Automation and the American Judaica Library during the First Quarter Century of the Association of Jewish Libraries, 1965–1990

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Introduction

The invitation to contribute to the history of the Association of Jewish Libraries (AJL) came as a surprise to me, as I was only in high school when the Association was founded. Although I was privileged to play a part in Judaica library automation during the past decade, I could only document the earliest interest of AJL members in various aspects of computerization from an analysis of the Association's early publications, supplemented to some extent by interviews.

Much of the introduction to Charles Meadow's history of the database industry is applicable to Judaica library automation:

> . . . it is new, yet it is old enough to have a history . . . Most of the pioneers are still among us; many are still active . . . If only there were more time to get their full stories!

> . . . Even in the history of one of the most modern of technologies there are questions as to exact dates, the exact sequence of developments, the exact degree of dependency of one development on another, and certainly on the importance of individual events.
> (Meadow, 1988, p. 14)

I found the wording of the invitation to compile this review particularly felicitous: the theme on which I was asked to write was "Automation and the Jewish Library." Judaica library automation is not an independent phenomenon. It began with awareness of new technologies in the general library world and was followed by deliberations as to whether the innovation should be adopted in terms of the following questions:

1. Is it good for the Jews (e.g., does it have a Hebrew capability)?

2. Will it force me to change the way I operate my library?

3. Can I afford it?

As an association of individuals, for the most part, AJL did not play an official role in Judaica library automation, but its conventions and publications served as vehicles for the exchange of information, which undoubtedly played a major role in the widespread adoption of computer technology in American Judaica libraries of all types during the past decade.

In this paper, a number of Israeli library automation projects are mentioned, but the emphasis is on American Judaica libraries, since the vast majority of AJL members reside in the U.S.

The first mention of automation in AJL publications is found in the *Proceedings of the 2nd Annual Convention* (1967, p. 17–18): "Menahem Schmelczer [*sic*] of the Jewish Theological Seminary Library . . . led a discussion . . . for the Research Division on 'The Decade Ahead.' One of the items brought up was the possible effect of automation in meeting the problem of the information explosion, as pressing in Jewish Studies as it is elsewhere in the academic world."

One way of presenting the history of the automation of Judaica libraries in the U.S. would be to proceed sequentially through AJL publications, but rather than taking a purely chronological approach, this review breaks up the subject of Judaica library automation into seven subtopics, citing the earliest mention of each topic in an AJL publication and then discussing subsequent developments. The topics are:

1. Reversible Romanization

2. Bibliographic utilities

3. Microcomputer software

4. Hebraica card production

5. Bibliographic and full text databases

6. Local library management systems

7. Networks

1. Reversible Romanization

Romanization of Hebrew was discussed at the first annual Convention of AJL, held June 19–22, 1966 in Philadelphia, PA. As reported in the *Proceedings* (p. 5–6), "Dr. [Baruch] Weitzel asked the convention to consider the task of setting up a standardized system of transliteration of Hebrew into English." The conversion of alphabets is not in itself a computer-related topic, but in Judaica librarianship, the connection between automation and Romanization was very important.

Monitoring the development of the MARC (machine-readable cataloging) format by the Library of Congress, Judaica librarians realized that this would only be good for the Jews if Hebrew data could be accommodated in MARC. Recognizing that computers could not yet handle non-Roman character sets, Herbert Zafren of Hebrew Union College proposed the use of reversible Romanization to represent Hebrew characters in machine-readable form (Zafren, 1969a; 1969b).

Dr. Zafren served as AJL's representative to American National Standards Institute (ANSI) Committee Z39 and chaired the committee that developed the American National Standard for the Romanization of Hebrew. He kept the AJL membership informed of the progress of the committee. A lengthy report was presented at AJL's 7th Convention (Zafren, 1972). The published standard (ANSI, 1975) included four tables, one of which was labeled "Keypunch-compatible transliteration." The keypunch machine was obsolete within five years, but reversible Romanization was to be a live issue for Judaica libraries well into the late 1980s.

At the 12th AJL Convention held at Brandeis University in June 1977, I presented a paper on Romanization at the CARLJS (Council of Archives and Research Libraries in Jewish Studies) meeting. (Although

unpublished, the paper was reported on at length by Amnon Zipin (1978) in *Yad La-Kore*.) My presentation included a resolution on Romanization, which was endorsed by CARLJS and the Association of Jewish Libraries. A committee was appointed to refine the wording of the draft resolution; the final version was sent with a cover letter to Joseph Howard, Assistant Librarian for Processing Services of the Library of Congress, in late 1977. The resolution proposed that LC adopt reversible Romanization of Hebrew in machine-readable cataloging until the original alphabet could be handled. That recommendation was included in a letter sent in May 1979 by AJL President Harvey Horowitz to the White House Conference on Libraries and Information Science (*AJL Bulletin*, Winter 1979, p. 15).

A delegation of Judaica librarians was invited to the Library of Congress in March 1979 to discuss their concern over wholesale Romanization with Mr. Howard and other members of the LC staff. Mr. Howard in turn presented a paper on "The Cataloging of Hebraica Materials at the Library of Congress" at the 1980 AJL Convention. The paper, which was summarized in the *Proceedings* (1980, p. 72–73), dealt mainly with Romanized data for Hebraic materials in the *National Union Catalog*.

The draft ANSI reversible Romanization table was adopted by the New York Public Library (NYPL) for the production of the Hebraic component of the *Dictionary Catalog of the Research Libraries*, which began publication in 1972. The October 1974 edition featured reversible Romanization (Gold, 1974), but in December 1975, Hebrew characters appeared (Dienstag, 1981).

NYPL was one of the founding members of the Research Libraries Group, and after joining, discontinued its Automated Book Catalog in the summer of 1981. Before the development of a Hebrew capability on RLIN (the Research Libraries Information Network), catalogers in NYPL's Jewish Division input Hebrew bibliographic data to RLIN in reversible Romanization.

Because many other libraries were inputting ALA/LC Romanization, the continued use of reversible Romanization would have led to a split in the Hebrew subset of the RLIN database. NYPL therefore discontinued use of that system.

Reversible Romanization was an important concept in the early days of Judaica library automation, when non-Roman scripts could neither be displayed nor printed by computers. NYPL employed this transliteration system successfully in the production of its own book catalog. In a network environment, however, there was pressure to conform to the practice of the majority of libraries, and the alternative Romanization scheme was delegitimized. NYPL's bibliographic records featuring reversible Romanization on RLIN have yet to be "flipped" to Hebrew characters.

