keesing, Nancy, ed. Farmington 2023430. 959 C272 1965—B.
—Tasmanian dipstick, ten short stories. 1961. *See* Tasmanian Fellowship of Australian Writers. PR9575.T34—SC.

CAREW, Francis Wylde, ed.
—No. 747. Being the autobiography of a gipsy. Bristol, Arrowsmith [1891?] 459 p. facsim. 1. Gipsies —Great Britain. 1671324. DX211 C3—D.

CAREW, Harold David, 1890-
—History of Pasadena and the San Gabriel valley, California. With personal sketches of those men and women, past and present, who have builded this "glorious empire within an empire". [Chicago] S. J. Clarke Pub. Co., 1930. 3 v. illus., maps 27 cm. 1790312. SP. COLL—SD.

CAREW, Jan.
—Black Midas. London, Secker & Warburg, 1958. 288 p. 21 cm. American ed. (New York, Coward-McCann) has title: A touch of Midas. PZ4.C26981 58-43313 1026998.
PS 508.1 C187b—L Special Collections.
—Moscow is not my Mecca. London, Secker & Warburg [1964] 198 p. American ed. has title: Green winter. I. Carew, Jan. Green winter. T. Green winter. 1539931.
PR 6005 A26 M6—SB; PR 6005 C117m—L.
—The wild coast. London, Secker, 1958. 256 p. 1253985 PS 508.1 C187e—L Special Collections.

CAREW, Jan. Green winter.
—Moscow is not my Mecca. 1964. *See* Carew, Jan. PR 6005 A26 M6—SB; PR 6005 C117m—L.

CAREW, John Mohun, 1921-
—Korea: the Commonwealth at war, by Tim Carew. London, Cassell 1967. 307 xii, 307p. 16 plates (incl. ports.), 7 maps, tables. Bibliography: p.294-295. 1. Korean War, 1950-1953—regimental histories — commonwealth. 0086356. D5919.7.C65C33—SC.
—The vanished army [by] Tim Carew. London, W. Kimber [c1964] 239 p. maps, plates. 239 p. maps, plates. 1. European War, 1914-1918—Great Britain. 2. European War, 1914—Campaigns—Belgium. 1538596. D 546 C3—SB.

CAREW lectures, 1893.
—The ethics of literary art. 1893. *See* Thompson, Maurice, 1844-1901. Micro- card—B.

CAREW, Peter.
—Combat and carnival. London, Constable 1954 1954. 232p illus. 1. Carew family. 2. Taylor family. 0122986. CS439.C249—SC.

CAREW, Richard, 1555-1620.
—An epistle, concerning the excellencies of the English tongue. London, 1723. 13 p. 1. English language. 2049265. 888 C272 1723—B.
—Examen de ingenios. 1959. *See* Huarte de San Juan, Juan, 16th cent.
BF 825 H86eE 1594a—L Ed./Psych. Library; FILM AA reel 926—L.
—A herrings tayle: contayning a poeticall fiction of diuers matters worthie the reading. London, Printed for M. Lownes, 1598. Short-title catalogue no.4614 (carton 952). MiU F63-42 1024200.
FILM AA Reel 952—L.

Fig. 1. Sample Page from UCUCS Author/Title Catalog.

board operators were instructed to keyboard everything on the source cards (including all the initial articles). Thus the source machine records contained all of the initial articles in all of the records. This data base, of course, has its own particular bias (e.g., seventeen pages of entries under "Los Angeles") but is still felt to be fairly representative of the frequency of initial article use in the catalog records of a large research library.

The machine source records were subsequently used to prepare the book catalog. A table lookup program was supposed to examine and suppress only three articles ("A", "An", "The"); however, some of these articles slipped through because of a program fault. No language codes were systematically included in the UCUCS machine records. However, the book catalog program filed (for good or bad) all of the other initial articles with all of the other words and then printed the entries where they could be easily inspected; this was very good for this research effort but bad for the users.

For each of the articles that were studied for this report, the appropriate printed pages in the UCUCS book catalog were examined in close detail to determine the frequency of occurrence of the article and whether or not it should be ignored for filing purposes. Data assembled for each of the articles were then summarized in the tables given in this report. Whenever possible, the entries were reviewed and annotated by someone with both a relevant language skill and formal library training; some pages were examined by as many as six different people because of the different language skills required.

Almost every one of the over 56,000 initial article entries in the author/title catalog were examined and identified by language and filing situation. Only a very few entries (probably less than 200) were left unanalyzed because a necessary language skill was not readily available (e.g., Sotho, Gaelic, Indonesian). In a very few instances, the given catalog entry information was so limited that it was necessary to make an informed guess between two or three languages (e.g., as for entries in Dano-Norwegian Riksmaal or New Norwegian Landsmaal languages that are very similar).

The list of ninety-three articles to be studied were taken from three sources: the ALA filing rules, the LC filing rules, and the Information Dynamics Corporation (IDC) description of its filing rules for its computer-produced title indexes.[19-21] There are disagreements between these sources regarding which articles are to be ignored and what languages are involved for each article. The IDC table, for example, included more than thirty character strings labeled as articles which were not included in either the ALA or LC tables.

The differences in the lists of articles in these sources suggest that there are linguistic problems here for study as well as computer processing problems. For example, how do the librarians treat each of these foreign language articles in the countries where the articles are in that native

tongue? Are there other articles to be added to these tables from other languages (e.g., Samoan, Tagalog, Catalonian)? The basic assumption regarding which articles were to be included in the tables were not challenged for this study, although that would seem to be an appropriate matter for review. Furthermore, each of the character strings studied was assumed to be an "article" and not some other part of speech even though that character string might not be considered to function as an article in the given language.

Some of the articles are normally represented in uppercase only ("Y"), or lowercase only ("el-"), or mixed case ("De"). However, for this study, no consideration was given to the case; only the characters themselves were considered.

Character strings which appeared to be articles because of processing errors were not included in the counts. For example, an instance of use of the Hawaiian article "He" was not counted if it was a typographic error in which the letter "T" was dropped (e.g., *He Age of Charlemagne*). Character strings which appeared to be articles because of an absence of periods between letters of an abbreviation were not included in the counts (e.g., *I E E E Journal* appears to start with the Italian article "I").

Character strings which were identical to an initial article, but which were not used as that article, were also included in the counts (e.g., *Am I Right?* starts with the Gaelic article "Am").

Leading special characters (e.g., brackets, ellipses, or asterisks) were ignored when they preceded the initial article character strings. With the exception of the hyphenated article (e.g., "AL-", "HA-"), all of the character strings were required to be immediately followed by at least one space character (e.g., "I." would not be counted).

As an aside it might be noted that there were several instances, if language information was ignored, in which a title had two sequential articles, such as:

A Den of Theeves [sic]
A to Z
To Die with Honor
To the Embassy;

or even three sequential articles:

I Am A Lover
The De La Cruz–Badiano Herbal
The Hi Lo County.

There was at least one instance in which the title consisted entirely of articles *(I Am!)*. This occurrence of sequential article strings is noted here to caution programmers to avoid sequential article processing of the same title.

Because some book catalog efforts might be concerned with a combined author/title file, or because some installations might already have a com-

bined author/title file that is a candidate for postprocessing, this study determined the frequency of occurrence of initial article character strings both in the author entries and in the title entries. Readers concerned only with title files need only refer to those separate data.

It is of course very difficult to assign meaningful language codes to personal or corporate author names. However, solely as a bookkeeping mechanism and for the purpose of consistency of record keeping for the tables in this report, the author entries were assigned the same language code as the title for that entry (e.g., the initial character string ("La") in the author entry La Barre, W. *The Human Animal* is considered to be an English-author entry even though the character string "La" is a French, Italian, and Spanish article). The reason for this assignment was simply that it seemed to make about as much sense as any other method.

FINDINGS

The Appendix summarizes the data from the article analysis. Each article is listed in alphabetical order and annotated to show the languages in which that character string is used as an article. A frequency count is also given to show the number of times that a character string was used with an author or title entry in each of the title languages. For example, the character string "De" is used as an article in the Danish, Dutch, Dano-Norwegian (Riksmaal), and Swedish languages, but was also used in some capacity as an initial character string in English, Latin, French, Spanish, and other titles (e.g., *De Facto School Segregation*); frequency counts for this character string were given for each of those languages, and also were totaled. The twenty-four articles listed below from the ALA, LC, and IDC source tables never appeared as initial articles in title entries from this data base of approximately 750,000 titles.

A′	Gl′	Henas	Hoi	Lis	Nji
Am	Hē	Hinar	Ke	Mia	′t
An T-	Heis	Hinir	Lh′	Na H-	Tō
Eene	Hena	Hinn	Lhi	Nje	Yn

Several articles were used in more than 5,000 titles. Some character strings were used in many languages other than the ones in which they were used as articles. The character string "O", for example, is used as an initial article in Hawaiian, Portuguese, and Romanian, and serves nonarticle functions in sixteen other languages.

In considering the utility of a simple table lookup strategy for handling the initial articles, a summary was made in the Appendix, for each article, of the number of times that title entries with that article would be filed correctly or incorrectly according to a simple table lookup procedure. The data from this analysis are further summarized and tabulated in Table 1 in rank order by increasing filing error realized by a simple table lookup.

These data indicate that with a simple table lookup program for this

data base, using the ninety-three articles listed in the Appendix, a total of 47,844 title entries would be filed correctly, and 3,192 title entries (6.3 percent of the title entries) would be misfiled.

These data also suggest that (1) a block of twenty-two articles, for 26.2 percent of the title entries, could be handled by table lookup techniques with no misfilings, (2) another block of thirteen articles for 0.9 percent of the title entries will be completely misfiled by the use of a simple table lookup approach, and (3) a third block of thirty-three articles will be handled by a simple table lookup program with varying degrees of filing error. The ranking arrangement of Table 1 clearly identifies the articles included in each of these blocks.

DESIGN RECOMMENDATIONS

A simple table lookup program will not be able to make all of the initial article filing decisions automatically without a significant degree of filing error. Furthermore, it does not seem likely that any additional refinements in the program (e.g., programmed context review of the remaining title words, language cues) will take care of 100 percent of the filing problems, although language cues will take care of most of the problems. Thus it would seem that we are faced with the alternatives of fully automatic procedures and an accompanying specifiable (and for some people acceptable) error rate, or a semiautomatic procedure with enough manual intervention to achieve a specified error level. As a general recommendation it is suggested that the semiautomatic procedure be used, with the extent of manual intervention decided locally for each application, based on the error rate that is acceptable for that local situation. (The manual intervention could come after publication, in the form of corrections to the data base made in response to errors called to the editor's attention by users of the catalog.)

The data collected during this study lead to a more specific recommendation for the semiautomatic processing (assuming that no language codes are available), namely a simple table lookup program with all of the following components:

1. Exclude the articles from the table lookup program which have not had any UCUCS title entries (i.e., the twenty-four articles listed in an earlier section). These articles are untested, and it is not known whether it would serve any good purpose to include them in the tables.
2. Use table lookup techniques for the articles which have been found to give completely reliable performance with this approach (i.e., the twenty-two articles listed "al-" to "Yr" in Table 1). This should give close to error-free filing performance for a significant fraction of the title entries likely to be encountered with initial articles.
3. Exclude the articles from the table lookup program which have been shown to give 100 percent misfiling (i.e., the thirteen articles listed

Table 1. Number of Title Entries Which Would Be Filed Correctly, Using a Simple Table Lookup Procedure, for Selected Initial Articles Appearing in UCUCS Title Entries

Article	*Percent of Title Entries Filed Correctly*	*Number of Title Entries Filed Correctly*	*Cumulative Number of Title Entries Filed Correctly*	*Number of Title Entries Filed Incorrectly*	*Cumulative Number of Title Entries Filed Incorrectly*
al-	100	40	40	0	0
Das	100	2,555	2,595	0	0
Der	100	1,895	4,490	0	0
Di	100	25	4,515	0	0
Dos	100	69	4,584	0	0
Egy	100	23	4,607	0	0
Ein	100	2,460	7,067	0	0
el-	100	1	7,068	0	0
Ett	100	9	7,077	0	0
Gli	100	115	7,192	0	0
ha-	100	174	7,366	0	0
Het	100	160	7,526	0	0
Ka	100	4	7,530	0	0
L'	100	4	7,534	0	0
Les	100	4,782	12,316	0	0
Lu	100	2	12,318	0	0
'n	100	11	12,329	0	0
Uma	100	33	12,362	0	0
Un	100	757	13,119	0	0
Un'	100	2	13,121	0	0
Une	100	259	13,380	0	0
Yr	100	1	13,381	0	0
Die	99.9	7,852	21,233	2	2
Le	99.9	6,018	27,251	14	16
El	99.6	4,319	31,570	17	33
La	99.6	10,651	42,221	39	72
Os	99.3	152	42,373	1	73
Una	99.1	215	42,588	2	75
Las	98.9	713	43,301	8	83
Den	98.6	68	43,369	1	84
Il	97.9	1,020	44,389	22	106
Az	97.1	136	44,525	4	110
Eine	96.3	105	44,630	4	114
Een	96.2	25	44,655	1	115
Los	93.5	1,250	45,905	87	202
Um	82.8	63	45,968	13	215
Det	82.1	64	46,032	14	229
O	74.8	645	46,677	217	446
he-	66.7	4	46,681	2	448
Lo	57.4	70	46,751	52	500
I	50.6	439	47,190	428	928
's	50.0	1	47,191	1	929
Uno	50.0	2	47,193	2	931
As	42.2	109	47,302	149	1,080
Dei	40.0	2	47,304	3	1,083
Eyn	40.0	2	47,306	3	1,086
Et	34.6	9	47,315	17	1,103
Lou	33.3	1	47,316	2	1,105
De	27.7	460	47,776	1,200	2,305
En	17.1	62	47,838	300	2,605
Ho	16.7	1	47,839	5	2,610

Table 1 Continued.

