ALEF BIT

Hebrew Cataloging at Hebrew Union College on an Apple II+

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This paper is unabashedly a "How we do it good at our library" report. We will also try to tell you why the Hebrew Union College Library is doing it, where what we're doing fits into the greater Judaic library world, and why it is not good enough. We hope that the delineation of the "whys" and "wheres" will justify the "how.".

Major decisions on the part of bibliographic networks and modest photoduplication problems in one library triggered our search for a new method to produce Hebrew catalog cards.

OCLC, after promising for over a decade to develop a non–roman alphabet capability, threw in the towel. It is apparently a very difficult matter to mix other alphabets with the roman—problems of printing, of authority files, of satisfying those who want romanization, entirely or in part. In the final analysis, OCLC gave up because the number of libraries that wanted non–roman alphabets was too small to justify the huge expense of accomplishing an online, catalog–card–producing system and related subsystems.

The Research Libraries Group (RLG) has consistently maintained that it is committed to developing non–roman alphabet capabilities. One would expect exactly that from a group which has the New York Public Library (NYPL) as one of its founding members. NYPL pioneered in the computer handling of Hebrew and the Jewish languages and took a major step backwards in giving up its own system while waiting for RLIN (RLG's computerized network) to develop comparable capabilities. While committed, RLIN does not yet have a Hebrew capability.

At Hebrew Union College (HUC) in Cincinnati, we have been producing Hebrew cata-

log cards by typing a unit card on a master sheet (which has space for six cards) and making as many copies as we need for a set on an antiquated Xerox 1000 copying machine. We had been hoping that OCLC or RLIN would provide the preferrred alternative to our old–fashioned card production method; but one has abandoned the race, and the other is a tortoise, not a hare. So HUC began to mull over the prospects of farming out its card production or going back to mimeographing sets.

Enter the personal computer.

A member of HUC's Cincinnati faculty, Dr. Stephen Kaufman, was getting ready to petition the administration to acquire a microcomputer for faculty and student research projects. The Library supported that petition on general principles and with the further argument that, if a computer were at hand, we would want to try to use it in Hebrew cataloging. In return for the Library's support, Dr. Kaufman offered to do the programming for our project.

The Apple II+ personal computer was acquired by HUC in the spring of 1982, at about the time of the confluence of these factors:

1) OCLC's abandonment of its promise of over a decade.

2) RLIN's vague promises about the future while struggling with financial and organizational problems that made its very future seem uncertain.

3) An almost desperate desire of Judaica libraries to explore existing systems (e.g., the one at the Jewish National and University Library) or other possibilities of bringing Hebrew cataloging into the computer age.

Thinking as rapidly as we dared and aiming at achievable goals, we determined to try to coax three results, the later building on the earlier, from our little machine:

1) A substitute for our Xerox machine, i.e., a way to duplicate unit catalog cards after only one typing.

2) A program to store the cataloging records on diskettes and gain access to them as needed for updating and/or printing additional sets of cards.

3) A substitute for the hand labor, prone to error, of manually typing the added entries and subject headings on the unit cards; i.e., a program to read the tracings and print them appropriately on the tops of the unit cards.

While we pretended that we would be satisfied with even the first of our goals—it would solve our dying Xerox machine problem—we actually began to think of our project as an experiment to demonstrate feasibility and as a base for broader goals still.

A document entitled *Project to Produce Catalog Cards by Computer* was prepared by members of the HUC Library staff. Its purpose was to spell out in great detail, for the programmer, the contents and format of the catalog cards. The 32–page report includes a statement of goals, a glossary of library terminology (essential if the programmer is not familiar with library jargon), and card specifications (see Appendices). The specifications are divided into two parts: Content Documentation, describing the actual data which appear on catalog cards (Appendix A), and Format Documentation, which explains the spacing and punctuation prescribed for each area of the card (Appendix B). Each of these divisions is further broken down by elements accord-

ing to the order in which they appear on the cards. Thus, the call number, the body of the card, the tracings, and the holding library and record number area are treated in both sections, since they have to be described both in terms of their content and format. Specifications are based on AACR2 and ISBD guidelines.