A statement I made at the Harvard conference that is often quoted is that on "the Romanization issue, . . . Judaica librarians have won the battle and lost the war" (Weinberg, 1989, p. 3). Despite the availability of a Hebraic capability on a major bibliographic utility, we must still do Romanization by following LC's complex rules (Maher, 1987).

The only influence that the ANSI Standard had on LC was to prompt LC to add diacritics to certain letters in its Romanization table to make consonants reversible (LC, 1976a). This "peppery" Romanization, as I like to call it—since it consists mainly of dots under letters—is an inconvenience to the Hebraica cataloger working online, since the diacritic is input as a separate character before the letter, and this impedes legibility. Neither the CARLJS/AJL resolution on Romanization nor the theoretical papers on the subject, such as Hans Wellisch's presentation at AJL's 1981 Convention, entitled "Hebraica in American Research Libraries in the Age of Automation," significantly changed the way Hebraic materials are cataloged in the U.S. It remains to be seen whether Rosalie Katchen's (1990) proposal that only title proper be Romanized, as in the LC printed card model, will be accepted.

2. Bibliographic Utilities

In 1967, Frederick Kilgour founded the Ohio College Library Center (OCLC). Hebrew Union College (HUC) became a member in 1970, when the bibliographic utility was operative in batch mode. HUC was promised that OCLC would develop a Hebrew capability.

The 1975 AJL Convention, held in Miami Beach, featured a panel session on OCLC in which three major Judaica libraries were represented. AJL publications from the early 1970s did not include announcements of the Judaica libraries joining

OCLC. It may well be the case that information concerning the utility was exchanged at meetings of the Committee (now Council) of Archives and Research Libraries in Jewish Studies, which was founded in 1972.

Other Judaica libraries joined OCLC, e.g., the Jewish Theological Seminary (JTS) in 1977. Edith Degani (1980) provided a very clear exposition of the methods and costs of doing Roman-alphabet cataloging on OCLC at JTS. She stated in her paper that Hebrew alphabet capability was expected in the Fall of 1981, but the date for implementation of this capability kept being deferred by OCLC. A report on the 15th AJL Convention, held in Philadelphia, PA in 1980, noted that "a resolution was adopted to request OCLC to make it possible to search titles in the Hebrew alphabet as well as in their Romanized form" (Wiener, 1980, p. 22). The text of the resolution was published in the *Proceedings of the 15th Annual Convention* (1980, p. 22).

I was asked by the National Endowment for the Humanities (NEH) to review the proposal from OCLC for the development of the Hebrew capability. The proposal gave the impression that much of the design work had been completed, but several years later, OCLC returned the remainder of its grant to NEH, which passed the funds on to the Research Libraries Group.

It should be noted that the Library of Congress had also promised to provide non-Roman scripts in its automated system; like OCLC, LC kept deferring the project (LC, 1976b) and eventually dropped it. Bibliographic utilities have to be responsive to many demands, and Hebrew capability is not the first priority of most of their members.

After the disappointment with LC and OCLC, American Judaica librarians investigated ALEPH, a network developed at the Hebrew University in the early 1980s. Maintenance of a separate network would have been too expensive for American Judaica libraries; moreover, the bibliographic data on ALEPH, with Hebrew headings, was incompatible with American-style cataloging, so ALEPH could not be used as a bibliographic utility. (ALEPH is discussed again as a local library management system in section 6 below.)

An American Hebraica database that was exhibited at the 1982 AJL Convention and investigated by several Judaica libraries was the Jewish Library System, developed

by Rabbi Naftali Halberstam in 1981. Although it offered dial-up access, its cataloging format was completely different from the LC model, and this system found no takers in major American Judaica research libraries.

In July 1983, through YIVO Institute for Jewish Research, I submitted a grant proposal to the National Endowment for the Humanities (NEH), entitled "Preparation of a Multi-Alphabetic Yiddish Authority File for Computer Input and Systems Analysis for a Hebraica Cataloging Network." The thesis of the proposal was that a non-Roman authority file should be at the heart of such a network, and it was suggested that Judaica catalogers meet to discuss its requirements. NEH responded that since the Research Libraries Group (RLG) was interested in both non-Roman authority control and the development of a Hebraic capability, it would make more sense for me to work with RLG as a technical consultant than to carry out the project independently. Before the grant project officially began in August 1984, I was invited to present a state-of-the-art review on Hebraic computers at the CARLJS Biennial Meeting, held at the AJL Convention in Atlanta in June of that year (Weinberg, 1984).

The NEH grant project led to a very interesting series of trips to RLG headquarters at Stanford University. The first task was development of a Hebraic character set. Many experts in Jewish interlinguistics were consulted to ensure that all of the diacritics required for such languages as Yiddish and Judeo-Arabic were included.

RLG established an Advisory Group on Hebrew, and several meetings were held at which the content of the character set was discussed. LC announced that it had no intention of using vowel points, diacritics, or the digraphs required in Yiddish (such as *double yod*), and called for deletion of many characters. Aliprand (1987) includes figures that document the initial proposal and the scaled-down version.

Always a highly standards-conscious organization, RLG submitted the Hebrew character set to the National Information Standards Organization (NISO) as a response to the international standard that had been developed in Europe. Israeli reviewers of the proposed character set have called for reinstatement of some of the characters that were deleted, and Aliprand (1990) provides a figure documenting this.

When I first went out to RLG headquarters, I was informed that Hebrew would operate in a left-to-right world on RLIN, and that while the Hebrew text within one subfield would read from right to left, the field would be laid out from left to right. An implication of this was that a Hebrew title proper would be printed to the left of its subtitle. I explained to the RLIN systems people how counterintuitive and hard-to-read this would be for Hebraica catalogers and users. Fortunately, the RLG people were finally convinced that there were technical advantages to having Hebrew bibliographic data displayed from right to left.

During the period of RLG's development of the Hebrew capability, numerous meetings of CARLJS were held, primarily for the purpose of monitoring progress on the project. Such RLG senior staff people as Tina Kass and Allen Tucker addressed several CARLJS meetings, and I frequently reported on the systems work at AJL cataloging workshops.

RLG developed a Chinese, Japanese, and Korean (CJK) capability well before Hebrew, and shortly after CJK came online, OCLC began working with a company called Asiagraphics to develop a similar capability. OCLC then announced that it would develop a complete line of non-Roman character sets and make these available to libraries at a significant discount over RLG's rates. Undoubtedly, OCLC saw the handwriting on the wall: Judaica libraries had waited for years for the development of the promised Hebraic capability on OCLC. Now RLIN's was imminent, and it was likely that many libraries would switch.