Article	*Percent of Title Entries Filed Correctly*	*Number of Title Entries Filed Correctly*	*Cumulative Number of Title Entries Filed Correctly*	*Number of Title Entries Filed Incorrectly*	*Cumulative Number of Title Entries Filed Incorrectly*
E	10.0	1	47,840	9	2,619
Li	5.0	1	47,841	19	2,638
Na	3.2	2	47,843	60	2,698
He	2.1	1	47,844	47	2,745
Bir	0	0	47,844	2	2,747
Ei	0	0	47,844	3	2,750
Eit	0	0	47,844	1	2,751
Eyne	0	0	47,844	1	2,752
Hai	0	0	47,844	1	2,753
Hen	0	0	47,844	3	2,756
Hin	0	0	47,844	1	2,757
Ny	0	0	47,844	4	2,761
Ta	0	0	47,844	12	2,773
To	0	0	47,844	397	3,170
Uns	0	0	47,844	2	3,172
Us	0	0	47,844	2	3,174
Y	0	0	47,844	18	3,192
			(93.7%)		(6.3%)

"Bir" to "Y" in Table 1). This reduces a small amount of the systematic misfiling that would otherwise take place.

4. Make local judgments about which of the thirty-three articles listed "Die" to "He" in Table 1 should be included in a table lookup program. All of these articles work with some degree of filing error. These judgments are best made in the context of the particular data base to be processed and the degree of filing error that is felt to be tolerable.
5. Include the English articles "A", "An", "The" in the tables. No quantitative data were available from this study to estimate the filing error rate for these articles, but it is judged to be small enough to be tolerable.

With the prospect of processing another UCUCS-type data base, the following plan is suggested as a specific version of the general approach noted above:

1. Exclude the twenty-four articles noted earlier which did not have any title entries in the test data base.
2. Include the twenty-two articles ("al-" to "Yr" in Table 1) which gave error-free performance.
3. Exclude the thirteen articles ("Bir" to "Y" in Table 1) which gave 100 percent error performance.
4. Include the twelve articles ("Die" to "Een" in Table 1) which came the closest to providing a perfect performance. This permits a large number of records to be processed automatically without manual review, while permitting a relatively small number of titles to be mis-

filed. This is a compromise between an expected error level and the amount of effort otherwise required to manually review all of these records.

5. Include the articles "A", "An", and "The" in the table lookup program. This, too, at the expense of an estimated small amount of filing error, would save a large amount of manual review. Another alternative here would be to instruct the keyboard operators to ignore these three articles when keyboarding titles.
6. Develop a special table lookup program, using the twenty-one articles "Los" to "He" in Table 1, to recognize and print for manual review any title entry that uses this initial article. If a higher filing accuracy is required and there is a willingness to do a manual review of the title entries, then all of the articles otherwise listed above could also be included in this last table for manual exception handling. (In the extreme case, all of the articles could be put in a table for detection and printing for manual assignment of filing points, but that would defeat the objective of getting the computer programs to do as much of this processing and decision-making work as possible.)

If the above strategy had been applied to the UCUCS data base that was studied here, the results shown in Table 2 would have been obtained.

Table 2. Results of Suggested Processing Strategy

Steps Taken	*Articles From Table I*	*Title Entries Correctly Filed*	*Title Entries Misfiled*	*Total Title Entries*
1	Zero Frequency Articles	0	0	0
2	al- to Yr	13,381	0	13,381
3	Bir to Y	447	0	447
4	Die to Een	31,274	115	31,389
5	A, An, The	?	?	?
6	Los to He	5,819	0	5,819
	TOTAL	50,921	115	51,036

This would have required a manual review of only 5,819 title entries, while still providing almost error-free filing performance. Consideration might be given now to ways to review the twenty-one articles that required the manual review, in order to lead to program modifications that would reduce this 5,819 figure to something smaller.

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APPENDIX

Initial Article	Language of Entry	Total Entries Using This Initial Character String: Total Entries	Title Entries	Author Entries	Entries to Be Ignored for Filing Purposes: Total Entries	Title Entries	Author Entries	Entries to Be Considered for Filing Purposes: Total Entries	Title Entries	Author Entries	Example of Use for Filing Purposes
A	Several	Many†									
A'	Gaelic/Scottish*	0	0	0	0	0	0	0	0	0	
Al'	Arabic*	538	40	498	538	40	498	0	0	0	
	English	1	0	1	0	0‡	0	1	0	1	Al-Anon Youth Group
		539	40	499	538	40 (100.0)	498	1	0 (0.0)	1	
Am	Gaelic/Scottish*	0	0	0	0	0	0	0	0	0	
An	English/Yiddish*	Many									
An T-	Gaelic/Scottish*	0	0	0	0	0	0	0	0	0	
As	Portuguese*	109	109	0	109	109	0	0	0	0	
	English	149	149	0	0	0	0	149	149	0	As You Like It
		258	258	0	109	109 (42.2)	0	149	149 (57.8)	0	
Az	Hungarian*	140	140	0	136	136 (97.1)	0	4	4 (2.9)	0	Az 1211
Bir	Turkish*	2	2	0	0	0 (0.0)	0	2	2 (100.0)	0	
Das	German*	2,555	2,555	0	2,555	2,555	0	0	0	0	
	Yiddish*	0	0	0	0	0	0	0	0	0	
	Indian	27	0	27	0	0	0	27	0	27	Das Gupta, B.
		2,582	2,555	27	2,555	2,555 (100.0)	0	27	0 (0.0)	27	
De	Danish*	27	27	0	27	27	0	0	0	0	
	Dutch*	397	397	0	397	397	0	0	0	0	
	Dano-Norwegian* (Riksmaal)	5	5	0	5	5	0	0	0	0	
	Swedish*	33	31	2	31	31	0	2	0	2	De Geer, S.
	English	1,552	17	1,535	0	0	0	1,552	17	1,535	De Facto School Segregation; De Angeli, M.
	Latin	595	595	0	0	0	0	595	595	0	De Animalibus
	French	350	337	13	0	0	0	350	337	13	De Lar Dictature; De Vere, M.
	Spanish	258	238	20	0	0	0	258	238	20	De Chile A China; De Chasca, E.
	Italian	31	8	23	0	0	0	31	8	23	De Bello Belgico; De Benedictis, M.
	German	10	0	10	0	0	0	10	0	10	De Capua, A.
	Portuguese	5	5	0	0	0	0	5	5	0	De Portugal Ao Brasil
	Afrikaans	4	0	4	0	0	0	4	0	4	De Villiers, M.
	Irish	2	0	2	0	0	0	2	0	2	De Bhaldraithe, T.
	Sotho	2	0	2	0	0	0	2	0	2	De Jager, C.
	Zulu	1	0	1	0	0	0	1	0	1	De Villiers, F.
		3,272	1,660	1,612	460	460 (27.7)	0	2,812	1,200 (72.3)	1,612	
Dei	New Norwegian* (Landsmaal)	2	2	0	2	2	0	0	0	0	
	Italian	4	3	1	0	0	0	4	3	1	Dei Bagni Di Pisa; Dei Poli, A.
	English	1	0	1	0	0	0	1	0	1	Dei Chiaro, M.
		7	5	2	2	2 (40.0)	0	5	3 (60.0)	2	
Den	Danish*	28	28	0	28	28	0	0	0	0	
	Dano-Norwegian* (Riksmaal)	4	4	0	4	4	0	0	0	0	
	New Norwegian* (Landsmaal)	0	0	0	0	0	0	0	0	0	
	Swedish*	17	17	0	17	17	0	0	0	0	
	*(indeterminate Norwegian or Danish)	18	18	0	18	18	0	0	0	0	
	English	9	0	9	0	0	0	9	0	9	Den Hartog, J.
	German	1	1	0	0	0	0	1	1	0	Den Freunden
	Dutch	1	1	0	1	1	0	0	0	0	Den Klagenden Veen-boer
		78	69	9	68	68 (98.6)	0	10	1 (1.4)	9	

* Character string used as initial article in this language.
† For UCUCS, the initial articles a, an, and the were automatically suppressed from sorting; hence a count was not possible.
‡ Percent of total title entries for this article.

Initial Article	Language of Entry	Total Entries Using This Initial Character String: Total Entries	Title Entries	Author Entries	Entries to Be Ignored for Filing Purposes: Total Entries	Title Entries	Author Entries	Entries to Be Considered for Filing Purposes: Total Entries	Title Entries	Author Entries	Example of Use for Filing Purposes
Der	German*	1,892	1,892	0	1,892	1,892	0	0	0	0	
	Yiddish-Transliterated*	3	3	0	3	3	0	0	0	0	
	English	6	0	6	0	0	0	6	0	6	Der Ling, P.
	French	1	0	1	0	0	0	1	0	1	Der Nersessian, S.
		1,902	1,895	7	1,895	1,895 (100.0)	0	7	0 (0.0)	7	
Det	Danish*	24	24	0	21	21	0	3	3	0	Det Begyndte I 1945
	Dano-Norwegian* (Riksmaal)	10	10	0	7	7	0	3	3	0	Det Hender Iblandt
	New Norwegian* (Landsmaal)	1	1	0	0	0	0	1	1	0	Det Blir Ein Loyndom
	Swedish*	35	35	0	28	28	0	7	7	0	Det Sher Med Ens
	*(indeterminate Norwegian or Danish)	8	8	0	8	8	0	0	0	0	Det Gyldne Hus
		78	78	0	64	64 (82.1)	0	14	14 (17.9)	0	
Di	Danish*	0	0	0	0	0	0	0	0	0	
	Yiddish-Transliterated*	21	21	0	21	21	0	0	0	0	
	English	43	0	43	0	0	0	43	0	43	Di Bona, J.
	Italian	17	4	13	4	4	0	13	0	13	Di Biase, C.
	Spanish	2	0	2	0	0	0	2	0	2	Di Franco, J.
	French	1	0	1	0	0	0	1	0	1	Di Noto, A.
		84	25	59	25	25 (100.0)	0	59	0 (0.0)	59	
Die	Afrikaans*	0	0	0	0	0	0	0	0	0	
	German*	7,852	7,852	0	7,852	7,852	0	0	0	0	
	Yiddish-Transliterated*	0	0	0	0	0	0	0	0	0	
	English	2	2	0	0	0	0	2	2	0	Die Like A Dog
		7,854	7,854	0	7,852	7,852 (99.9)	0	2	2 (0.1)	0	
Dos	Yiddish-Transliterated	14	14	0	14	14	0	0	0	0	
	English	87	0	87	0	0	0	87	0	87	Dos Passos, J.
	Spanish	55	55	0	55	55	0	0	0	0	
	Italian	1	0	1	0	0	0	1	0	1	Dos Passos, J.
		157	69	88	69	69 (100.0)	0	88	0 (0.0)	88	
E	New Norwegian* (Landsmaal)	0	0	0	0	0	0	0	0	0	
	Latin	5	5	0	0	0	0	5	5	0	E Pluribus Unum
	Portuguese	3	3	0	0	0	0	3	3	0	E O Tempo Via Passando
	Italian	1	1	0	0	0	0	1	1	0	E Poi Scoppio La Guerra
	Tahitian	1	1	0	1	1	0	0	0	0	
		10	10	0	1	1 (10.0)	0	9	9 (90.0)	0	
Een	Dutch*	26	26	0	25	25 (96.2)	0	1	1 (3.8)	0	Een En Ander
Eene	Dutch*	0	0	0	0	0	0	0	0	0	
Egy	Hungarian*	23	23	0	23	23 (100.0)	0	0	0 (0.0)	0	
Ei	New Norwegian* (Landsmaal)	0	0	0	0	0	0	0	0	0	
	Finnish	3	3	0	0	0	0	3	3	0	Ei Puu Yksin Pala
		3	3	0	0	0 (0.0)	0	3	3 (100.0)	0	
Ein	German*	2,458	2,458	0	2,458	2,458	0	0	0	0	
	New Norwegian* (Landsmaal)	2	2	0	2	2	0	0	0	0	
	Yiddish-Transliterated*	0	0	0	0	0	0	0	0	0	
		2,460	2,460	0	2,460	2,460 (100.0)	0	0	0 (0.0)	0	
Eine	German*	109	109	0	105	105	0	4	4	0	Eine Mutter
	Yiddish-Transliterated*	0	0	0	0	0	0	0	0	0	
		109	109	0	105	105 (96.3)	0	4	4 (3.7)	0	

* Character string used as initial article in this language.