If we take the example of the call number in the Content Documentation section (Appendix A), we see the possible combinations and permutations in a call number. These include location symbols (e.g., Ref. or Office) printed above the call number; the oversize symbols "f" or "g" which also appear above the call number, LC classification letters, LC classification numbers, cutter or cutters, dates, volume numbers, copy numbers, two call numbers joined together with an ampersand (generally used when the Library owns an item in both hard copy and microform), as well as various local call number systems such as SC Box, Mic, Disc, and Cas. Under Format Documentation (Appendix B), it is prescribed that the call number be at maximum six columns wide and fourteen rows high; it begins at row two, column three; it proceeds left to right, top to bottom; and it must end by row fifteen, column eight. The characters may consist of upper and lower case roman alphabet characters, Arabic numerals, a decimal point or period, and an ampersand. A diagram (Figure 1) displaying the rows and columns is included, as well as various examples of call number configurations. This same amount of detail is provided for each area of the catalog card.

The section dealing with the body of the catalog card is further broken down into the main entry, title and statement of responsibility, edition, materials–specific details, publication and distribution, physical description, series, and notes. As an example, title and statement of responsibility under Content Documentation describes elements which may appear in that area, such as title proper, general material designation, a parallel title, other title information, and statements of responsibility. The title and statement of responsibility sector under Format Documentation describes where to begin printing the title on the card in terms of columns and rows and also the prescribed marks of punctuation and spacing for each of the elements described under Content.

For each section and subsection of the catalog cards, several examples are included. It is also noted for the programmer in what areas Hebrew characters may appear, since this requires special programming.

The last area covered under Content Documentation is Holding Library and Record Number area. The holding library code is found at the bottom left of each card and identifies the library which has authored the cataloging record. At present, only the code HUCC meaning HUC, Cincinnati, appears in this space, but we are allowing for the possibility of shared input in the future. At the bottom right of each card is an eight digit number whose purpose is to identify each record uniquely. The Format Documentation describes where each piece of data is located in terms of columns and rows.

Two categories found under Format Documentation without counterparts under Content Documentation are the Heading Sector and Multiple Unit Cards. Headings are not discussed under Content since they are derived from information contained in the tracings area. Thus the Format Documentation describes a heading in terms of how it will appear at the top of the catalog cards—spacing, capitalization, and punctuation depending on whether it is a subject heading or an added entry. Multiple unit cards are necessary when the data to be printed from the body and/or tracings are longer than what can be printed on a single card. The Format Documentation describes where to print the message "(Continued on next card)," "(Card 2)," and also what information must be present on both cards—call number, main entry, the first thirty–three characters of the title, the holding library and the record number.

It was our experience that a written report was indispensable in communicating effectively with the programmer. It should clearly state the library's needs as well as its desires, and include numerous examples using language which can easily be understood by non–library personnel.

In early July, 1982, the librarians presented their project documentation to Dr. Kaufman; and, after seeking some clarification, he began work on the programs necessary to create, store, and edit Hebrew and roman alphabet cataloging records. At the same time, several librarians worked on designing the Hebrew fonts that would be displayed on the video terminal and printed on the cards—this involved two separate programs.

In mid–September, Dr. Kaufman finished his first working draft of the programs to create and edit records. The librarians began to input records to test the system for "bugs." In mid–October, Dr. Kaufman delivered a print-out program for a single card—we call it a "proof–card." In mid–November, the librarians felt familiar enough with the system to begin staff orientation. On November 29, 1982, all of

the Hebrew cataloging that had previously been typed manually began to be input into the computer system.

As 1983 began, Dr. Kaufman worked to complete the final component of the project—the program to print out a card set with the tracings printed in the heading area. Many different problems were encountered. For example, at least half— a–dozen different combinations of printer settings were tried before the headings were lined up properly in the heading area. The biggest problem was in programming the computer to know where the tracing began and where it ended. We tried to rely on punctuation marks as the guide; but because of the many different punctuation mark combinations possible in a tracing, punctuation marks alone were not a sufficient guide. After many experiments, Dr. Kaufman was about to give up and rewrite the whole system to handle tracings differently when one of the librarians suggested that a non–printing "delimiter" character be appended to each tracing to show where it ended. Using this idea, Dr. Kaufman was able to finish the program.