Some Judaica libraries did not have the option of switching, however. Those that formed part of university libraries that were permanently wedded to OCLC knew that their only choices were doing Hebraica cataloging manually or inputting fully Romanized records online. Ohio State opted for the latter (Zipin, 1984).

CARLJS at times tried to play a more influential role on RLG than serving only as the medium for the exchange of information. These efforts were largely unsuccessful. After Hebrew came online in Jan. 1988, RLG formed the Jewish and Middle East Studies (JAMES) Program Committee. Only members of the network have a say in RLG policy development. As of March 1990, the members of JAMES were: Annenberg Research Institute,

Brandeis University, Columbia University, Cornell University, Hebrew Union College, Jewish Theological Seminary, Library of Congress, New York Public Library, New York University, Stanford University, University of Florida, University of Judaism, Yale University, and Yeshiva University. CARLJS continues to explore the possibility of having smaller Judaica libraries participate in RLG programs, such as preservation, under the wing of CARLJS.

As a participant in the majority of the CARLJS and RLG Advisory Group meetings, I observed instances of both self-interest and cooperation. Some Judaica library directors seemed to have the attitude "What's in it for me?" There were thinly veiled threats such as "I won't join unless my OCLC records are converted." On the other hand, an example of cooperation was the submission through CARLJS in 1985 of a proposal to NEH for assigning to nine Judaica libraries responsibilities for retrospective conversion of Hebraica based on a Jewish Studies Conspectus. NEH was sympathetic to the proposal, but turned it down on the grounds that it was premature. Apparently, NEH staff knew that it would still take a few years before Hebrew was available on RLIN. Brandeis joined RLG in 1985, in anticipation of the Hebrew capability (*AJL Newsletter*, vol. 6, no. 4, Nov./Dec. 1987, p. 11–12), but had to wait quite some time for it to appear.

At the 1970 AJL Convention, Dr. Charles Berlin, head of Harvard University Library's Judaica Department, had noted that one of the advantages of having a Judaica library within a university setting was that one could take advantage of technical advances, such as computers (*Proceedings*, 1970, p. 58). While the general University Library of Harvard was automating only its current cataloging, the Judaica Department undertook complete retrospective conversion of its Hebrew and Yiddish collections—the first project of this type in any library. The project began in September 1982 and resulted in over 100,000 machine-readable Hebraic records in Romanization.

Harvard University had been one of the founding members of the Research Libraries Group, but it later dropped out and joined OCLC. The Judaica Department's machine-readable records were designed from the inception of the project for tape loading to OCLC.

Aware of RLIN's requirement for parallel Romanization, I recognized the value to

Judaica catalogers of loading Harvard's Hebraica database on RLIN. I explored the possibility with Dr. Berlin and with senior RLG staff. Agreement of the administrations of both institutions was obtained, and in a dramatic ceremony, Dr. Berlin presented test tapes to both RLG and OCLC representatives during the conference celebrating the twenty-fifth anniversary of the Judaica Department in May 1988. The complete database was loaded on OCLC and RLIN in the Spring of 1989, and members of both networks such as Brandeis (RLIN) and Ohio State (OCLC), are already taking advantage of Harvard's records for retrospective conversion and for reducing their backlog of uncataloged materials.

Administrative aspects of retrospective conversion were discussed by a panel at AJL's 1987 Convention (Wiener, 1987, p. 4). Two of the papers were published (Weinberg, 1988; Katchen, 1988). LC is inputting current Hebraica cataloging to RLIN, but is also taking advantage of the Harvard data for recent titles, which are tape-loaded on a monthly basis.

Hebrew on RLIN was the subject of several AJL programs: at the AJL-NYMA Cataloging Workshop held at YIVO in May 1988, Rosalie Katchen gave a slide demonstration of "Cataloging Hebraica on RLIN." This was also the subject of two sessions at AJL Conventions, including one chaired by Dr. Leonard Gold of NYPL in Kansas City in 1988, and a second chaired by Lucia Rather of LC in Washington, DC in 1989.

Although my association with RLG grew out of my work with non-Roman authority files at YIVO, owing to the fact that the MARC Format for Authorities could not accommodate non-Roman data, Hebrew bibliographic records were created on RLIN without linked authority control. I had discussed the advantages of linking authority records to bibliographic records in my presentation at the 1977 AJL Convention at Brandeis (Weinberg, 1978). Theoretical aspects of "Bilingual and Multiscript Cataloging and Authority Control" were discussed at the 21st AJL Convention held in Montreal in June 1986. At the June 1989 AJL Convention, a draft proposal for the structure of non-Roman authority records was distributed by LC staff. RLG has submitted a response, and the debate continues.

Until recently, when RLG took over the operation of CLASS—which subcontracted RLIN services to small librar-

ies—membership in RLG was not open to Synagogue, School, and Center (SSC) libraries. SSC libraries that had little need for a Hebraic capability found the cost of membership in OCLC prohibitive. Moreover, neither bibliographic utility could provide the kind of cataloging data that SSC libraries require—most importantly, class numbers from a special scheme, and secondarily, Judaica subject headings derived from lists other than LC. As Hazel Karp, reporting on SSC libraries in Atlanta in 1974 noted, "At each meeting we bemoan the fact that there is no central computer card service based on the Weine system available to us." (*AJL Bulletin*, vol. 9, no. 1, Dec. 1974, p. 6). Over a dozen years later, the need was met.

The Central Cataloging Service of the Sinai Temple Library in Los Angeles, CA built a Judaic bibliographic database with dBase III+ in 1986 and began to issue periodic bulletins in which descriptive cataloging, Judaica subject headings, and Weine and Elazar class numbers are provided for each title. Subscribers may also request cataloging data for individual older titles. Cumulative indexes to the bulletins are issued periodically, and a series of topical bibliographies has been produced by "massaging" the database. Nationwide service was announced in the *AJL Newsletter* (vol. 6, no. 3, Sept./Oct. 1987, p. 12), and a complete description was published in *Judaica Librarianship* (Frischer, 1988). Although not accessible online, the Central Cataloging Service is a *bibliographic utility* in the true sense of the term. The potential of subscribers receiving diskettes containing the cataloging data for use with compatible hardware and software was noted in the *AJL Newsletter* (vol. 7, no. 1, Feb./Mar. 1988, p. 3). If this potential were realized, it would mirror the current use of LC-MARC data on compact disk by Judaica libraries.