Initial Article	Language of Entry	Total Entries Using This Initial Character String: Total Entries	Title Entries	Author Entries	Entries to Be Ignored for Filing Purposes: Total Entries	Title Entries	Author Entries	Entries to Be Considered for Filing Purposes: Total Entries	Title Entries	Author Entries	Example of Use for Filing Purposes
Eit	New Norwegian* (Landsmaal)	1	1	0	0	0 (0.0)	0	1	1 (100.0)	0	Eit Anna Hav
El	Spanish*	4,331	4,319	12	4,331	4,319	12	0	0	0	
	English	44	17	27	0	0	0	44	17	27	El Cajon Valley Company; El Coyote, The Rebel
		4,375	4,336	39	4,331	4,319 (99.6)	12	44	17 (0.4)	27	
El-	Arabic*	62	1	61	62	1 (100.0)	61	0	0 (0.0)	0	
En	Danish*	21	21	0	21	21	0	0	0	0	
	Dano-Norwegian* (Riksmaal)	13	13	0	13	13	0	0	0	0	
	Swedish*	28	28	0	28	28	0	0	0	0	
	Spanish	218	218	0	0	0	0	218	218	0	En El Lagar
	French	78	78	0	0	0	0	78	78	0	En Lisant Balzac
	English	3	3	0	0	0	0	3	3	0	En Route
	Hebrew	1	1	0	0	0	0	1	1	0	En Ha-Kore
		362	362	0	62	62 (17.1)	0	300	300 (82.9)	0	
Et	Danish*	5	5	0	5	5	0	0	0	0	
	Dano-Norwegian* (Riksmaal)	4	4	0	4	4	0	0	0	0	
	French	13	13	0	0	0	0	13	13	0	Et Apres
	Latin	2	2	0	0	0	0	2	2	0	Et in Arcadia Ego
	English	2	2	0	0	0	0	2	2	0	Et Cetera, A Collection
		26	26	0	9	9 (34.6)	0	17	17 (65.4)	0	
Ett	Swedish*	9	9	0	9	9 (100.0)	0	0	0 (0.0)	0	
Eyn	Yiddish*	5	5	0	2	2 (40.0)	0	3	3 (60.0)	0	Eyn Eliezer
Eyne	Yiddish*	1	1	0	0	0 (0.0)	0	1	1 (100.0)	0	Eyne Kol Hay
Gl'	Italian*	0	0	0	0	0	0	0	0	0	
Gli	Italian*	115	115	0	115	115 (100.0)	0	0	0 (0.0)	0	
Ha-	Hebrew-Transliterated*	174	174	0	174	174 (100.0)	0	0	0 (0.0)	0	
Hai	Greek-Classical*	0	0	0	0	0	0	0	0	0	
	Chinese	1	1	0	0	0	0	1	1	0	Hai Yang K'o, Hsueh Chi K'an
	Hebrew	1	0	1	0	0	0	1	0	1	Hai Ben Sherira
		2	1	1	0	0 (0.0)	0	2	1 (100.0)	1	
He	Hawaiian*	1	1	0	1	1	0	0	0	0	
	Greek*	0	0	0	0	0	0	0	0	0	
	English	44	44	0	0	0	0	44	44	0	He Done Her Wrong
	Spanish	3	3	0	0	0	0	3	3	0	He Aqui El Hombre
		48	48	0	1	1 (2.1)	0	47	47 (97.9)	0	
He-	Hebrew-Transliterated*	4	4	0	4	4	0	0	0	0	
	English	2	2	0	0	0	0	2	2	0	He-Who-Came
		6	6	0	4	4 (66.7)	0	2	2 (33.3)	0	
Hē	Greek-Classical*	0	0	0	0	0	0	0	0	0	
Heis	Greek-Modern/ Hebrew*	0	0	0	0	0	0	0	0	0	
Hen	Greek-Modern*	0	0	0	0	0	0	0	0	0	
	Welsh	2	2	0	0	0	0	2	2	0	Hen Wynebau
	Yiddish	1	1	0	0	0	0	1	1	0	Hen Kol Hadash
		3	3	0	0	0 (0.0)	0	3	3 (100.0)	0	

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Hena	Greek-Modern*	0	0	0	0	0	0	0	0	0	
Henas	Greek-Modern*	0	0	0	0	0	0	0	0	0	
Het	Dutch*	160	160	0	160	160 (100.0)	0	0	0 (0.0)	0	
Hin	Icelandic*	0	0	0	0	0	0	0	0	0	
	German	1	1	0	0	0	0	1	1	0	Hin Und Zuruck
		1	1	0	0	0 (0.0)	0	1	1 (100.0)	0	
Hinar	Icelandic*	0	0	0	0	0	0	0	0	0	
Hinir	Icelandic*	0	0	0	0	0	0	0	0	0	
Hinn	Icelandic*	0	0	0	0	0	0	0	0	0	
Ho	Greek-Classical*	1	1	0	1	1	0	0	0	0	
	English	3	2	1	0	0	0	3	2	1	Ho For Heaven; Ho Shang Kung
	Sotho	2	2	0	0	0	0	2	2	0	Ho Tsamaea Ke Ho Bona
	Italian	1	1	0	0	0	0	1	1	0	Ho Difeso La Patria
		7	6	1	1	1 (16.7)	0	6	5 (83.3)	1	
Ho-	Hebrew*	0	0	0	0	0	0	0	0	0	
	English	10	0	10	0	0	0	10	0	10	Ho-Chi-Minh
	German	3	0	3	0	0	0	3	0	3	Ho-Gia-Huong
	Vietnamese	1	0	1	0	0	0	1	0	1	Ho-Chi-Minh
		14	0	14	0	0 (0.0)	0	14	0 (0.0)	14	
Hoi	Greek-Classical*	0	0	0	0	0	0	0	0	0	
I	Italian*	402	402	0	402	402	0	0	0	0	
	English	427	427	0	0	0	0	427	427	0	I Pass
	Swedish	15	15	0	15	15	0	0	0	0	
	Dano-Norwegian (Riksmaal)	10	10	0	10	10	0	0	0	0	
	Danish	7	7	0	7	7	0	0	0	0	
	Croatian	3	3	0	3	3	0	0	0	0	
	Dano-Norwegian (Landsmaal)	1	1	0	1	1	0	0	0	0	
	Polish	1	1	0	1	1	0	0	0	0	
	Chinese	1	1	0	0	0	0	1	1	0	I Li Yin Te
		867	867	0	439	439 (50.6)	0	428	428 (49.4)	0	
Il	Italian*	1,020	1,020	0	1,020	1,020	0	0	0	0	
	Provencal-Old*	0	0	0	0	0	0	0	0	0	
	French	20	20	0	0	0	0	20	20	0	Il Faut Choisir
	English	2	2	0	0	0	0	2	2	0	Il Gran Rifiuto, What It Was, Who Made It, And . . .
		1,042	1,042	0	1,020	1,020 (97.9)	0	22	22 (2.1)	0	
Ka	Hawaiian*	2	2	0	2	2	0	0	0	0	
	Sotho	1	1	0	1	1	0	0	0	0	
	Indian (Khasi)	1	1	0	1	1	0	0	0	0	
		4	4	0	4	4 (100.0)	0	0	0 (0.0)	0	
Ke	Hawaiian*	0	0	0	0	0	0	0	0	0	
L'	French*	3	2	1	2	2	0	1	0	1	L'Estoile, Pierre de
	Italian*	2	2	0	2	2	0	0	0	0	
	Provencal-Old/Modern*	0	0	0	0	0	0	0	0	0	
		5	4	1	4	4 (100.0)	0	1	0 (0.0)	1	
La	Esperanto*	0	0	0	0	0	0	0	0	0	
	French*	6,426	5,276	1,150	5,276	5,276	0	1,150	0	1,150	La Motte, A.
	Italian*	1,203	1,183	20	1,183	1,183	0	20	0	20	La Cava, A.
	Provencal-Old/Modern*	0	0	0	0	0	0	0	0	0	
	Spanish*	4,203	4,192	11	4,192	4,192	0	11	0	11	La Milla, F.
	English	328	39	289	0	0	0	328	39	289	La Abra Mining Company; La Barre, W.
	German	22	0	22	0	0	0	22	0	22	La Baume, W.
	Danish	4	0	4	0	0	0	4	0	4	La Cour, T.
	Latin	2	0	2	0	0	0	2	0	2	La Forge, L.
	Dutch	2	0	2	0	0	0	2	0	2	La Fontaine, J.
	Indonesian	1	0	1	0	0	0	1	0	1	La Dage, J.
	Swedish	1	0	1	0	0	0	1	0	1	La Blanchetai, P.
	Norwegian	1	0	1	0	0	0	1	0	1	La Cour, L.
		12,193	10,690	1,503	10,651	10,651 (99.6)	0	1,542	39 (0.4)	1,503	

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Las	Provencal-Old*	0	0	0	0	0	0	0	0	0	
	Spanish*	713	713	0	713	713	0	0	0	0	
	French	13	0	13	0	0	0	13	0	13	Las Vergnas, G.
	English	10	8	2	0	0	0	10	8	2	Las Vegas And Uncle Joe; Las Cases, E.
		736	721	15	713	713 (98.9)	0	23	8 (1.1)	15	
Le	French*	6,038	5,618	420	5,618	5,618	0	420	0	420	Le Chat, S.
	Italian*	373	369	4	369	369	0	4	0	4	Le Cog, A.
	Provencal-Old*	0	0	0	0	0	0	0	0	0	
	English	400	12	388	0	0	0	400	12	388	
	Spanish	36	31	5	31	31	0	5	0	5	Le Fort, P.
	German	26	2	24	0	0	0	26	2	24	Le Bund Nueus Vaterland; Le Brun, J.
	Latin	18	0	18	0	0	0	18	0	18	Le Grand, A.
	Afrikaans	2	0	2	0	0	0	2	0	2	Le Roux, J.
		6,893	6,032	861	6,018	6,018 (99.9)	0	875	14 (0.1)	861	
Les	French*	4,782	4,782	0	4,782	4,782	0	0	0	0	
	Provencal-Old*	0	0	0	0	0	0	0	0	0	
		4,782	4,782	0	4,782	4,782 (100.0)	0	0	0 (0.0)	0	
Lh'	Provencal-Old*	0	0	0	0	0	0	0	0	0	
Lhi	Provencal-Old*	0	0	0	0	0	0	0	0	0	
Li	Provencal-Old*	0	0	0	0	0	0	0	0	0	
	Provencal-Modern*	0	0	0	0	0	0	0	0	0	
	Chinese	26	19	7	0	0	0	26	19	7	Li Chi; Li Tz-Hyung
	Italian	3	1	2	1	1	0	2	0	2	Li Calzi, Antonio
	French	1	0	1	0	0	0	1	0	1	Li Gotti, Ettore
		30	20	10	1	1 (5.0)	0	29	19 (95.0)	10	
Lis	Provencal-Modern*	0	0	0	0	0	0	0	0	0	
Lo	Italian*	75	68	17	68	68	0	17	0	17	
	Provencal-Modern*	2	2	0	2	2	0	0	0	0	
	Spanish*	49	49	0	0	0	0	49	49	0	Lo Gay Saber
	English	8	2	6	0	0	0	8	2	6	Lo and Behold; Lo Pinto, Maria
	French	8	1	7	0	0	0	8	1	7	Lo Duca, Giuseppe; Lo Maison Des Amants
		142	122	30	70	70 (57.4)	0	82	52 (42.6)	30	
Los	Provencal-Old*	0	0	0	0	0	0	0	0	0	
	Spanish*	1,250	1,250	0	1,250	1,250	0	0	0	0	
	English	881	86	795	0	0	0	881	86	795	Los Alamos Planning Commission; Los Angeles From the Days of the Pueblo
	German	1	1	0	0	0	0	1	1	0	Los Vom Materialismus
		2,132	1,337	795	1,250	1,250 (93.5)	0	882	87 (6.5)	795	
Lou	Provencal-Modern*	1	1	0	1	1	0	0	0	0	
	English	2	2	0	0	0	0	2	2	0	Lou Gehrig, Boy Of The Sand Lots
		3	3	0	1	1 (33.3)	0	2	2 (66.7)	0	
Lu	Provencal-Modern*	0	0	0	0	0	0	0	0	0	
	English	2	2	0	2	2	0	0	0	0	
		2	2	0	2	2 (100.0)	0	0	0 (0.0)	0	
Mia	Greek-Modern*	0	0	0	0	0	0	0	0	0	
'N	Afrikaans*	11	11	0	11	11	0	0	0	0	
	Dutch*	0	0	0	0	0	0	0	0	0	
		11	11	0	11	11 (100.0)	0	0	0 (0.0)	0	
Na	Gaelic/Scottish*	0	0	0	0	0	0	0	0	0	
	Hawaiian*	0	0	0	0	0	0	0	0	0	