It was not until the beginning of May that a program which satisfactorily printed a ready–to–file card set was finished. Unfortunately, a slippage problem in the Prism 80 printer has limited the number of card sets that can be generated automatically before the printing slips away from the right position on the card. A manual adjustment is necessary to put the printer back on target.

From the start, the programming has been designed to be user–friendly. To start the system, the operator inserts a diskette into each of the two disk drives: a program disk in the top drive and a data disk in the bottom drive. The computer is then turned on; and, after a few seconds, a menu appears on the screen.

This menu contains five system options:

A—*Create New Card Data.* This is used to input new records.

B—*Edit Records.* This is to edit previously input data.

C—*Print Cards.* This is to print out a card set with headings.

D—*Print Proof Set of Disk.* This is used to print out a copy of every record on the disk for hard copy editing.

E—*Print Proof(s) of Individual Records.* This is used for hard-copy editing of a single record or to produce unit cards without headings.

The operator selects one option, and the system continues to operate in that mode

until the menu is recalled and another option is selected.

When A—the Create New Card Data program—is chosen, the computer supplies a unique number for each new record. The program first displays a "form" on which to input a call number. If a format mistake is made, the machine sounds its horn and asks the user to re–format the data. After the call number is complete, a four letter code—identifying the cataloging library—is input. The program then displays a screen which represents the area remaining on the card for inputting the body, notes, and tracings. If a second or third card is needed, the user asks for it, and it appears on the screen with the main entry and short title information displayed on the appropriate lines.

When inputtng data in roman characters, the program uses the standard roman values of the Apple II keyboard. To input in Hebrew, the operator types "Control" + "Z," and the program changes to read the keyboard as if it were that of a Hebrew typewriter. This feature allows the operators to "touch–type" in both roman and Hebrew. When a Hebrew letter is typed, it appears on the screen; and when the next letter is typed, the first letter moves one space to the right. When the first Hebrew letter hits the right margin, the computer sounds its horn, much like the margin–bell on a typewriter, and the operator hits "return" to move to the next line.

When the input process is complete, the program stores the cataloging record on a diskette. By means of its unique number, a record may be called up for editing on the screen, printed for hard–copy editing, or printed as a finished card set.

To edit a record, the operator selects option B—Edit Records—from the menu. The program loads the record into the computer and displys the call number and holding library data. These can then be edited. When finished, or if no editing is necessary, the operator inputs a "zero," and the body and tracings are flashed onto the screen. These an be edited—indeed, the whole record can be changed; and when the operator is done, the program rewrites the edited record over the old record on the disk. There is no limit to the number of times a record may be edited.

The operator selects from option C, D, or E if a printout is desired. Option D—Proof Print of Disk—prints out a copy of every

record on the data disk in ascending record order. At present, the two operators check each other's input via this program, proofreading a paper copy printout to check for errors, prior to printing out cards. Option E—Print Proof(s) of Individual Records—allows the operator to select which specific record is to be printed out. Since there is a program feature, written by one of the librarians, which allows the operator to set the number of proofs to be printed out, this program can be used to generate extra unit cards or a card set without headings. Option C—Print cards—produces a complete card set with tracings printed in the heading area. The number of extra unit cards generated can be adjusted to meet various library needs and procedures.

> # We can produce sets of Hebrew catalog cards, save the record on disks, and find the records again for change or reuse.

Note that the data are input into the system via a "word processing" format. Thus, there is immediate visual feedback as to how the body and tracings of the card will look. On the other hand, the present system is not MARC–compatible, nor would it be possible to make it so without writing an essentially new program. Because all of the body, notes, and tracings function as one large (and "untagged") data field, it has not been possible to build in program–generated checking of the data in this area as was done with the call number area.