3. Microcomputer Software

According to Meadow's (1988) timeline, the Apple II microcomputer was put on the market in 1977. AJL members quickly embraced this technology, notably Barbara Leff. In the *AJL Newsletter* of Sept./Oct. 1981 (p. 5), she reported having acquired an Apple II Plus for her synagogue library, and half a year later, she described its applications (Leff, 1982b). AJL Conventions in the early 1980s featured many presentations on the subject of microcomputing, explaining its uses in libraries. A report on the 1983 Convention published in the newsletter of the Long Island AJL group,

Sifria (vol. 2, no. 5, Jan. 1984), outlined the basics of microcomputer software.

The SSC Division of AJL was interested primarily in software that would minimize the time-consuming, repetitive functions of their libraries, such as the preparation of overdue notices. The Research and Special (R & S) Division of AJL, in contrast, was interested mainly in the ability to display and manipulate Hebrew characters in microcomputer software. This was the theme of an AJL-NYMA workshop held in Jan. 1987.

The *AJL Newsletter* featured many announcements of software packages with library applications as well as packages with Hebrew capability. "Hebrew Merlin" (*AJL Newsletter*, vol. 6, no. 3, Sept./Oct. 1987, p. 11) is typical of the catchy names given to some of these systems.

Under the heading Miscellaneous, the *AJL Newsletter* (vol. 6, no. 4, Nov./Dec. 1987, p. 9) listed a catalog of *Judaic Software for Apple and IBM PC Computers* from a company called Compu-tations in Troy, Michigan. The *AJL Newsletter* (vol. 8, no. 1, Feb./Mar. 1989, p. 3) noted the availability of a *Media Resources Catalog*, covering Judaic computer software, from the Memorial Foundation for Jewish Culture of Milwaukee, Wisconsin.

Kuperman (1987) reviewed the theoretical problems of Hebrew word processing software, noting that the primary problem is lack of standardization of the character set. Although RLG has done a great deal of work in this area, its Hebrew character set cannot be used for local word processing.

In 1988, Kuperman published a companion piece reviewing specific packages. His first article was reprinted in *Communal Computing News* (Fall 1989), whose editor reported that the information in Kuperman's 1987 article is still up-to-date. As for Kuperman's second article, it is well known in the computer industry that a directory of software is generally out-of-date by the time it is published. This is likely to be even more true in the case of Hebraic software, as much of it is produced in Israel and distributed in the U.S. by dealers who run small businesses. The Communal Computing Group of Silver Spring, MD published a *Survey of Hebrew Language Software* in May 1989, noting that "no one is very enthusiastic about any program on the market." Yeshiva University Library (1988) made the MINCE word processing

package available to its patrons, and developed a sheet of hints to assist them in using the software.

Desktop publishing was the logical next step after word processing, and Judaic applications were not far behind. The *AJL Newsletter* employed this technology from vol. 7, no. 4 (Nov./Dec. 1988) through the efforts of Hazel Karp, co-editor. Many recent AJL monographic publications have been computer-produced by Dr. Ralph Simon, Vice President for Publications.

Juvenile Judaica, compiled by Dr. Marcia Posner, is a computer-generated bibliography distributed by AJL since 1985 (*AJL Newsletter*, vol. 4, no. 3, Sept./Oct. 1985, p. 7). The 3rd edition of Daniel Stuhlman's *Library of Congress Subject Headings for Judaica* (1988) is distributed by AJL as well and may also be acquired on disk. An announcement of an earlier update of this compilation in the *AJL Newsletter* (vol. 5, no. 2, April/May 1986, p. 7) noted the availability for purchase of Stuhlman's Judaica Subject Headings Data Base System.

A Survey on Word Processing Format was conducted in March 1988 by the editors of *Judaica Librarianship*. The purpose of the survey was to determine whether the production costs of the journal would be lower if authors' disks were submitted to the computer typesetting firm. The responses to the survey revealed that some authors contributing to the journal do not produce their manuscripts on a computer, and those who do use a wide variety of word processing packages. Converting these and inserting generic coding would be more expensive than sending the edited manuscripts to a computer typesetter. The latter does not have the ability to handle Hebrew, however, and Hebrew bibliographic references are typeset separately and treated as camera-ready copy in the journal.

Dorothy Wasserman presented a paper on multilingual word processing and desktop publishing at the 1989 AJL Convention; the paper was published in *Judaica Librarianship* (Wasserman, 1990). YIVO was using Wasserman's desktop publishing system in early 1990 to prepare the bi-alphabetic title pages and other front matter for the G. K. Hall publication, *The Yiddish Catalog and Authority File of the YIVO Library*.

Database management software, with or without Hebrew capability, was also applied in Judaica libraries and to the management of AJL. David Gilner of Hebrew Union College computerized the AJL membership database in the summer of 1986. I like to think of the production of addressograph plates by Anne Kirshenbaum (mentioned in the 1969 AJL *Proceedings*, p. 15) as the forerunner of this. The Communal Computing Group issued a *Directory of Synagogue, Church, and Membership Software Packages* in Oct. 1989.

AJL's recent treasurers, Sharona Wachs and Toby Rossner, also made use of microcomputer software for maintaining the financial records of the Association since the mid-1980s.

4. Hebraica Card Production

In the late 1970s, when LC began doing all of its cataloging in machine-readable form, there was concern among Judaica librarians that printed LC cards would no longer feature Hebrew script. Leff and Frischer (1980) reported on a trip made to LC in March 1979 by a delegation of Judaica librarians, at which Joseph Howard assured them that "vernacular" cards would still be supplied by LC.

Despite their current interest and participation in bibliographic utilities, many American Judaica research libraries have been reluctant to give up the card catalog. A common economic rationale for this is that Judaica libraries cannot afford enough terminals for staff and patrons to consult an online catalog. Whatever the reason, computer-assisted Hebraica card production has been the subject of numerous AJL presentations and publications in the 1980s.

I consider the forerunner of computerized Hebraica card production to be the Kadurit typewriter, which allows one to switch alphabets and directions on an IBM Selectric. An announcement that Harvard had acquired the first model sold in the U.S. was published in the *AJL Bulletin* (vol. 10, no. 2, Spring 1976, p. 12). An item on the availability of an element for the IBM Selectric featuring all special characters required for Yiddish appeared in the *AJL Newsletter* (vol. 3, no. 1, February/March 1984, p. 3).

Many Judaica libraries that had joined OCLC did their Hebraica cataloging in manual mode, and only their Roman-alphabet cataloging on the network. A presentation by Linda Aschkenasy of JTS at the AJL-NYMA Cataloging Workshop held in May 1986 dealt with a method of "tricking" OCLC to leave space on its cards for Hebrew bibliographic data to be typed in manually.

Dr. Herbert Zafren of Hebrew Union College demonstrated Hebraica card production on an Apple microcomputer at the 18th AJL Convention held aboard the R.M.S. Queen Mary in June 1983. This development was the cover story of the premier issue of *Judaica Librarianship* (Gilner *et al.*, 1983).