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	Portuguese	18	18	0	0	0	0	18	18	0	Na Grande Area
	Croatian	10	10	0	0	0	0	10	10	0	Na sabe osudeni
	Slovak	9	9	0	0	0	0	9	9	0	Na starom grunte
	Polish	8	8	0	0	0	0	8	8	0	Na koncu jezyka
	Czech	5	5	0	0	0	0	5	5	0	Na hlubino
	Slovenian	5	5	0	0	0	0	5	5	0	Na splovih
	Russian	4	4	0	0	0	0	4	4	0	Na samoi iuzhoi zembe
	Fiji	2	2	0	2	2	0	0	0	0	
	German	1	1	0	0	0	0	1	1	0	Na Und-
		62	62	0	2	2 (3.2)	0	60	60 (96.8)	0	
Na H-	Gaelic/Scottish*	0	0	0	0	0	0	0	0	0	
Nje	Albanian*	0	0	0	0	0	0	0	0	0	
Nji	Albanian*	0	0	0	0	0	0	0	0	0	
Ny	Manx*	0	0	0	0	0	0	0	0	0	
	Swedish	4	4	0	0	0	0	4	4	0	Ny Svensk Berattarkonst
		4	4	0	0	0 (0.0)	0	4	4 (100.0)	0	
O	Hawaiian*	0	0	0	0	0	0	0	0	0	
	Portuguese*	645	645	0	645	645	0	0	0	0	
	Romanian*	0	0	0	0	0	0	0	0	0	
	English	58	47	11	0	0	0	58	47	11	O Captain; O Cealaigh, S.
	Polish	46	46	0	0	0	0	46	46	0	O kulture slowa
	Russian	43	43	0	0	0	0	43	43	0	O Lenine
	Czech	26	26	0	0	0	0	26	26	0	O cirkvi svate
	Slovak	14	14	0	0	0	0	14	14	0	O Slovakoch
	German	13	13	0	0	0	0	13	13	0	O Gott
	Croatian	12	12	0	0	0	0	12	12	0	O društvu
	Irish	8	0	8	0	0	0	8	0	8	O Briain, M.
	Latin	3	3	0	0	0	0	3	3	0	O Quam Pulchra Es
	Serbian	3	3	0	0	0	0	3	3	0	O današnjim zadacima Partije
	French	2	2	0	0	0	0	2	2	0	O Muse, Fuyante Proie
	Samoan	2	2	0	0	0	0	2	2	0	O Le Fa 'atonu
	Slovenian	2	2	0	0	0	0	2	2	0	O domovini
	Sotho	2	2	0	0	0	0	2	2	0	O Se-Ke
	Maori	1	1	0	0	0	0	1	1	0	O Te Raki
	Swedish	1	1	0	0	0	0	1	1	0	O Pa Ekvatorn
		881	862	19	645	645 (74.8)	0	236	217 (25.2)	19	
Os	Portuguese*	152	152	0	152	152	0	0	0	0	
	Danish	1	1	0	0	0	0	1	1	0	Os Baerer Den Himmelske Glaede
		153	153	0	152	152 (99.3)	0	1	1 (0.7)	0	
'S	Dutch*	1	1	0	1	1	0	0	0	0	
	English	1	1	0	0	0	0	1	1	0	'S Business Is Nobody's Business
		2	2	0	1	1 (50.0)	0	1	1 (50.0)	0	
'T	Dutch*	0	0	0	0	0	0	0	0	0	
Ta	Greek-Classical*	0	0	0	0	0	0	0	0	0	
	Chinese	11	11	0	0	0	0	11	11	0	Ta Ta Tan Tan (Fight, Fight, Talk, Talk)
	Latin	1	1	0	0	0	0	1	1	0	Ta Dogmatica
		12	12	0	0	0 (0.0)	0	12	12 (100.0)	0	
The	English*	Many†									
To	Greek-Classical*	0	0	0	0	0	0	0	0	0	
	English	393	393	0	0	0	0	393	393	0	To The Bitter End
	Spanish	2	2	0	0	0	0	2	2	0	To 180
	Swedish	1	1	0	0	0	0	1	1	0	To Komedier
	Dano-Norwegian (Riksmaal)	1	1	0	0	0	0	1	1	0	To Sabotorer Fortaeller
		397	397	0	0	0 (0.0)	0	397	397 (100.0)	0	

* Character string used as initial article in this language.

† For UCUCS, the initial articles a, an, and the were automatically suppressed from sorting; hence a count was not possible.

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Tō	Greek-Classical*	0	0	0	0	0	0	0	0	0	
Um	Portuguese*	63	63	0	63	63	0	0	0	0	
	German	13	13	0	0	0	0	13	13	0	Um Dieses Alles
		76	76	0	63	63 (82.8)	0	13	13 (17.2)	0	
Uma	Portuguese*	33	33	0	33	33 (100.0)	0	0	0 (0.0)	0	
Un	French*	438	438	0	438	438	0	0	0	0	
	Italian*	59	59	0	59	59	0	0	0	0	
	Provencal-Modern*	0	0	0	0	0	0	0	0	0	
	Romanian*	0	0	0	0	0	0	0	0	0	
	Spanish*	260	260	0	260	260	0	0	0	0	
		757	757	0	757	757 (100.0)	0	0	0 (0.0)	0	
Un'	Italian*	2	2	0	2	2 (100.0)	0	0	0 (0.0)	0	
Una	Italian*	33	33	0	33	33	0	0	0	0	
	Provencal-Old/ Modern*	0	0	0	0	0	0	0	0	0	
	Romanian*	0	0	0	0	0	0	0	0	0	
	Spanish*	182	182	0	182	182	0	0	0	0	
	English	1	1	0	0	0	0	1	1	0	Una And The Red Cross Knight
	Portuguese	1	1	0	0	0	0	1	1	0	Una E Una Notte
		217	217	0	215	215 (99.1)	0	2	2 (0.9)	0	
Une	French*	259	259	0	259	259 (100.0)	0	0	0 (0.0)	0	
Uno	Italian*	2	2	0	2	2	0	0	0	0	
	Provencal-Modern*	0	0	0	0	0	0	0	0	0	
	Spanish	2	2	0	0	0	0	2	2	0	Uno Mismo
		4	4	0	2	2 (50.0)	0	2	2 (50.0)	0	
Uns	Provencal-Old*	0	0	0	0	0	0	0	0	0	
	German	2	2	0	0	0	0	2	2	0	Uns Ist Ein Kind Geboren
		2	2	0	0	0 (0.0)	0	2	2 (100.0)	0	
Us	Provencal-Old*	0	0	0	0	0	0	0	0	0	
	English	2	2	0	0	0	0	2	2	0	Us He Devours
		2	2	0	0	0 (0.0)	0	2	2 (100.0)	0	
Y	Manx*	0	0	0	0	0	0	0	0	0	
	Welsh*	0	0	0	0	0	0	0	0	0	
	Spanish	16	16	0	0	0	0	16	16	0	Y Fue Ayer; Novella
	French	2	2	0	0	0	0	2	2	0	Y A-T-Il Un Marche Commun
		18	18	0	0	0 (0.0)	0	18	18 (100.0)	0	
Yn	Manx*	0	0	0	0	0	0	0	0	0	
Yr	Welsh*	1	1	0	1	1 (100.0)	0	0	0 (0.0)	0	
	GRAND TOTALS	56,689	51,036	5,653	48,415	47,844	571	8,274	3,192	5,082	

* Character string used as initial article in this language.

HIGHLIGHTS OF ISAD BOARD MEETINGS

1975 Annual Meeting
San Francisco, California

First Meeting
Monday, June 30, 1975
8:00 a.m.–9:30 a.m.

Members present: Henriette D. Avram, Margaret E. Chisholm, Susan K. Martin, and Ruth L. Tighe. *Guests present:* John W. Aubry, Five Associated University Libraries, Syracuse, New York; Judith Hopkins, School of Library Science, University of Michigan; David Nevin, Washington University, Saint Louis; and Joseph A. Rosenthal, University of California, Berkeley. *Staff present:* Donald P. Hammer (ISAD Executive Secretary), Susan O'Neil, Secretary, ISAD.

The meeting opened with a discussion of additional items for the agenda.

Mr. Hammer asked to place on the agenda the matter of ISAD representation on the Divisional Interests Special Committee (DISC), a committee of the ALA Executive Board that is composed of representatives from the 13 divisions. The purpose of the committee is to provide communication between the divisions and the Board.

Ms. Avram suggested that it was time for the Board to examine the relationship of COLA to the MARC Users Discussion Group and that an ad hoc committee should be set up to decide if we really need both.

Ms. Martin brought up the matter of the Membership Survey that the Board did not have time to consider during its Midwinter meetings.

The agenda was then approved.

The Midwinter 1975 meetings' minutes were approved with the provision that Ms. Ruth Tighe be added as being present at the first meeting.

Don Hammer introduced the new officers of ISAD. Joseph Rosenthal is the new Vice-President/President-Elect. Judith Hopkins is the new Member-at-Large of the Board.

He announced that the new bylaws were adopted with a vote of 569 to 16.

APPROVAL OF VIDEO/CABLE COMMUNICATIONS SECTION (VCCS) BYLAWS. Mr. Hammer stated that since the VCCS Bylaws were written by the ISAD Bylaws Committee and approved previously by this Board, since the changes made in them by the VCCS Bylaws Committee

were nominal, and since the VCCS membership had also approved them, this Board need not vote approval again unless a member felt strongly that changes needed to be made. He stated that the changes made by the VCCS Bylaws Committee were such things as the addition of their function statement, the inclusion of the number of members-at-large of the Executive Committee, etc.

No objections were made; therefore, the Board reapproved the VCCS Bylaws by consent.

INDUSTRY–LIBRARY RELATIONS COMMITTEE APPOINTMENTS. Ms. Avram stated that she had asked Steve Salmon to accept the chairmanship of this new committee, but he is already on the maximum number of committees ALA allows. He gave her a list of names of possible members, and she now has letters outstanding. She will report at a later time.

ABOLISHMENT OF THE INFORMATION TECHNOLOGY DISCUSSION GROUP. David G. Nevin (Washington University of St. Louis), the present Chairman of the Information Technology Discussion Group, gave a background statement concerning the original purpose of the group (Exhibit 1). He then recommended that since the ISAD Audio-Visual Section is now established, that the Discussion Group be abolished.

MOTION. Ruth Tighe moved that the ISAD Information Technology Discussion Group be abolished. SECONDED by Susan Martin.

Susan Martin asked Mr. Nevin if the people who formed the Discussion Group were now joining the Section. Mr. Nevin said he thought they would. During the Midwinter meeting of the Discussion Group this was discussed. There has been correspondence back and forth between the groups.

Motion CARRIED.

1975–76 BUDGET. Mr. Hammer reviewed the budget situation of the Division and outlined the constraints under which the 1975–76 budget had to be worked out. The income for the Division is from personal members' dues of $15 for each member, a certain percentage of organizational members' dues, and any other income a division may have, such as publishing royalties, sales, etc.

Additionally, ALA has agreed to subsidize the divisions for two years at the present level of activities. Salaries, wages, and benefits will primarily be the subsidy. In order to maintain the divisions' activities at the present level a "ceiling" was placed on each division's activities budget based on the amount spent in the last year, and the divisions were instructed that they could not exceed that amount.

After the budget was worked out, ISAD had a subsidy of $20,298. Its salaries, wages, and benefits amounted to $22,139 and its activities budget amounted to $17,583. By June 24, 1975, its subsidy was down to $11,272, as new members joined and old ones renewed, both personal and orga-

nizational. As of June 20, ISAD needed an additional 702 personal members to place its budget in the black.

ISAD has a small amount of funds available for recruitment purposes in that its share of the remainder of a fund for printing recruitment brochures is $550. That money returns to the ALA general fund at the end of this budget year (Sept. 1). For the 1975–76 budget year, COPES added to each division budget $750 for recruitment purposes. That money will be available as of Sept. 1. Most of the divisions are setting up recruitment task forces to plan a recruitment drive for the 1976 membership year.

Ms. Avram asked if the idea in Larry Auld's letter of June 2 to Fred Kilgour (Exhibit 2) could be implemented. That suggestion was to establish multiple year memberships, e.g., $15.00 for 1 year, $28.00 for 2 years, $40.00 for 3 years. Mr. Hammer answered that ISAD does not have the power to implement such a schedule and that a change of that nature would involve many other units of ALA. Even if ALA could or would agree to it, many changes would have to be made in the ALA Subscription and Membership Services and other administrative offices.

Ms. Avram asked Ruth Tighe to set up an ad hoc committee to draw up a plan for recruitment and to report to the Board before Midwinter.

Mr. Rosenthal suggested that the purpose of the committee be made more general and deal with fund raising in general.

Ms. Martin asked what would happen if *JOLA* got more advertising or subscriptions. Mr. Hammer answered that the additional funds would be used to support the Division. She then stated that the two new sections in ISAD would increase the Division's membership, and she suggested that representatives from these sections should serve on Ms. Tighe's committee.

The matter of cutting costs of the institutes and thereby helping to relieve the Division's financial problem was brought up during a discussion of the letter submitted by Larry Auld.

Ms. Martin suggested that the Board ask the Program Planning Committee to look carefully at their expenditures. No action was taken.

Mr. Hammer then briefly discussed the methods used by the Medical Library Association in the sponsoring of institutes and seminars. MLA produces package seminars which the local chapters put on at their risk. MLA retains ownership and receives a fee for the package.

Ms. Martin then brought the discussion back to membership recruitment by asking if the Division gets any feedback from ALA Membership Services on the number of new members that have been acquired thru the use of the brochure form.

Mr. Hammer answered that no feedback has been received.

Ms. Hopkins suggested that the networks like OCLC, SOLINET, etc., might be asked to distribute recruitment material to their members.

Ms. Tighe suggested that an application for membership and appropriate instructions on how to join should be published in every issue of *American Libraries.*

The lack of liaison between the divisions of ALA and its Membership Services was discussed.

Mr. Rosenthal asked if the Program Planning Committee has considered holding seminars with a very limited number of speakers who are exceptionally good, holding the institutes in two or three parts of the country as was done with the MARC institutes, and having discussion groups led by local people who are not paid honoraria but for whom the registration fee is waived. Would this not reduce the costs? Ms. Avram stated that she felt that these are all ideas Ms. Tighe's committee should consider.

Mr. Rosenthal asked that the committee submit a written report before Midwinter and have a telephone survey of the Board to see if the members agree or disagree.

Mr. Hammer commented that ISAD has not provided any activity or program for commercial firms concerned with the areas of interest to ISAD. A recruitment effort in that area with the view of perhaps forming a discussion group or some other activity may be of value. Ms. Avram commented that this would be a topic for the Industry–Library Relations Committee.

Second Meeting
Wednesday, July 2, 1975
4:30 p.m.–6:00 p.m.

Members present: Henriette D. Avram, Susan K. Martin, and Ruth L. Tighe. *Guests present:* Brian H. Aveney, University of California; Paul Fasana, New York Public Library, New York City; Josephine S. Pulsifer, Library of Congress, Washington, D.C.; S. Michael Malinconico, New York Public Library, New York City; Loreta Tiemann, Lincoln City Libraries, Lincoln, Nebraska; and J. A. Rosenthal, University of California, Berkeley. *Staff present:* Donald P. Hammer (ISAD Executive Secretary), Susan O'Neil, Secretary, ISAD.