Because of the limitations of the Apple II + keyboard, there are a number of typing operations which require that the control key plus another key be depressed at the same time to achieve desired results: to shift to capitals, one types Control + "R";to delete the letter beneath the cursor, one types Control + "Z"; etc. We were surprised how quickly the regular operators mastered this system and were able to switch back and forth between typewriter and computer without any increase in errors on either.

All of the day–to–day operational needs, such as making backup disks or initializing new data disk, are handled by the oper-

ators. Thus, they are able to interact directly with Dr. Kaufman and suggest beneficial changes in the system's capabilities and operations. For example, they asked him to design a feature which lowered or raised whole lines of data on the screen, spacing the rest of the data accordingly. This added capability, speeded up input and editing by at least a factor of two. Recently, they spotted a flaw in the headings printing program which causes multi–line Hebrew series to be printed in the heading area with the second line of data incorrectly appearing before the first line of data, and they communicated this problem directly to him. We hope that it can be solved.

Our Research and Development is complete. We can produce sets of Hebrew catalog cards, save the records on disks, and find the records again for change or reuse. The system is relatively slow and almost as noisy as our old Xerox machine. It is certainly a workable substitute for our old method, but it should be studied carefully over time to determine its cost effectiveness. Is it the wave of the future? Perhaps it is an early ripple. We have already supplied cards to our branch libraries, communicating by mail. We get only seventy records to a diskette, so the system will tend to become cumbersome as well as slow, as computers go. We have not tagged elements, MARC style, so the system cannot be integrated easily with MARC records. We've demonstrated that it can be done on a small scale. To serve many libraries, even off–line, one would want a much bigger, faster system. One ought at least to try to make the bigger, faster system compatible with the MARC records produced in other systems. There is a system at Haifa University that utilizes a microcomputer as an input device for a minicomputer (Adler, 1983). The mini stores the records in Hebrew and roman, and its peripheral printer produces cards for Haifa and several other Israeli libraries. Perhaps this is already the answer to the question of what we should do next, if RLIN does not come up with a Hebrew capability useful to Judaic libraries.

The challenge is there. Our initial success and that of Haifa, which we only recently learned about, suggest that the bigger challenge can be confidently addressed.

Reference

Adler, Elhanan. "Original Cataloging via Microcomputer," *Small Computers in Libraries,* Vol. 3, No. 5 (1983), pp 2-3.

David J. Gilner is Assistant Librarian for Public Services; Ellen Siegel Kovacic is Assistant Librarian for Cataloging and Classification; Dr. Herbert C. Zafren is Director of Libraries at Hebrew Union College-Jewish Institute of Religion. An earlier version of this paper was presented at the Association of Jewish Libraries Convention, held in June 1983 at Long Beach, California. A photograph of the microcomputer is on the cover of this issue.

Appendix A
Call number content documentation

The call number contains alpha–numeric information showing, among other things, where an item is located within the Library's collection. The call number never contains data in Hebrew characters.

There are several combinations and permutations of elements possible in a call number:

A. HUC symbols (local usage)

1. Location symbols (if present, always being on first line of call number sector)

1st line	Office	R.B.R.	SC	Micro	SC
2nd line	DS	DS	Box	fiche	Filmstrip
3rd line	135	135	A-81	135	2
4th line	P6	P6	15		

2. Oversize symbols; "f" or "g" (if present, on first line, unless location symbols are present when it occupies second line), e.g.

1st line	f	g	R.B.R
2nd line	DS	VA	f
3rd line	135	327	BS
4th line	P2C3	C1.2	100
			C6

B. Library of Congress (hereafter LC) classification alpha–numerics

1. LC class letter or letters: in the bulk of the records (90%), the class letter(s) will be the first element in the call number

B	KS	f
1	100.6	DS
C6	D2.7	135
	1964	R9.2
		H3.7

LC class number: Arabic numerals, with or without decimal point, printed on the following class letters (see examples above).

"Cutters": (do not appear in some call numbers) Roman characters and Arabic numerals, on one or more lines following class number (see examples above.)