When the IBM personal computer became available, along with Hebrew word processing software, Judaica libraries experimented in using this combination for Hebraica card production. Donna Kutnick described the experience of the Balch Institute in using the Mince program for this purpose, at the Cataloging Workshop held at the AJL Convention in Livingston, NJ in June 1987. Her paper was subsequently published in *Judaica Librarianship* (Kutnick, 1988).

A commercial, IBM-compatible program entitled Judaicard was presented at a cataloging workshop of the New York Metropolitan Area Chapter of the Association of Jewish Libraries (AJL-NYMA) in December 1987 and advertised in the *AJL Newsletter* (vol. 6, no. 4, Nov./Dec. 1987, p. 14) as well as in *Judaica Librarianship*. Several libraries purchased the software, but experienced difficulties with its fixed-length fields; the program could not, for example, accommodate lengthy subtitles. At the AJL-NYMA Reference Workshop held in Feb. 1990, Noreen Wachs of Ramaz reported that a couple of the school's graduates had debugged the program. Sample card sets were passed around as evidence of Ramaz's successful use of the software.

Many Judaica libraries that had joined or that contemplated joining RLG were also interested in Hebraica cards for the reason given above: they were not ready for online public access catalogs. RLG staff indicated that the RLIN card program, which provides Roman-alphabet cards, needed a complete overhaul. RLG would not just provide for Hebraic cards; the program would have to be rewritten to accommodate all non-Roman scripts. The cost of this was estimated to be $250,000, and RLG informed the Judaica library community that it would require either a grant or contributions from member libraries to support this effort. NEH was not interested in funding Hebraica card production, and Judaica libraries were not prepared to pay

for the entire program. Although there was interest in cards in the CJK community, contacts between Judaica and Chinese librarians did not lead to the implementation of an RLIN non-Roman card program.

LC was the first user of Hebrew on RLIN, and despite its earlier promise not to stop supplying vernacular cards, was reluctant to do double processing, i.e., to catalog online and to produce cards through manual means. Librarians subscribing to LC's Hebraica cards in the late 1980s found a large number of fully Romanized records, and by the end of the decade, the flow of LC Hebraica cards seemed to have stopped. LC cards with Hebrew script were received in 1990, but these were for titles with pre-assigned numbers that were cataloged under the old system. Hebraica titles cataloged by LC on RLIN are represented by Romanized cards only.

CARLJS asked me to conduct a survey to determine the various requirements of Judaica libraries in Hebraica card format. The questionnaire was distributed in Nov. 1987. From the analysis of the data, a wide variety of patterns was found to exist; for example, some libraries treat series as a Hebrew title, while others provide series access in Romanization.

Dr. David Gilner of Hebrew Union College, Cincinnati, who had participated in the project to produce Hebraica cards on an Apple in the early 1980s, undertook to convert the HUC program to make it work on IBM personal computers onto which RLIN Hebraica records had been downloaded.

The Gilner program, completed in early 1990, does not allow for the full range of patterns documented in the CARLJS survey, e.g., main entry in Hebrew characters, or the alternative methods of handling series, noted above. Only Yeshiva University (YU) had made a prior commitment to purchase the software from HUC, and the program took into account only HUC's and YU's requirements.

As news of the availability of the RLIN-compatible Hebraica card program spreads, however, demand is expected to increase, and the software can undoubtedly be customized to meet the requirements of other libraries. Alternatively, users may manipulate the coding of the MARC record in such a way that their preferred local headings are automatically printed as access points.

5. Bibliographic and Full Text Databases

Meadow's (1988) timeline of the database industry notes the date of the first bibliographic database, Medline, as 1964. The ERIC (Educational Resources Information Center) database, covering the fields of education and library-information science, became available in 1969, and Barbara Leff discussed its relevance to Judaica librarians and educators at an AJL Convention held in Cincinnati ten years later (Leff, Gold, and Miller, 1979, p. 44–45). "An Encounter with ERIC" was also part of SSC programming at the 16th Annual Convention of AJL held at Grossinger's in 1981. In these presentations, the emphasis was on *depositing* Jewish educational materials with ERIC, but the power of computerized retrieval was also recognized. Mrs. Leff published a brief paper on ERIC (Leff, 1980a) and described her vision of a "national computerized Jewish bibliographical database" (Leff, 1982a, p. 10). She also chaired a session on this subject at the 1983 AJL Convention held on the R.M.S. Queen Mary.

In the 1970s, the attention of Judaica research librarians in the U.S. was primarily focused on a Hebraic capability in cataloging, but a considerable amount of work was going on in Israel in the development of bibliographic databases.

In 1985, at the 20th Convention of AJL, held in Cleveland, OH, I presented a paper (unpublished) entitled "Judaica and Hebraica Cataloging Networks and Bibliographic Databases: the Agenda Before Us." I noted that in contrast to the pattern in the general world, in which bibliographic databases preceded full text databases, the first Judaic database was Bar-Ilan University's Responsa Project, which contained the full text of *she'elot u-teshuvot*, questions posed to rabbinic authorities along with their responses. The *AJL Bulletin* (vol. 2, no. 2, p. 16) reported in the Spring of 1977 on a satellite link between Bar-Ilan and Yeshiva University, designed to facilitate access to the database in the Western Hemisphere. The Responsa Project was demonstrated at the 16th Annual Convention of AJL in 1981 by Rabbi Yitzhak Ginsberg, and the Spring 1982 *AJL Bulletin* (vol. 17, no. 1, p. 5) reported that access to the database was available through the Institute for Computers in Jewish Life in Chicago.

Adler (1983) described a variety of Israeli bibliographic databases. He presented a

paper on the computerized *Index to Hebrew Periodicals* at the 20th AJL Convention, held in Cleveland in 1985. At the AJL-NYMA Reference Workshop, held in February 1990, Adler reported that *Index of Articles in Hebrew Studies* was available for online searching through ALEPH in Israel. [A rabbi of my acquaintance recently asked me to push a button on my computer and print out everything on *piyut* (liturgical poems), but we are not there yet in the U.S.!] A paper by Cecilia Harel (1984) had discussed the problems of access to online databases in Israel, but within the past few years many of these problems seem to have been overcome.

At the aforementioned AJL-NYMA workshop, Yael Penkower of the Jewish Theological Seminary discussed the Judaic content in many databases available through Dialog Information Services and other vendors. [*Her paper is published in this issue.*]. The American *Index to Jewish Periodicals* was not computerized by 1990, however, as negotiations with several commercial firms had fallen through.