RESOLUTION ON PERMANENT PART-TIME EMPLOYMENT. Ms. Bernice Gillman of the ALA Social Responsibilities Round Table (SRRT) Peoples' Librarian Task Force presented to the Board a resolution urging ALA "to recognize that the right to earn a living includes the right to part time employment on a par with full employment, that is, with prorated pay and fringe benefits, with opportunity for advancement and protection of tenure, and with access to middle and upper level jobs and exercise of full responsibilities at any level, and . . . that the A.L.A. create more voluntarily chosen upgraded permanent part time jobs in its own organization, and . . . that the A.L.A. support and encourage similar action on the part of all libraries."

After Ms. Gillman presented the resolution the Board decided to consider the matter after the business on the present agenda was completed, if time remained.

EDITORIAL BOARD REPORT. Don Bosseau, editor of *JOLA Technical Communications,* has had difficulty with the news aspect of the material he receives in relation to the technical communications. He suggested at Midwinter that *Technical Communications* be split into two parts, one for brief technical communications which will be actively solicited, and the other for announcements, news, etc. This will be implemented as of volume 9, 1976, and is an informational item for the Board. No action required.

It has been suggested that *JOLA* incorporate an annual directory issue similar to the *LJ* directory issue and that of *Datamation:* a classified listing, perhaps annotated, of services and products that relate to library automation, systems, technology, etc. The Editorial Board has approved the idea and Mr. Guy Marsh, ALA advertising, has agreed to support it by sending out letters to potential advertisers. He will determine the rates for listing in the directory. It could be published in the June issue and occupy about as many pages as an article.

Ms. Tighe asked how the information will be gathered. Ms. Martin stated that it would be a purchased listing. Letters would be sent out to a large number of companies in the field to ask if interested and to give them the rates. The purpose is to provide a directory of information and also to raise money. The list would probably be arranged both by subject and alphabetically.

Ms. Martin then went on to state that the ALA Central Production Unit, which is the unit in charge of journal production for ALA, is encouraging all journals to adopt less expensive paper. None of the papers suggested appealed to the Editorial Board. The Editorial Board would prefer to save paper by reducing the type size by one or two points, and reducing the number of pages from 96 pages to 88 or 80. Ms. Martin will ask CPU to tell her what savings could be made by using less expensive paper and then make a decision on which way to go depending on the extent of the savings. By consent the Board authorized Ms. Martin to make the decision herself.

PROGRAM PLANNING COMMITTEE REPORT (Exhibit 3). Mr. Malinconico reviewed the institutes planned for 1975–76.

He also stated that no one has appeared at the Committee's meetings to discuss the VCCS cable preconference in Chicago. As far as the Committee is concerned, there will be no preconference program.

Ms. Avram asked Loreta Tiemann to contact Mr. Esteves or someone who is concerned with the preconference planning and inform them that any ISAD group sponsoring a program must coordinate its plans with the Program Planning Committee. Brian Aveney was asked to attend the VCCS preconference planning meeting on July 3.

Mr. Malinconico stated that there is a need for information about library automation at the elementary level and that many of those to whom such information would be directed are library school students, recent

graduates, and beginning professionals who would find it hard to get travel funds to attend institutes. With these facts in mind, the Committee is considering a kind of COLA directed toward education in library automation that would meet during the summer ALA conference. The Committee has discussed this idea with the Junior Members' Round Table and they were very much interested and very cooperative.

The plans at present are to put on a joint program with JMRT in Chicago to see how well it will draw attendance. The program is not yet defined except that there will be two broad blocks, one presentation on what ISAD is and another on library automation. JMRT will schedule a time slot during the summer 1976 conference from 2 p.m. to 6 p.m. on Sunday. The 2 to 4 p.m. time will be for the library automation program and 4:30 to 6 p.m. for JMRT's meeting.

Mr. Malinconico announced that the ISAD program in Chicago will be called "One Hundred Years of Library Automation: From the Hollerith Punched Card to International MARC."

The subject then turned to the Librarian-at-large project to be held during the Chicago conference. It was decided by consent of the Board that a program and a preconference institute was enough activity for ISAD at that conference.

Mr. Rosenthal expressed an interest in holding tours to some of the Chicago libraries that are automated. Mr. Hammer announced that Ms. Peggy Sullivan, University of Chicago Library School, was the person in charge of local arrangements and that he should contact her. Ms. Avram agreed that Mr. Rosenthal should investigate the matter of tours if he is interested in that activity.

Mr. Malinconico stated that as a result of the COLA meeting, there was a desire for a discussion group on automated reference services. The Program Planning Committee, if the Board has no objection, will have one of its members investigate the organization of such a group. It would be a joint ISAD/RASD discussion group.

Mr. Malinconico announced that the Committee is interested in holding a preconference institute prior to the San Francisco ASIS conference in October 1976. Brian Aveney will chair the institute. The program will be on anticipated trends in processors, terminals, communications facilities, auxiliary storage, and hard copy display media.

The Program Planning Committee has a request from the Committee on Representation in Machine-Readable Form of Bibliographic Information (MARBI) to hold a joint program with ISAD in Chicago. It would be a one- or two-hour program that will be the result of a MARBI subcommittee report chaired by Charles Husbands. The report will be a status report on how MARC has evolved over the years as the world in which MARC exists has changed. Ms. Avram asked Paul Fasana to determine if the RTSD Board would approve the program.

Mr. Malinconico said that PPC would like to have some sort of coordina-

tion procedure set up with the other divisions to prevent duplication of programs. The Committee is going to send copies of agendas, programs, etc., to the other Executive Secretaries and it requests that Don Hammer ask the other Executive Secretaries to do the same for ISAD.

The Committee would also like to express its concern about the inordinate delay in the publication of the 1973 preconference proceedings. The Board agreed that a memo expressing its concern should be sent to ALA Publishing Services. Mr. Hammer was instructed to draft such a memo.

Mr. Fasana announced that the RTSD Serials Section will be putting on a program in Chicago on automated serials data bases. They probably will be interested in ISAD co-sponsoring it, if ISAD would like to do so. Mr. Malinconico expressed a favorable opinion, but asked what ISAD was expected to do. Mr. Fasana said he didn't think the Serials Section was asking ISAD to help with the program, but would like to have the use of ISAD's name as co-sponsor. No objection was made and Mr. Malinconico stated that PPC would be glad to help find resource people if needed.

COLA AND MARC USERS DISCUSSION GROUPS. Ms. Avram discussed the possibility of combining the two discussion groups as their activities now seemed to be much alike even though they started out with different purposes.

Brian Aveney said that he felt that ISAD should examine all of its programs as well as its discussion groups. He would like to see someone study the whole area and determine what kind of programming the ISAD members need.

Ms. Avram suggested that a "west coast contingent" be formed consisting of Brian Aveney, Susan Martin, and Brett Butler as an ad hoc committee, let them study the matter, coordinate with the Program Planning Committee, and report back to the Board in Chicago.

Mr. Aveney announced that Susan Martin had been voted chairperson of MARC Users Group and Brett Butler, chairperson of COLA. He also announced that the COLA group would like to be known in the future as the Library Automation Discussion Group. Approved by consent.

DIVISIONAL INTERESTS SPECIAL COMMITTEE. Mr. Hammer reviewed the development and purposes of DISC and stated that it was now asking each divisional board to appoint someone as a voting representative from each board. It should be someone with a good knowledge of divisional affairs.

After a discussion it was decided that Susan Martin would be a temporary ISAD representative to DISC at its last meeting for this conference and other arrangements would be made for the 1976 Midwinter meetings.

VCCS'S ORGANIZATIONAL MEETING. Loreta Tiemann reported on the VCCS's organizational meeting. Bylaws were adopted and officers were elected as follows: Roberto Esteves, Chairman (1976); Kandy Brandt,

Vice-Chairman/Chairman-Elect (1976); Larry Dickter, Secretary (1975–77); Emma Cohn, Executive Committee Member-at-Large (1975–78); Loreta Tiemann, Executive Committee Member-at-Large (1975–77).

Meeting adjourned.

EXHIBIT 1

REPORT ON THE ISAD INFORMATION TECHNOLOGY DISCUSSION GROUP
Chairman: David G. Nevin (Washington University, St. Louis)

Having turned over its program time to the newly formed ISAD AV Section, the Information Technology Discussion Group had no scheduled meeting during the 1975 Annual Conference.

The Chairman met with the ISAD Board at its first meeting to report as follows:

The Information Technology Discussion Group was established to meet the immediate need for an organizational home for the many fragmented audiovisual interests within the American Library Association. It was the intention of those involved in its original organization that when and if a more viable and permanent structure, such as a division or section, had been founded, the reason for the existence of the Discussion Group would then be better served and the Discussion Group should be disbanded.

The founding of the ISAD Audio-Visual Section, which will hold an initial business meeting and is presenting its own program at this Annual Conference, has met this criterion. As Chairman of the Information Technology Discussion Group, then, it is my pleasant task to report that the Group has accomplished the purpose for which it was founded and to recommend its dissolution.

EXHIBIT 2

COMMUNICATION FROM L. AULD (ISAD BOARD MEMBER) TO F. KILGOUR (ISAD PRESIDENT, 1974–75)

Dear Fred:

While I won't be able to participate in Board proceedings in San Francisco, I can offer some opinions and concerns in advance. The biggest issue I see is how to maintain present membership and recruit additional membership. In the long-run, the individual member must feel that he is receiving his money's worth in publications, services, inspiration, and participation for, if he doesn't feel satisfied, he will not renew year after year. A couple of possible ideas:

1. ISAD's publications must include cable television and audio-visual if our two new sections are to flourish.
2. The survey last year indicated a need for some less sophisticated publication on library automation than is provided by *JOLA*. I would hesitate to tamper with *JOLA* itself, since I think it is pretty good (really excellent) as it is.
3. A multiple year membership plan (e.g., 1 year, $15.00; 2 years, $28.00; 3 years, $40.00 or something on that order). Reduced paperwork should make such a plan economical from the division's standpoint.
4. More institutes and workshops. Consider trying shorter (one day) and more localized (one or two state areas); this might tap an additional market.

Sincerely,
Larry Auld

EXHIBIT 3

PROGRAM PLANNING COMMITTEE REPORT

I. *1975 Programs*

a. *Networks II—New Orleans*

This institute, co-sponsored with SOLINET, drew approximately 125 people. The institute was generally well received; however, there were comments indicating that the program should have been pitched at a more sophisticated level.

b. *NCLIS—San Francisco*

This was a conference program. No reaction was received from the audience. We had originally requested a budget of $400.00 for the institute. Approximately $200 was spent on transportation expenses for Martha Williams. Last minute AV arrangements may have caused us to exceed the budget.

II. *1975/76 Programs Planned*

a. *The Catalog: Its Nature and Prospects—New York City, October 9 and 10, 1975*

The program has been finalized, all speakers have been contacted and have accepted; meeting facilities have been arranged for at the New York Sheraton. The program will be moderated by Mitch Freedman of NYPL. Speakers will be: William Welsh/LC; Seymour Lubetzky/UCLA; Frederick Kilgour/OCLC; Hugh Atkinson/OSU; Marvin Skilken/Orange Public Library, Orange, N.J.; Ken Bierman/VPI; Joan Marshall/Brooklyn College Library; Michael Malinconico/NYPL.

b. *Serials II—San Francisco, November 29 and 30, 1975*

This will be essentially a repeat of the institute presented October 1974 in Atlanta. Due to the great interest shown in the program in 1974 and the developments which have occurred, or can be expected to occur in the remaining months, we have planned to re-present this program on the west coast. The institute will be co-sponsored by the California Library Association, which has generously allowed us to hold the institute on the day before and on the first day of its annual meeting. Arrangements have been made with Stefan Moses of CLA.

The committee intends to cancel this institute if we have not received 60 registrations by November 1.

c. *Automation at LC—Washington, D.C., March 17–19, 1976*

The Library of Congress' MARC Development Office has very generously agreed to present a three-day program on LC, and on the MARC Development Office in particular for ISAD. In addition to the significant intrinsic value of such a program as an educational institute for the ISAD membership, it should provide a valuable source of revenue. The committee would like to express its gratitude to Ms. Avram for having broached the idea to the committee, for the assistance in producing the program, and for the donation of valuable LC/MDO staff time. The program will also tentatively include an optional third day on which participants may tour the LC processing department.

Mary Kay Daniels will coordinate this program for the committee; she will also assist with local arrangements.

d. *Networks III—New Orleans, February 1976*

This institute was approved in principle by the committee in a meeting held in March 1974. However, the committee did not receive a firm outline of the program, nor a list of tentative speakers which it could review during its regular meetings. A rough sketch was provided by Brett Butler (who is responsible for coordinating the institute) after the last committee meeting. The outline as provided will be circulated to the committee for comments.

e. *Video Cable Workshop—Chicago, July 16–17, 1976*

This was planned as a preconference to the 1976 annual meeting. VCCS was

to arrange the program in cooperation with the Program Planning Committee: however, no representative of VCCS accepted an invitation to meet with the Planning Committee in order to discuss the program. The committee wishes to request the Board to remind VCCS of the resolution adopted in January 1975 that all ISAD programs be coordinated through the Planning Committee and the ISAD Executive Secretary.

A member of the Program Planning Committee will make one further attempt to contact VCCS in order to determine their plans for this workshop.

III. *Future Programs*

a. *Introduction to Library Automation*

It is the committee's opinion that there exists a need for programs on library automation at the elementary level aimed at beginning professionals, library school students, and recent graduates. However, the committee also took note of the fact that the people to whom these programs would be directed would find it difficult to obtain institutional support for their travel expenses and registration fees (which average $75.00). Hence the committee wishes to propose that a new "discussion group" be formed similar to the existing COLA. Educational institutes could then be presented as a regular part of the annual ALA meeting.

In order to test the viability of such an idea, we would like to put on a single program at the 1976 annual meeting, which, if successful, could be extended to an annual program.