Appendix B
Call number format documentation

The sector is 6 columns wide and 14 rows high and begins at row 2, column 3, proceeding left to right, top to bottom, row 15, column 8. The characters consist of upper and lower case roman alphabet characters, arabic numbers, decimal point, period, and ampersand.

Row 2 is the only limited use row, being restricted to the first (or only) line of the HUC location symbol. Otherwise, rows in sequence are available for occupation, left to right, by the rest of the call number, provided there is enough space. When there is not sufficient space in one row, that is, the number of characters exceeds six, leftover characters are advanced to the next row, one part + of the call number to each row with the exception of Cutter alphanumerics.

a. If two Cutter alphanumerics do not fit in a row, the second is advanced to the following row.
b. If a numeric or alphanumeric must be divided because of space limitations, the decimal point and numbers following it are advanced to the following row.
c. In Cutter alphanumerics, one space separates an l or O from a following number.

Call number parts:
1. HUC location symbols: RBR, Ms., SC, f, g, Cat.R., Micro, Film, Fiche, Box, Slide, Strip, Office.
2. LC class. alphabetic: D, DS
3. LC class. numeric: 4, 45, 135, 5103, 6954.2
4. Cutter alphanumeric: A1, B1.2, Z4.5139
5. Date: 1976
6. Other: accession numbers for SC Boxes, films, fiches; cop., suppl., nd. followed by numbers; ampersand.

Figure 1. CATALOG CARD DIAGRAM

Column Numbers

Row Numbers
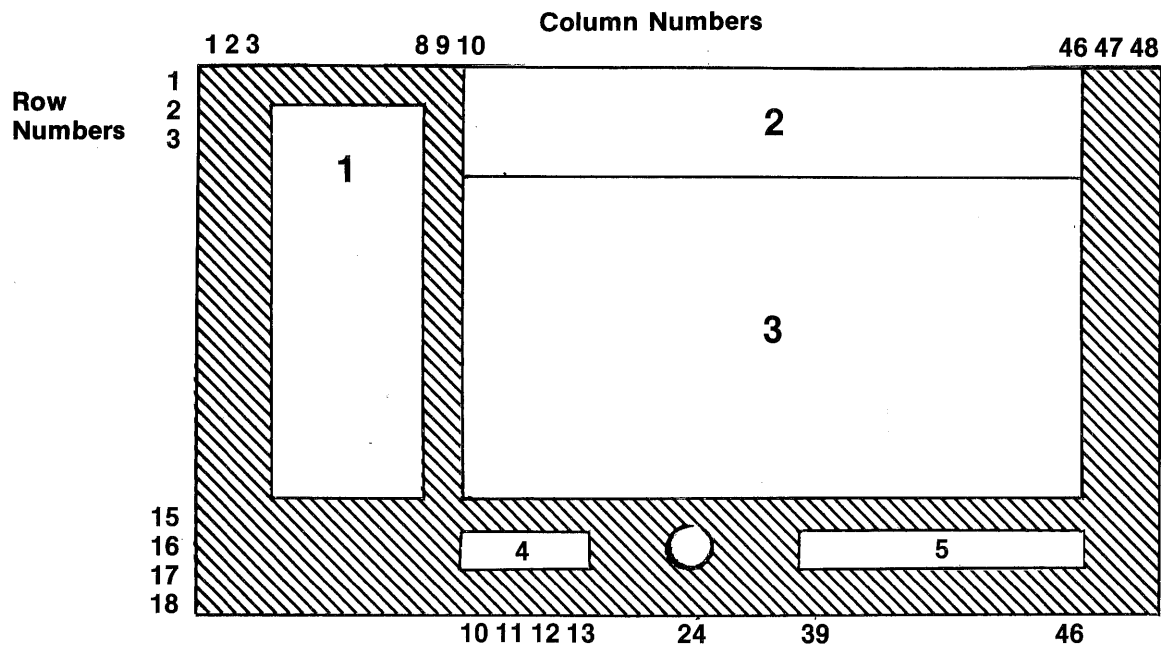
1. Call number sector.
2. Heading sector.
3. Body and tracings.
4. Location symbol.
5. Record number.
/// Cross-Hatching represents empty sectors.