The *AJL Newsletter* (vol. 6, no. 4, Nov./ Dec. 1987, p. 8–9) reported that the *Index of Jewish Art* went online in May 1987: "Jewish museums and private collectors around the world have been entering their holdings directly into the computerized index which, according to Bezalel Narkiss, is now the most sophisticated catalog of its kind."

A research-in-progress database was noted in the *AJL Newsletter* (vol. 7, no. 2, May/June 1988, p. 9): "the Jewish Genealogical Society . . . New York . . . maintains a computerized database listing names and localities being researched by almost 1,000 people from all over the world."

Several years earlier, the *AJL Newsletter* (vol. 4, no. 2, May/June 1985, p. 7) reported on another type of database: "The Holocaust Education Center in Jerusalem has . . . established a computerized directory of Holocaust survivors." This brings to mind a call I received at the YIVO Library's reference desk about a dozen years ago. The caller wanted me to check a name in a database of Holocaust victims. Upon being informed that no such database existed, he said, "Why not? There should be such a thing!" This demonstrates that the Jewish world is aware of computers and their capabilities, and expects databases of Jewish interest to be built. The Museum of Jewish Heritage is currently computerizing Yad Vashem's "Pages of Testimony," thus meeting the caller's expectations.

The addition of a section on "Computer-Readable Reference Tools" to Libby Kahane's (1990) column, "New Reference Books from Israel," marks the onset of the availability of portable databases in Jewish Studies. YIVO's Videodisc Project is an example of the inclusion of non-print media in a computerized database (Shandler, 1988). The geographic names are standardized, but there is free text access to the descriptions of the 17,000 images of East European Jewish life. The Museum of Jewish Heritage, now in the planning stages, is also developing databases that combine text and graphics. [*Zachary Baker's article, "Preserving Judaica Research Resources," in this issue, provides details on the Museum's "Interactive Encyclopedia of the Jewish Heritage."*]

6. Local Library Management Systems

AJL members who participated in the Association's 6th Annual Convention in Jerusalem in 1971 learned of the computerization plans of the Jewish National and University Library and of the Israel State Archives, in addition to seeing the automated library of the Technion (Miskin, 1971, p. 5, 6, 17). During the 11th AJL Convention held in Montreal in 1976, AJL members visited McGill University Library and heard a description of its automated catalog.

At the 14th AJL Convention held in Cincinnati, Richard Borgerson (1979, p. 105) reported that the Library of the Jewish Braille Institute of America had a computerized catalog with the ability to print customized lists by subject. (No details on hardware or software were given.) The *AJL Newsletter* of Feb./Mar. 1981 (p. 2) noted, in contrast, that "The Institute is *going* on computer, and a printout *will be* easily available for use soon" (emphasis added). As was the case with bibliographic utilities, setting up local library systems usually takes longer than anticipated.

The capabilities of ALEPH as an integrated library management system residing on a VAX minicomputer were described by Levi (1984) to the AJL community and presented at the 20th AJL Convention held in Cleveland in 1985. ALEPH's first American customer was the Annenberg Institute in Philadelphia. Aviva Astrinsky, the Library's Director, described the implementation of ALEPH at the AJL Convention held in June 1989 in Washington, DC.

The Jewish Theological Seminary (JTS) of America made the second purchase of an ALEPH system in the U.S., although the staff had done cost studies of ALEPH long before the Annenberg Institute was founded. Elhanan Adler came from Haifa to train the JTS staff in February 1990, as well as to work on the RLIN-ALEPH interface. ALEPH has had several American marketing agents in its brief history, and the quality of service will surely be a crucial factor in attracting additional customers.

Two RLG members, Brandeis and the New York Public Library have the Geac and Carlyle local library management systems respectively. Both institutions have requested that a Hebrew capability be added to these systems, but this does not seem to be forthcoming. If JTS and Annenberg report success, additional American Judaica libraries are expected to acquire ALEPH for local library management and for provision of an online public access catalog, while using RLIN as a bibliographic utility.

For smaller Judaica libraries, microcomputer-based library management systems have come on the market. Automated systems for small libraries was the theme of a session presented at AJL's 1987 Convention in Livingston, New Jersey and of the AJL-NYMA Conference held in April 1988. Simon (1990) described the implementation of such a system in a synagogue and religious school library.

An IBM-PC based Israeli system named LIBBY, designed for the management of libraries of up to 80,000 documents, was announced in the *AJL Newsletter* (vol. 3, no. 3, Sept./Oct. 1984, p. 11). Although a New York contact was listed, American Judaica libraries do not seem to have acquired the software.

In 1985 and 1986, Adler reported in *Judaica Librarianship* on a microcomputer-based library management system named Sifriah-83, marketed by TOP systems of Tel Aviv. I observed this system (which of course had a Hebrew capability) in operation at Israel Aircraft Industries. The system went through several name changes as it was enhanced, and it was expected that it would be marketed in the U.S. in 1990. Davka Corporation of Chicago, Illinois has recently advertised a package named Safran Davka (*Judaica Librarianship*, vol. 5, no. 1, 1989–1990, p. 21), which promises to give the Israelis tough competition.

7. Networks

The term *networks* does not necessarily entail computers. Networking in libraries and in other types of organizations may simply involve communication and cooperation. Barbara Leff was an advocate of Judaica library networking both before and after computers were a common technology in smaller libraries (Leff, 1979, 1980b). At the 14th AJL Convention held in Cincinnati, Ohio in 1979, Mrs. Leff spoke at a panel session on "Exploring the Feasibility of a Cooperative System for Judaica Libraries," and at the 21st AJL Convention held in Montreal in June, 1986, she organized a session on "Computer Networking in Small Libraries."

Today, local area networks are common in libraries that have a minicomputer-based library management system. One computer is the "brain" of the operation, and the smaller computers communicate with it.

ALEPH in Israel functions as a decentralized wide-area network. Libraries throughout Israel are connected to the network, but each maintains a separate catalog on the system. The inconvenience to the user of having to search catalog after catalog had led to the proposal that a union catalog of monographs be built. The latter project implies a certain degree of centralization.

American Judaica research libraries had once investigated ALEPH for its networking capabilities, but have begun to acquire it for its local library management capabilities. Israeli librarians have recently floated the idea of an international ALEPH network. In Israel, ALEPH is government-funded, and users, who are currently limited to the university community, pay no search fees. This is a very different situation from the one in the U.S. Given that most Judaica libraries in the U.S. that have purchased ALEPH, or that contemplate doing so, are also members of RLG, it seems unlikely that these libraries will pay for the maintenance of a second wide-area network. Secondly, RLIN has trans-Atlantic communications capabilities, and if the current work on an RLIN-ALEPH interface is successful, Israeli and American librarians could communicate with one another by that route. Israelis are already transmitting a Jewish studies newsletter to RLIN via BITNET that is in turn sent to selected RLG members through electronic mail.