We have contacted JMRT and requested their assistance with this program. Two members of JMRT attended our meeting. They were extremely cooperative and provided some very fertile suggestions for ways in which JMRT could be of assistance. The entire committee would like to go on record as thanking JMRT, and Messrs. Alex Crosman and Bill Cooper, in particular, for their kind offers of assistance.

The 1976 program will be held during a two-hour time slot prior to the regular JMRT meeting. JMRT will make the arrangements for meeting space, and the ISAD Program Planning Committee will arrange the program content. The program will concern itself with an introduction to library automation, and the ISAD. Its title will be, "One Hundred Years of Library Automation: From the Hollerith Punched Card to International MARC." Seoud Matta will serve as program chairperson.

b. *Data Processing Technology for Automated Library Systems: Future Options in Hardware and Systems Software*

This program is planned as a possible cooperative program with ASIS, to be held as a preconference to their 1976 annual meeting. The program will attempt to deal with anticipated trends in: processors, terminals, communications facilities, auxiliary storage, and hard copy display media. The program will include a final talk which will attempt to project how these trends will shape the library systems of the future.

Brian Aveney will serve as program chairperson and will initiate exploratory contacts with ASIS.

c. *Automated Reference Services Discussion Group*

This year's COLA meeting seemed to indicate that there may be significant interest in a discussion group devoted solely to questions relating to automated reference services. This discussion group, it is anticipated, would be jointly sponsored by ISAD and RASD.

Bonnie Jurgens will draft a detailed proposal for such a discussion group and will make the initial exploratory contacts with RASD.

d. *What Is MARC?*

MARBI has indicated a desire to present a program based on the results of

work currently underway by one of its subcommittees, which is attempting to draft a paper defining what the scope of MARC is, or should be. The Program Planning Committee has indicated its willingness to assist with such a program. The program is planned for the 1976 annual meeting.

S. Michael Malinconico
Chairman, Program Planning Committee

EXHIBIT 4

COMMITTEE ON REPRESENTATION IN MACHINE-READABLE FORM OF BIBLIOGRAPHIC INFORMATION ANNUAL REPORT

MARBI, to date, has been meeting only during ALA's Annual and Midwinter meetings. Thus, the account of its substantive activities is contained in the report filed at the close of the mid-year meeting (q.v.). From a more long-range point of view, other events have also transpired which, it is hoped, will allow MARBI to become more effective in fulfilling its charge.

The proposal to extend the term of Chairman to two years, rather than one, has been approved by the three sponsoring divisions. This will allow the Chairman greater opportunity to provide leadership, for he will now have time not only to become familiar with the procedures of Chairmanship within ALA (particularly complex when three divisions must be dealt with!) but also to work within these procedures on behalf of the Committee and its concerns.

A budget request on behalf of MARBI has been, for the first time, submitted to the three divisions (though not yet, as of this writing, approved) and will enable the Committee to deal more readily with matters submitted to it, since the request provides for additional meeting, mail and phone cost coverage.

An official observer from the Canadian MARC Office of the National Library of Canada has been added to the roster of Committee members. A "non-exclusive" agreement to exchange MARC tapes, the first of its kind, has been signed between the Library of Congress and the National Library of Canada, and Canadian representation on MARBI is thus of significant value and importance.

MARBI established a somewhat passive liaison relationship with the RTSD CCS Cataloging Code Revision Committee this past year, which called only for MARBI to respond to specific proposals submitted to it by the CCRC. There is mutual agreement between the CCRC and MARBI Chairmen that this relationship is inadequate in terms of the charges to both committees; resolution will be sought at the San Francisco meeting.

MARBI has been invited, by IFLA's working group on content designators, to comment on the MARC International Format; this, too, will be dealt with during MARBI's San Francisco meetings.

The first report from MARBI's newly formed subcommittee charged with defining the scope of MARC will be submitted during the San Francisco meetings.

Ruth L. Tighe
Chairman, MARBI Committee

EXHIBIT 5

COLA DISCUSSION GROUP REPORT

The ISAD COLA Discussion Group met on June 29, 1975, at 2 p.m. About sixty persons attended the four-hour session. The outgoing Chairperson, Brian Aveney,

raised the question of renaming the group "Library Automation Discussion Group" to reflect more accurately its current nature. Brief discussion centered around ties to the original (pre-ISAD) COLA group. Brett Butler was nominated as Chairperson for 1975/76 and elected by voice vote.

Presentations during the first half of the program were made by Jo Pulsifer (LC), Ann Ekstrom (OCLC), Mary Jane Reed (Washington Library Network), James Aagard (Northwestern U.), George Sullivan (Rutgers-CAPTAIN), John Christofferson (U. Georgia), and Murray Martin (Penn State). Stuart Hauser of the Stanford Research Institute briefly described a proposed multiclient study of the library environment for automated systems, hardware, and techniques for automated technical processing functions.

After a few brief announcements at the start of the second half of the meeting, Larry Livingston of CLR described briefly the appointment of the Joint Advisory Group on International Bibliographic Control and announced the first exchange of MARC tapes between the USSR and LC this spring. Eleanor Montague (Stanford BALLOTS), Jimmy Rizzolo (NYPL), John Kountz (CSUC), Maryann Duggan (WICHE), and Rob McGee (U. Chicago) made brief progress reports.

Doug Ferguson of Stanford chaired a panel on computerized reference services. Sally Drew of Redwood City (Calif.) P.L. described experiences in using the Lockheed DIALOG system as a public library reference tool as part of an NSF-funded project. Free service had been provided for one year. The second year, in which users are being charged, began in June. Ms. Drew reported a drop, but not cessation of use. Alan Benenfeld, now at UCLA, spoke about generally favorable user response at MIT to computerized searches offered through the NASIC project of the New England Board of Higher Education (NEBHE). Peter Watson of UCLA described experiences in using the New York Times Data Bank at the University. Anne Lipow of Berkeley spoke from the floor briefly about UCB experience with the Times system.

Brian Aveney
Chairman, COLA Discussion Group

TECHNICAL COMMUNICATIONS

IN TRANSITION: THE SYSTEMS LIBRARIAN IN THE 1980s.

The current decade is notable for rapid change in libraries forced to shift from a growth phase to a consolidation phase. For the systems librarian, the decade has brought a sometimes abrupt shift from in-house development to automated systems to evaluation and selection of externally developed network services or the purchase of turnkey hardware and software package systems.

A recent writer (De Gennaro, *JOLA* 8:3–4 [March 1975]) sees the change for the systems librarian as analogous to the changes that swept the airlines from 1920 to 1970. In that period pioneer mailplane pilots became executives flying modern jetliners. In organizational terms, the role of the systems librarian may truly be as vital to libraries as pilots are to airlines.

Whether the library is about to become a member of a far-flung automated cataloging network or purchase a turnkey circulation system, the systems librarian has a crucial role to play. It is the systems librarian who is equipped to represent the library that contracts for services in the complex and hazardous modern technical environment. It is true that library networks operate in a fellowship system, and many vendors are reasonable and helpful. But the arena of interaction between a library and a nonprofit network or commercial vendor is inevitably a type of marketplace, and the motto *caveat emptor* is ignored at considerable peril. The systems librarian must actively aid his or her library in carving a path through the thorny underbrush of technical and contractual complexities. The library that needs a small Lear Jet system must not inadvertently contract for a costly Boeing 747; the library that needs a 747 must not get an obsolete Spruce Goose or a design engineer's paper fantasy. In most instances only the systems librarian has the expertise, the perspective, and the organizational position to effectively match library technical needs with the right marketplace offering.

Installation of successful automated library systems in the 1980s will require efforts and skills sufficient to tax a team of specialists. The systems librarian will have to aid, assist in, and perform a range of tasks that include uncovering and documenting in detail specifications of the library's needs, writing watertight technical and acceptance test specifications, jockeying those specifications into a contract that legally obligates a vendor's performance, and monitoring vendor progress and library staff readiness development up to and beyond the final installation day.

The systems librarian of the 1980s will have to translate library terms to vendors and vendors' terms to librarians, maintain an overview of system vendor and customer library in their complex interactions, identify key issues on both sides, anticipate trouble in the vendor's ranks and the library's operations, generate early solutions to hard problems, and elicit the right decisions from the right people at the right time.

For a library to throw itself on the mercy of a vendor of network services or computer packages is both unnecessary and foolish. A library that expects its harried administrators or its overburdened line staff to bridge the chasm between the interests of the library and the interest of the vendor is living in a fantasy that invites budgetary ruin.

The systems librarian, like the pioneer aviators of the recent past, may be undergoing significant change but is not headed for extinction. A library that expects to get

along without an in-house systems librarian will find itself in the position of an airline that tries to get along without in-house pilots.

In-house programming staffs may wither away, but the skills to span the discontinuity between the library and external automation service vendors, nonprofit or not, will ever be in short supply. Systems librarians who are poets and adventurers bent on building in-house automation empires are too costly. Those professionals that successfully link the library to efficient and productive use of the latest technology will be worth far more than their keep.—*Thomas F. Parker, Los Angeles, California.*

ANNOUNCEMENTS

ISAD Announces Two Institutes This Fall

Two new ISAD institutes to be held at opposite ends of the country have been announced for ALA members and others. The first, "The Catalog: Its Nature and Prospects," is to be held in New York City, October 9–10, 1975, and will be co-sponsored by the ALA Reference and Adult Services Division and the Resources and Technical Services Division Cataloging and Classification Section. Program chairperson is Maurice Freedman, New York Public Library.

This program will be concerned with the nature of the catalog and its prospects for the future. Some of the subjects to be covered will include the nature and function of the catalog, innovative concepts of bibliography in an automated catalog, the role of LC, the electronic catalog, the catalog as a service tool, and the catalog as an interpretive and reflective instrument of world culture.

The second ISAD institute will be on "Automated Serials Control: National and International Considerations." It will be co-sponsored by the California Library Association as a preconference institute to the CLA Annual Conference in San Francisco. Its dates will be November 29–30, 1975, and the program chairperson is Michael Malinconico of the New York Public Library.

This program will be concerned with the rapidly changing world of serials and the impact of those changes on the current situation. Among other subjects, the Library of Congress MARC/S format will be reviewed, existing automated serials systems will be described, and such controversial movements as the *AACR* proposed changes, CONSER, superimposition, and ISBD will be discussed. Additional subjects will include the role of OCLC; activities in Canada, including the National Library of Canada; serials data bases; and NSDP.

Registration for the institute on "The Catalog" will be $75.00 for ALA personal members, $90.00 for nonmembers, and $10.00 for full-time library school students. For the serials institute, the registration will be $85.00 for ALA or CLA personal members, $100.00 for nonmembers, and $15.00 for full-time library school students. For additional information and registration forms, contact Donald P. Hammer, ISAD, American Library Association, 50 E. Huron St., Chicago, IL 60611. (312) 944-6780.

AFIPS Board Authorizes Establishment of Washington Office

The American Federation of Information Processing Societies, Inc. (AFIPS) has authorized the establishment of a Washington office. Acting on the recommendations of the federation's Washington Activities Study Group, the AFIPS Board of Directors at its November 8 meeting in San Diego, California, resolved that ". . . a Standing Committee be established to proceed with the opening of a Washington Office of AFIPS and to oversee that office." The federation, with national headquarters in Montvale, New Jersey, acts on behalf of fifteen nonprofit national societies and their more than 100,000 members on matters of broad importance to the computing and information processing community.

According to an announcement by George Glaser, president of AFIPS, Keith

W. Uncapher will serve as chairman of the newly formed Washington Activities Standing Committee. Mr. Uncapher is a past president of AFIPS and is director of the Information Sciences Institute of the University of Southern California. Previously, Uncapher served as an associate department head and program manager for the RAND Corporation. He is a member of the U.S. Air Force Scientific Advisory Board and is a former chairman of the IEEE Computer Society.

The AFIPS Washington office, in accordance with the instructions of the Board of Directors, is charged with three primary functions:

1. Provide an objective and impartial information service to the AFIPS Constituent Societies.
2. Establish contact with members of government agencies and congressional staffs, and make experts available from the AFIPS constituency to such groups.
3. Undertake extensive personal contact, in formal hearings and informal meetings, with government agencies and congressional staffs, as a means of providing information directly to these groups.

In accordance with AFIPS' status as a nonprofit, scientific, and educational organization, the board further resolved the "information to be provided to various agencies and other organizations shall be restricted to technical information which may be used in arriving at policies by such agencies, but shall not relate to policy guidance per se."

"The Board action in authorizing the establishment of a Washington Office," Glaser stated, "is an historic step and marks a major commitment by AFIPS in providing assistance to the Federal Government. I am particularly pleased that Keith Uncapher has accepted the appointment to head the Standing Committee to oversee this activity. Keith has made innumerable contributions to AFIPS and has been a major driving force in the establishment of an AFIPS presence in Washington."

"The Standing Committee," Glaser noted, "will play an extremely important role in recommending policy to the Board of Directors, the AFIPS Executive Committee and the President; will monitor the activities of the Washington Office and insure that Board policies are carried out; and will advise the Executive Committee and the AFIPS Executive Director on administrative matters."

According to Glaser, the Washington office should greatly enhance AFIPS' ability to (1) assist the federal government by supplying technical information and assistance, when requested, on computer-related issues; (2) improve communications among industry, academic institutions, and federal agencies concerning research and development in computing; (3) supply information to AFIPS Constituent Societies about federal activities and policies affecting the information processing field.