The *AJL Newsletter* (vol. 5, no. 1, Feb./ Mar. 1986, p. 12) noted a computer bulletin board for Jewish information, called Golem, which was launched by the Institute for Computers in Jewish Life. A proposal to abolish the *AJL Newsletter* and "replace it with a communications system involving electronic mail and computer bulletin boards" (Kuperman, 1988b) was never adopted, although the author recognized that "provision must be made for service to members lacking access to computerized communications equipment." *Communal Computing News* (Fall 1989) noted that many Jewish electronic bulletin boards were no longer operating.

Conclusions

In 1969, AJL President Mae Weine proposed that the R & S Division undertake a project on "Computers" (*AJL Bulletin*, vol. 4, no. 2, May 1970, p. 2). Judaica research librarians were not interested in computers *per se* as machines, as toys, or as status symbols—although Donald Deitch noted that "at Yeshiva University, OCLC serves more as a catalytic agent than as a cataloging tool. It is glamorous and . . . something that administrators like to show off" (Cutter, Singerman, and Deitch, 1975, p. 22).

American Judaica libraries were interested in a Hebrew capability in computers, but that alone did not suffice—otherwise the Jewish Library System would have been acquired. Judaica research librarians were most interested in the *information* that could be derived via computers, hence the title of my paper at the 1988 Harvard Conference: "From Copy Cataloging to Derived Bibliographic Records" (Weinberg, 1989).

In the area of Hebrew capability on computers, the bulk of developments in the U.S. occurred in the 1980s, at a dizzying pace. It was an exciting time to be a part of the profession and a participant in the events. Judaica research librarians exchanged much information at CARLJS meetings, but AJL publications have recorded the outcomes for posterity.

In the general library world, there were major automation projects that failed or that were scrapped. Judaica libraries did not have the resources to develop customized local systems, so there was no need to discard them. With the benefit of hindsight, one might say that Judaica research librarians bet on the wrong horse in joining OCLC, but there was no reason to believe that a major bibliographic utility with NEH support would not keep its promise to de-

velop a Hebrew script capability. Secondly, RLG came later than OCLC, so there was no alternative network for American Judaica libraries in the 1970s. Finally, records created on OCLC can be tape-loaded on RLIN since both networks follow the MARC format, so no work was lost. As the last decade of the twentieth century began, plans were announced for cooperation between the two networks in such areas as the standardization of character sets.

The creation of local databases in nonstandard formats for a single library function, such as acquisitions or circulation, appears to be a waste of library resources, as such capabilities are available either on bibliographic utilities or in integrated local library management systems. The advice given to SSC librarians in the early 1980s to computerize production of overdue notices was not wise, as it does not make sense to input bibliographic data and then delete it after a transaction is complete. When a catalog is in machine-readable form, however, adding a circulation function does save labor.

American Judaica librarians were not far behind their colleagues in other types of libraries in incorporating computer technology into their libraries, and computer literacy is one of the qualifications listed in recent job announcements. Judaica research librarians are expected to be familiar with OCLC or RLIN, but an ad for a part-time synagogue librarian (*AJL Newsletter*, vol. 6, no. 3, Sept./Oct. 1987, p. 13) also specified "familiar with computer cataloging."

The first quarter century of AJL witnessed a great deal of progress in the automation of Judaica libraries of all types and sizes. An independent Judaica library network did not emerge, however, and R & S and SSC libaries participated in different types of bibliographic utilities.

Forecasts

I would not classify myself as a historian, although I sometimes write reviews of this type, and I certainly do not consider myself a futurist. The last time I made a prediction related to Judaica library automation, it was that "a torrent of computer-produced Hebraica catalogs will descend upon us" (Weinberg, 1980, p. 348). That statement was predicated upon the promised Hebraic capability of OCLC. Although RLIN now has this capability, its reports system does not have the ability to print Hebrew. Given the fact that one may download Hebrew

records from RLIN, some enterprising Judaica librarian with programming skills will undoubtedly develop the capability to reformat downloaded records to produce printed lists of recently cataloged items, and eventually, of the entire holdings of a retrospectively converted library.

Judaica library automation tends to follow the pattern of automation in the general library world; thus one may safely predict the following developments during AJL's second quarter century:

(1) More Judaica libraries will join bibliographic utilities.

(2) As the number of Judaic and Hebraic records in the RLIN database grows, more libraries will undertake retrospective conversion.

(3) The use of desktop publishing and database management software with Hebrew capabilities will become common.

(4) Judaica periodical indexes will computerize and be mounted as publicly available databases.

(5) Israeli databases will be loaded on compact disc, and made available to the American community.

(6) More Judaica libraries will acquire local library management systems, including online public access catalogs, and close their card catalogs.

(7) With the continued miniaturization of computers, concomitant with their increased power, the complete holdings of a large American Judaica research library will be capable of being stored on a microcomputer.

(8) Following the current interest in merging catalogs and indexes, Judaica libraries will integrate access to books and periodical articles in a single database.

(9) Judaic databases combining text, audio, and graphics will be developed, especially in Jewish museums.

(10) A torrent of computer-produced Hebraica catalogs will descend upon us.

In the year 2015, when the Association of Jewish Libraries celebrates its 50th anniversary, please God, it will be fun to reexamine these predictions.

References

News items from the *AJL Newsletter* and the *AJL Bulletin* as well as reports in the AJL Convention *Proceedings* are cited in the text of the article, but are not given formal references here.

Adler, Elhanan. "Judaica Automation in Israel—an Overview." *Judaica Librarianship* vol. 1, no. 1 (Fall 1983), p. 9–11.

Adler, Elhanan. "The Library Automation Scene in Israel—1985." *Judaica Librarianship* vol. 2, no. 1–2 (Spring 1985), p. 7–8.

Adler, Elhanan. "The Library Automation Scene in Israel—1986." *Judaica Librarianship* vol. 3, no. 1–2 (1986–1987), p. 21–23.

Adler, Elhanan. "The Use of Israeli Machine-Readable Cataloging by American Libraries: A Proposal." *Judaica Librarianship* vol. 4, no. 1 (1987–1988), p. 23–26.

Aliprand, Joan M. "Hebrew on RLIN." *Judaica Librarianship* vol. 3, no. 1–2, (1986–1987), p. 5–16.