Greater Boston Consortium of Academic and Research Libraries Union List Project

Input from the nine consortium libraries participating in the Union List of Serials Project is now almost complete. A record of the serials currently received by Boston College, Boston Public Library, Boston University, Brandeis University, Massachusetts State Library, Northeastern University, Tufts University, and Wellesley College has been added to the serials data base created by the University of Massachusetts in Amherst. When all the input data have been processed, they will be sorted and prepared for printing in an alphabetical title listing. The Greater Boston Consortium has received a $25,000 grant from LSCA, Title II to help cover the cost of producing the list.

In addition to the printed alphabetical listing, a limited edition of the Union List of Serials will be produced in Library of Congress classification order, so that the consortium libraries will be able to evaluate their serial holdings in specific subject areas. Participating libraries will also be able to use the data base of the Union List to generate individual listings of their own serials currently received, in either alphabetical or subject sequence.

British Academic Libraries Cooperative Automation Project

Since June 1973, a research team based in the library of Bristol University, with the collaboration of staff at Exeter University and University College Cardiff, has been working on the design of a central library computer system with the three cooperating libraries linked on-line to a central unit.

The British Library awarded a grant for this work in 1973, and an order has now been placed with Rank Xerox Data Systems for a computer system. The cost of the central computer equipment is being met from the British Library grant and the cost of the three terminal configurations by the cooperating libraries. The central unit will use a Rank Xerox 530 computer with 40K words, and the terminal configurations will employ Computer Automation Alpha LS1-2/20 minicomputers with 8K words, visual-display units, and Automated Library Systems book charging terminals. The research team will concentrate first on the development of circulation systems in the three libraries and later move on to cataloging and acquisitions systems.

The team has employed the Government's Central Computer Agency throughout the process of the specification, bidding, and purchasing. A more detailed account of the system is given in the library automation newsletter (*Vine*, no. 11), which is available from the Library Automation Information Officer, Southampton University Library, Southampton S09 5NH, England. (From *The British Library Research and Development Newsletter*, No. 2:Jan. 1975.)

STANDARDS

Draft Proposal for ANS Identification Number for Bookdealers, Libraries, Schools and School Systems

Editor's Note: This standard has been prepared for Standards Committee Z39 by Subcommittee 30 on Standard Account Numbering and was submitted for review June 6, 1975. Comments may be sent to members of the committee given in the foreword and/or to the TESLA Committee in ISAD.

FOREWORD

This standard was prepared by Subcommittee 30 of the American National Standards Institute, Committee Z39 on Standardization.

The subcommittee was reorganized in January 1973 and charged with the development of a standard identification number for Bookdealers, Libraries, Schools and School Systems.

The subcommittee 30 appointed a special task force to solve the "ship to/bill to" problems. The standard was prepared based on the task force recommendations.

The spectrum of available coding methods examined included:

D.U.N.S. (Data Universal Numbering System).

Structured codes which reflect geographical and/or other built-in significance.

Alpha library symbols used by the Library of Congress in the *National Union Catalog* and *New Serial Titles.*

Numbering codes implemented or under study in other countries.

Because of the various types of identification codes in use and because of the large number and type of units to be included in the system, a "registration code" has been selected.

A fundamental requirement for a registration system is central control of the registration process.

The R. R. Bowker Company, through the ISBN (International Standard Book Number) Agency, has agreed to serve as the registration center, having the Subcommittee 30 serving as advisory board.

The members and consultants of Subcommittee 30, who prepared this draft proposal are:

Russell Reynolds, Co-Chairman
Emery Koltay, Co-Chairman

Members
Herbert W. Bell
Paul J. Fasana
Kenneth B. Knabb

Carol A. Nemeyer
Aaron Rabinovitz
G. Roysce Smith
James L. Stevens

Consultants
James Haughey
Sandra Paul

American National Standard Account Number (SAN)

For Identification of Bookdealers (Book-wholesalers, Book-retailers, Publishers, Distributors), Libraries, Schools and School Systems.

1. Purpose and Scope

This standard defines the structure of a concise, unique and unambiguous code for identification of Bookdealers, Libraries, Schools and School Systems. The code is solely for unique identification. It recognizes that the assignment of the code numbers must be centrally administered.

2. Definition

Bookdealers, Libraries, Schools and School Systems: the code will be issued to all units evidenced under any of these categories and/or to units in these categories who will apply to be registered. The financial office of the account is to be the group or persons identified by the code.

3. Code Description

3.1 Format

The code is a registration number composed of two digital fields. The first digital field which identifies the main or parent organization to which invoices are to be sent is composed of six digits plus a seventh digit, the check digit. The following four digits, called SAN suffix, identifies the branches, divisions or separate addresses to which shipments are to be sent.

The external representation, i.e., the code of the parent organization, is formatted in two groups, the first group having three digits and the second group, four digits, the two groups being separated by a hyphen (XXX-XXXX) wherein each X is a digit, all of which must be present. The hyphen is an aid to recognition. The seventh digit is the check digit. The check digit is calculated as outlined in the Appendix.

The SAN suffix, the code of the branches, divisions, or separate addresses, consists of four decimal digits (XXXX) separated from the first part by a hyphen (XXX-XXXX-XXXX). When there are no branches, divisions, or separate addresses, the SAN is valid with seven digits.

3.2 Characteristics of the Code

3.2.1 Uniqueness.—A unique, one-to-one correspondence exists between each assigned code number and the unit to which it is assigned, so that for each code number there is only one unit and for each unit there is only one code number.

3.2.2 Permanency of Assignment.—The relationship between the code number and the unit numbered, once established through assignment, is permanent.

3.2.3 Immutability of Format.—The format of the code as specified will not change.

3.2.4 Conciseness.—The code contains sufficient digits to achieve uniqueness and provide for error checking but is otherwise as short as possible.

3.2.5 Error Reduction and Detection.—The code has two error reduction characteristics which aid in accuracy in use: an easily read format for error avoidance and a check digit for error detection.

4. Application

4.1 Assignment

The assignment of code numbers will be administered by a central authority which will interpret the rules and definitions as required.

4.2 Dissemination

The central authority will maintain a record of code numbers assigned.

The central authority will foster the broad availability of lists of code numbers.

The central authority will promote the use of the code by encouraging all participants to incorporate the code numbers on all their stationeries, order forms, invoices, checks, shipping slips, promotional materials, etc.

APPENDIX
PROCEDURE FOR CALCULATION OF THE CHECK DIGIT

The use of a check digit helps guard against errors resulting from improper data transcription. The check digit is particularly effective in detecting transposition and transcription errors.

The check digit used is calculated on a Modulus 11 basis as indicated in the example below.

Procedure	
1) Write the digits of the basic number	6 5 4 3 2 1
2) Write the constant weighting factors associated with each position of the basic number	7 6 5 4 3 2
3) Multiply each digit by its associated weighting factor	42 30 20 12 6 2
4) Sum the products of the multiplications	42 + 30 + 20 + 12 + 6 + 2 = 112
5) Divide the sum by the Modulus 11 to find the remainder	112 ÷ 11 = 10 plus a remainder of 2
6) Subtract the remainder from Modulus 11 to generate the required check digit. If the check digit is 10 generate a check digit of X*. If there is no remainder, generate a check digit of zero.	11 – 2 = 9
7) Append the check digit to create the standard seven digit SAN	6 5 4 3 2 1 9
8) The printed format	SAN 654-3219

* Use of Modulus 11 can sometimes result in a check digit of 10. If this were used, the Standard Account Number would not always be the required 7 digits in length. Therefore, the X is used to represent the check digit 10, thus maintaining the uniform length of seven digits. When there is no remainder, the check digit will be zero (0).

TESLA REACTOR BALLOT

Identification Number For Standing Requirement:

_____

Reactor Information

Name _____

Title _____

Organization _____

Address _____

City _____ **State** _____ **Zip** _____

Telephone ( ) _____ – _____
AREA EXT.

Need *(For This Standard)*

For ☐ **Against** ☐

Specification
(As Presented in This Requirement)

For ☐ **Against** ☐

Can You Participate In The Development Of This Standard _____

Yes ☐ **No** ☐

Reason For Position: (Use Format Of Proposal. Additional Pages Can Be Used If Required)

TESLA Reactor Ballot

Photocopy this form to respond to standards proposals. (For details see previous issues of *JOLA*-TC, vol.7, No.3 and 4.) Return ballots to John C. Kountz, Associate for Library Automation, Office of the Chancellor, The California State University and Colleges, 5670 Wilshire Blvd., Suite 900, Los Angeles, CA 90036.

ANSI—Z39 Subcommittee on Serials Holdings Statements Formed

Z39—Subcommittee 40 on Serials Holdings Statements has just been formed. The chairperson is Glyn Evans, director of library services of the State University of New York, and the other committee members are Richard Anable (CONSER), Paul Fasana (New York Public Library), Lois Hacker (CUNY Graduate Center), Mary Sauer (LC—National Serials Data Program), and Bob Tannehill (Chemical Abstracts Service).

The committee is anxious to examine as many examples of Serials Union Lists

or local serials lists holding statements as it can in the course of its work. It is also anxious to elicit comment from editors and compilers of such lists.

If you wish to submit comment and/or samples (title page, prefatory material, and sample text pages are essential) to the committee, please forward them as soon as possible to Glyn T. Evans, Director of Library Services, State University of New York, Central Administration, 99 Washington Ave., Albany, NY 12210.

CONFERENCE INFORMATION

The Future for Document Storage and Retrieval Systems

The Institute for Graphic Communication, continuing its series of intensive, small-group conferences on current trends in graphic communications technology and marketing, presented a conference at the IGC Conference Center in Ipswich, Massachusetts, May 18–20, 1975.

This conference discussed in depth more efficient ways of handling document information. The U.S. Department of Labor *Statistical Reports* indicates that presently there are at least 5.7 million persons occupied with records management tasks in the United States. Eighty-one percent of these are in private industry and 17.3 percent work for local and federal governmental agencies. The total payroll in 1973 amounted to approximately $27 billion. While practically all segments of industry (manufacturing, banking, insurance, wholesale, retail, and services) have undergone a strong modernization of methods in the direction of productivity increase by using automation (labor-saving aids), information management is still mainly a manual operation based on techniques used prior to 1950. The amount of information needed to support our expanding industry is growing exponentially; and unless new techniques become available, it can be extrapolated that by 1980 there will be 19 million persons employed in information management tasks, making this the strongest single occupational group in the U.S. industry. Advanced technologies have become available, and some of these have been incorporated into advanced systems that will be available within a few years. Many more breakthroughs are on the horizon. The information manager should be aware of these developments. His decisions on the implementation direction of gradual changes and advanced planning for automation are made more potent by the acquisition of this knowledge.

Working with Dr. Gerard Walter as conference leaders were: John R. Carlyle, Rockwell International Corporation; Verne D. Hale, McDonnell Douglas Astronautics Company; Dr. Robert M. Landau, International Development Center; and Robert G. McPherson, Cubic Corporation.

Symposium on Management of Data Elements to Be Held at NBS October 23–24, 1975

The second National Symposium on the Management of Data Elements in Information Processing will be held at the National Bureau of Standards (NBS) in Gaithersburg, Maryland, October 23–24, 1975. The symposium is sponsored by the NBS Institute for Computer Sciences and Technology (ICST) and the American National Standards Institute (ANSI) Committee X3L8.

The symposium will include presentations on timely data management and data standardization topics such as:

- the role of the data manager
- communications needs for data standards
- data element directories
- standard codes for character and control
- use of check characters
- data elements in bibliographic data bases
- product coding
- coding for clinical medicine
- human factors
- data resource management
- data base management systems

The first session of the symposium will open with a presentation by Dr. Ruth M.

Davis, director of ICST, on the role of the data manager.

Keynote for the second session will be given by Robert W. Bemer, Sr., Honeywell Information Systems, who will speak on "ASCII—The Data Alphabet That Will Endure." ASCII, a twelve-year-old data alphabet, has by design the capabilities for expansion and extension not inherent in any other code. It is "best prepared" for the coming fields of networking, electronic funds transfer, text processing and photocomposition, and the automated office.

The keynote for the third session, on October 24, will be given by Professor Martha E. Williams, director of the Information Retrieval Research Laboratory, Coordinated Science Laboratory, University of Illinois. Williams will give an "Analysis of the Data Element and Microelements Structure of a Variety of Bibliographic Data Bases." These data bases were analyzed in conjunction with a National Science Foundation-sponsored grant to develop a "Data Base Mapping Model and Search Scheme."

Keynote for the fourth session will be presented by Harry S. White, Jr., associate director for ADP Standards, NBS, and chairman of the ANSI X3L8 Data Standards Committee. White will discuss new data standardization and data management efforts—including data element directories and security guidelines—and other current federal, national, and international standards activities.

The registration fee for the symposium is $50, received in advance, which includes a copy of the proceedings mailed after the symposium. Papers presented at the meeting and discussions will be available on cassette tapes after the meeting.

For additional registration information, please contact: Mrs. Hazel McEwen, Institute for Computer Sciences and Technology, NBS, Washington, DC 20234; phone (301) 921-3157.

Outstanding Papers and Innovative Program Ideas are Invited for 1976 National Computer Conference

Papers and session proposals are invited for the 1976 National Computer Conference to be held next June 7–10 in New York City.

According to 1976 conference general chairman, Dr. Carl Hammer, director of Computer Sciences for Sperry-Univac in Washington, D.C., ". . . we want contributions from 200 Authors with topics covering every area of Computer Science, Data Handling, EDP Applications and Information Processing."

"The 1976 NCC," Hammer stated, "will be an historic conference. Nothing less than a history-making conference would be appropriate in celebrating not only our national Bicentennial but also the 25th Anniversary of the first Joint Computer Conference, as well as the silver anniversary of our industry as an ongoing commercial reality. The program must reflect this."

Dr. Stanley Winkler, program chairman and manager of applied technology for the IBM System Development Division, Gaithersburg, Maryland, notes, "The technical program is open to everyone who uses, builds, buys, sells or thinks about computers, data processing, or information processing systems. In addition to papers of a technological application or tutorial nature, all ideas and suggestions are solicited. Session proposals and related thoughts should be submitted as soon as possible. The deadline for submission of completed papers is January 5, 1976. However, papers should be submitted in advance of this date in order to receive maximum consideration."

According to Winkler, the program will cover the basic areas of computer science and technology, data processing methods and applications, and societal issues. Attention will also be given to world conditions, international relations, as well as current and projected economic trends and their impact on the computer industry and EDP users.

"In addition to the broad areas of technology, applications, and management issues," Winkler comments, "we presently have a number of 'tracks,' or topic areas, in mind which will run throughout the NCC. Included are social concepts, com-

plex systems, software technology, hardware technology, system architecture, computer communication technology, management concerns, component technology, education and training, and advanced applications. Survey papers tracing major historical developments within the computing and information processing field are also invited."

Instructions to Authors and Participants

All paper submissions and suggestions for the '76 NCC should be submitted to the program chairman: Dr. Stanley Winkler, IBM Corporation, 18100 Frederick Pike, Gaithersburg, MD 20760; telephone (301) 840-7384. New, hitherto unpublished papers are solicited. Total length should not exceed 5,000 words, and each paper must include an abstract of not over 200 words, illustrations keyed to the text, and an appropriate set of key words.

Six copies of the manuscript, each complete with cover page, abstract, index terms, and illustrations must be submitted. Manuscripts must be typed and double-spaced on one side of the paper only. The cover sheet must contain the full name of the author(s) with co-author(s) in the desired order; company, university, or other professional affiliation for each author; name, address, and telephone number of the responsible author. Each page must be numbered and have the first author's name on it. All papers will be refereed. Submission of a paper implies a guarantee by the author that necessary approval and clearances have been obtained.

Deadline for all submissions of completed papers is January 5, 1976. Authors will be notified concerning the acceptance of their papers on or before March 1, 1976.

The National Computer Conference is sponsored by the American Federation of Information Processing Societies, Inc. (AFIPS) together with four of its participating Constituent Societies—the Association for Computing Machinery, the Data Processing Management Association, the IEEE Computer Society, and the Society for Computer Simulation.

COMMERCIAL SERVICES/ INFORMATION RETRIEVAL AND DATA BASES

SDC Puts Search Service into Orbit

A customer of System Development Corporation's information search service who is located on the east coast now has his request winging its way out into space to a satellite and then back to earth on the west coast for a total of 47,000 miles of travel. And it takes less than a second.

SDC has contracted with the American Satellite Corporation for sixteen satellite "lines" to help carry the load of business that has developed for their literature search service. "Our land lines were sometimes overloaded," said Dr. Carlos Cuadra, general manager of SDC Search Service. "We were looking for a solution and found that satellite channels are not only very effective but more economical than the ground-based links we have been using." Dr. Cuadra noted that less than half a second is taken for transmitting time each way, and the search itself takes two to four seconds.

SDC Search Service is the first organization in the bibliographic retrieval services field to use satellite communication routinely.

The linkage now in operation is from SDC's Paramus, New Jersey, office to its computer located in Santa Monica, California. The satellite channel contains the equivalent of sixteen telephone lines.

Firm Dedicated to Application of Computer Systems to Libraries

The formation of Inovar Corporation, a computer systems firm solely dedicated to library applications, was announced by H. S. "Buster" Spiwak, former chairman of the board of Information Design, Inc.

Spiwak said Inovar is providing operating computer programs for automated bibliographic cataloging and indexing, and sells no publications, books, or equipment.

Inovar has distribution rights to the BIBLIOS package of computer programs

which provide acquisitions, cataloging, circulation, and book catalog production in batch mode. These programs were developed by the Orange County Public Library System and previously marketed by Information Design. The BIBLIOS programs are currently being installed at the Hawaii State Processing Center.

"Unlike the many organizations which have developed computer-based services for libraries as an adjunct to their other products or services, Inovar specializes in providing operating computer programs," Spiwak said.

Inovar also performs conversion of library collections and catalogs from manual to computer-based form, including selection of MARC records on demand, production of indexes and cataloging, and publication of microform or hard copy catalogs.

For further information, contact Inovar Corporation, 26417 Weston Rd., Los Altos Hills, CA 94022.

IBM's New High Speed Nonimpact Printer

The IBM 3800 printing subsystem, announced in spring 1975, enables users to achieve new levels of speed, economy, and versatility in producing computer-prepared reports.

The new printer merges electrophotographic and laser technologies to produce high-quality printed material at speeds up to 13,360 lines per minute (45,000 characters per second). It has a constant paper feed rate of 1,840 inches per minute, about 10,000 eleven-inch forms per hour, and uses a variety of standard character styles and sizes. Up to 255 characters in four sets can be used at one time without reducing printing speed.

The 3800, IBM's first nonimpact printer, can be directed to select desired character sets and produce a designated number of copies without operator intervention. Additionally, it can print forms designs at the same time it prints alphanumeric characters, reducing or eliminating a user's requirement for preprinted forms.

The versatile new device can lower a user's total printing costs by as much as 30 percent by using smaller-sized, single-part paper, reducing the use of preprinted forms, and eliminating the need to separate carbon paper from multipart forms.

PUBLICATIONS

Automated Activities in Health Sciences Libraries

A new LARC publication series entitled *Automated Activities in Health Sciences Libraries* has been announced. The series is intended to be of assistance to all health sciences librarians, including those in medical school, hospital, nursing, dental, pharmaceutical, and psychology libraries. All facets of library automation as related to health sciences librarianship will be included.

Automated Activities in Health Sciences Libraries will be published quarterly and will be made available on an annual subscription basis of $50.00 ($40.00 to LARC members).

The first issue, volume 1, issue 1, focuses on library automation activities at the Mayo Clinic Library. Volume 1, issue 2, will focus on the library automation projects undertaken by the University of Minnesota Bio-Medical Library. "Library Automation at the American Medical Association Library" will be the topic of volume 1, issue 3, and volume 1, issue 4 will describe the computer-based systems at the University of New Mexico Health Sciences Library.

Available from the LARC Association, P.O. Box 27235, Tempe, AZ 85282.

BOOK REVIEW

Network: International Communications in Library Automation. v.l, January 1974– . Peoria, Ill.: Larc Press. Monthly.

There are reasons for the library computer professional to receive the journal of the LARC Association. About one-third of the editorial content is devoted to articles reporting on library systems activity worldwide. Some of this information might not otherwise reach the English-language library press. It is true that *Network* is intended to be an instrument of communication, not a research journal. However, the articles are so general or so superficial as to do little more than inform the reader that systems work is indeed being accomplished in other countries. And these major articles are the best part of the journal from the systems person's point of view. The remainder consists of arbitrarily selected press releases, product promotions, and newsletter pieces, many of them from other reporting media, many of them so abbreviated as to be almost devoid of content.

There are reasons for the librarian who is not a computer professional to receive the journal. One or two pages of each issue are devoted to a department called "Tutorial," which presents excellent popularizations of principles and techniques of systems work. In addition, there are announcements of forthcoming workshops concerned with computer applications in libraries, a book review, and a column describing service and operating pitfalls resulting from bad systems work. The remainder of each issue consists of LARC Press advertising interspersed in an irritatingly discontinuous format with irrelevant, uninteresting, or familiar information.

There are reasons to read *Network,* but very few. If there is a need for a journal with the editorial objectives of *Network,* and if the LARC Association is going to provide it, members of the association should protest to improve its quality. Improvements have taken place during the first year, but they have been marginal. There is need for serious consideration of the purpose, audience, and format of the journal, and for appropriate changes.

Jerome Yavarkovsky
Columbia University

INSTRUCTIONS TO AUTHORS

Scope. The *Journal of Library Automation* publishes scholarly papers and technical reports containing findings not published previously in the following fields: research and development in library automation, including inter-library communications; research in information science and educational technology directly related to library activities; and the history and teaching of these subjects. Each paper is accepted with the understanding that it is to be published exclusively in the *Journal of Library Automation,* unless some other specific arrangement is made in advance.

Mailing address. Manuscripts should be mailed to Susan K. Martin, *Journal of Library Automation,* General Library, University of California, Berkeley, CA 94720.

Organization of papers. Reference to earlier issues of the *Journal of Library Automation* will be helpful in preparation. Whenever possible, material should be presented in classical form: 1) introduction, which should set the scene by referring to pertinent related literature and showing how findings in the paper differ from those already in the literature; 2) methods and materials, presented in sufficient detail that others can adapt or adopt them, but omitting information which is generally known or which can be covered by citation of another paper; 3) results, or new data produced; 4) discussion, containing an examination of results with respect to previous findings, or quality, or suggested further investigation, etc.; 5) conclusion, containing evaluation of the significance of the findings or development.

If the paper is a technical report, section 2) is often a detailed description of equipment and procedures of a new system; section 3) reports operation of the system in terms of time to install, cost to install and operate, quality of product, performance, compatibility, flexibility, simplicity, etc.

Papers are edited to improve the effectiveness of communication between author and readers, particularly to remove ambiguities. When extensive editing is necessary, a paper will be returned to the author for correction and approval before type is set.

An indicative abstract of 100 words or less must accompany the manuscript on a separate sheet. It should include purpose, method, results and conclusions, and any specialized information. It should be intelligible without reference to the article, while assuming that the reader has a general knowledge of the subject. Clarity is essential, but complete sentences are not necessary.

Preparation of copy. Manuscripts should be prepared as neatly as possible in the form used by *Journal of Library Automation.* Papers should be submitted in two copies and typed in double space.

The title page shall carry authors' names in full and their affiliations.

References should be typed in double space on a separate sheet. They should be listed in order of citation in the text and numbered consecutively. Citations should be made in the following form:

1. Lois L. McCune and Stephen R. Salmon, "Bibliography of Library Automation," *ALA Bulletin* 61:674-94 (June 1967).
2. ALA Library Administration Division, comp., *Library Statistics of Colleges and Universities, 1965-66 Institutional Data* (Chicago: ALA, 1967), p. 3.
3. Robert R. Freeman and Pauline Atherton, *AUDACIOUS; An Experiment with an On-Line, Interactive Reference Retrieval System Using the Universal Decimal Classification as the Index Language in the Field of Nuclear Science* (New York: American Institute of Physics, UDC Project, 25 April 1968), p. 36. AIP/UDC-7; PB-178 374.

Financial support, and credit for materials, technical assistance and advice, may be cited in a section headed "Acknowledgments," which should appear at the end of the text.

Illustrations. Illustrations must not be larger than 8½ by 11 inches; a larger illustration should be photographically reduced on a glossy print. Line cuts will usually be reduced for printing to 5 inches or less in width, or 7½ inches or less in length. The artist should be informed of the anticipated reduction before a drawing is made. Illustrations should be done in india ink or black typewriter ribbon on white paper. Illustrations should be numbered lightly with soft pencil on the back, and numbered legends typed on a separate sheet.

Tables. Each table should be typed on a separate sheet, numbered, given a title, and cited in the text. Each column should have a heading. Vertical rules may not be used. Tables wider than 76 characters when set must be run endways.

Chargeable costs. Charges will be made whenever special typography (e.g., tables and formulas), corrections in galley proof, etc., cause composition costs to exceed standard text-page composition costs by more than 10%. In the event that an author makes any changes from copy after galley proof has been submitted to the printer, the entire cost of changes will be charged to the author.

Page proof will not ordinarily be sent to an author.

Better is Smaller...
when it comes to book catalogs from
Xerox University Microfilms

Perhaps you're already convinced that book catalogs are better than card catalogs. You know they're cheaper, more serviceable, and more convenient to use. And they're the only catalog you can take on the road.

Now, Xerox University Microfilms is making the better catalog even better–by making it smaller! The book catalog we recently produced for the Oregon State Library, for example, incorporates an eight-and-a-half-year cumulation–over 55,000 titles–in just 8 volumes: 3 author volumes, 2 title volumes and 3 subject volumes. The library's original book catalog comprised 25 subject volumes alone!

Think what this condensation can mean to you in terms of convenience, distribution of copies, and space conservation in mobile units!

So, if you're already convinced that smaller book catalogs are better than bigger card catalogs, give us a chance to tell you how Better can be even Smaller for you! We'll send a price estimate, too, if you'll tell us the size of your current collection, your annual acquisitions rate, and the number of catalog copies you want. Just write to: Michael M. Mlsna, Manager, Automated Bibliographic Services, Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

Miss Eloise Ebert of the Oregon State Library examines one of eight volumes comprising more than 55,000 titles in library holdings. Three author volumes, two title volumes, and three subject volumes are included.

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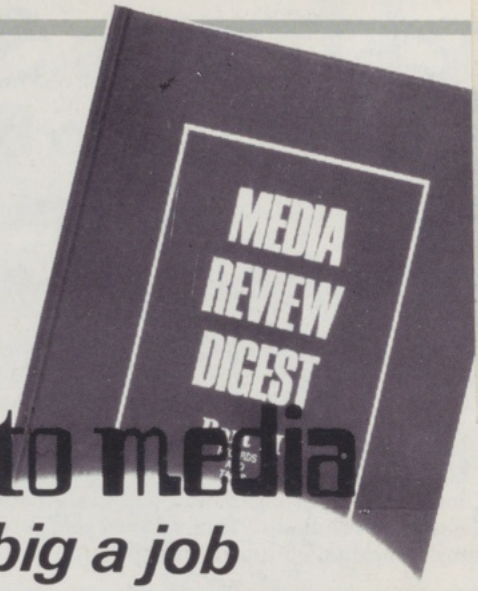

access to media

...too big a job for anything but MRD.

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