Aliprand, Joan M. "Hebrew on RLIN—An Update." *Judaica Librarianship* vol. 5, no. 1 (1990), p. 12–20.

[ANSI, 1975] *American National Standard Romanization of Hebrew.* New York: American National Standards Institute, 1975. (ANSI Z39.25–1975).

Borgerson, Richard. "Jewish Resources for the Blind and Visually Impaired." *Proceedings of the 14th Annual [AJL] Convention,* Cincinnati, Ohio, June 17–20, 1979, p. 101–105.

Cutter, Charles; Singerman, Robert; Deitch, Donald. "Panel Presentation: The Ohio College Library Center." (Recorder: Leonard Gold). *Proceedings of the 10th Annual [AJL] Convention,* Miami Beach, June 1975, p. 20–23.

Degani, Edith. "OCLC and the Library of the Jewish Theological Seminary." *Proceedings of the 15th Annual [AJL] Convention,* Philadelphia, June 1980, p. 65–66.

Dienstag, Claire B. "Cataloging Procedures in the Jewish Division of the New York Public Library." *AJL Bulletin* vol. 16, no. 1 (Spring 1981), p. 7.

Frischer, Rita Berman. "The Central Cataloging Service of the Sinai Temple Blumenthal Library." *Judaica Librarianship* vol. 4, no. 1 (Fall 1987–Winter 1988), p. 68–75.

Gilner, David J.; Kovacic, Ellen Siegel; Zafren, Herbert C. "Hebrew Cataloging at Hebrew Union College on an Apple II+." *Judaica Librarianship* vol. 1, no. 1 (1983), p. 4–8.

Gold, Leonard. "A Word from the Presidents." *AJL Bulletin* vol. 9, no. 1 (Dec. 1974), p. 1–2.

Harel, Cecilia. "Online Database Services in Israel: the State of the Art." *Judaica Librarianship* vol. 1, no. 2 (1984), p. 50–52.

Kahane, Libby. "New Reference Books from Israel, 1988/89." *Judaica Librarianship* vol. 5, no. 1 (1990), p. 90–95.

Katchen, Rosalie E. "Retrospective Conversion of Hebraica at Brandeis University." *Judaica Librarianship* vol. 4, no. 1 (1987–1988), p. 20–22.

Katchen, Rosalie E. "Hebrew Online: Current Issues and Future Concerns—A View From the Field." *Judaica Librarianship* vol. 5, no. 1 (1990), p. 22–25.

Kuperman, Aaron Wolfe. "Hebrew Word Processing." *Judaica Librarianship* vol. 3, no. 1–2 (1986–1987), p. 17–20.

Kuperman, Aaron Wolfe. [1988a]. "Hebrew Word Processing: A Review of Available Products." *Judaica Librarianship* vol. 4, no. 1 (1987–1988), p. 6–12.

Kuperman, Aaron Wolfe. [1988b]. "Proposal to Abolish *AJL Newsletter*" [Letter]. *AJL Newsletter* vol. 7, no. 1 (Feb./Mar. 1988), p. 3.

Kutnick, Donna. "In-House Hebraica Card Production: The Experience of the Balch Institute for Ethnic Studies." *Judaica Librarianship* vol. 4, no. 1 (1987–1988), p. 14–16.

[LC, 1976a]. "Hebrew and Yiddish" [Romanization table]. *Cataloging Service,* Bulletin 118 (Summer 1976), p. 63.

[LC, 1976b]. "Schedule of Automation of Cataloging Revised." *Library of Congress Information Bulletin* vol. 35 (Nov. 12, 1976), p. 689.

Leff, Barbara. "New Project: Formal Cooperation Among Libraries of Judaica." *AJL Bulletin* vol. 13 [i.e. 14], no. 1 (Winter 1979), p. 18.

Leff, Barbara [1980a]. "ERIC? ERIC Who?" *AJL Bulletin* vol. 15, no. 2 (Winter 1980), p. 11.

Leff, Barbara [1980b]. "Exciting News from AJL Committee on Cooperation." *AJL Bulletin* vol. 15, no. 1 (Spring 1980), p. 7.

Leff, Barbara; Frischer, Rita C. "Association of Jewish Libraries." *The ALA Yearbook, 1980.* Chicago: American Library Association, 1980.

Leff, Barbara [1982a]. "A Jewish Database?" *AJL Bulletin* vol. 17, no. 1 (Spring 1982), p. 9–10.

Leff, Barbara [1982b]. "Microcomputers in Libraries: A Preliminary Report." *AJL Bulletin* vol. 17, no. 1 (Spring 1982), p. 12.

Leff, Barbara; Gold, Leonard; Miller, Philip E. "Exploring the Feasibility of a Cooperative System for Libraries of Judaica." *Proceedings of the 14th AJL Convention,* Cincinnati, OH, 1979, p. 43–53.

Levi, Judith. "ALEPH: An Online Real-Time Integrated Library System." *Judaica Librarianship* vol. 1, no. 2 (1984), p. 58–63.

Maher, Paul. *Hebraica Cataloging: A Guide to ALA/LC Romanization and Descriptive Cataloging.* Washington, DC: Library of Congress, 1987.

Meadow, Charles. "Back to the Future: Making and Interpreting the Database Industry Timeline." *Database* vol. 11 (Oct. 1988), p. 14–31. Reprinted in *Library Lit. 19: The Best of 1988.* Metuchen, NJ: Scarecrow Press, 1989.

Miskin, Rose (narrator). *Proceedings of the Sixth Annual [AJL] Convention,* Jerusalem, August 1971.

Shandler, Jeffrey. "People of a Thousand Towns: YIVO's Videodisc Project." *Jewish Folklore and Ethnology Review* vol. 10, no. 1 (1988), p. 18.

Simon, Ralph. "Online at the Synagogue and Religious School Library: The Background, Planning, and Implementation of a Computerized Library Management System." *Judaica Librarianship* vol. 5, no. 1 (1990), p. 26–28.

Wasserman, Dorothy. "Bidirectional, Multiscript Word Processing and Desktop Publishing Programs for IBM Compatibles and Macintosh Computers." *Judaica Librarianship* vol. 5, no. 1 (1990), p. 6–10.

Weinberg, Bella Hass. *Implications of Changes in Library of Congress Cataloging Policy for Judaica/Hebraica Librarians.* [s.l.]: Association of Jewish Libraries, 1978.

Weinberg, Bella Hass. "Hebraica Cataloging and Classification." In: *Cataloging and Classification of Non-Western Material: Concerns, Issues and Practices,* ed. by Mohammed M. Aman. Phoenix, AZ: Oryx Press, 1980, p. 321–357.

Weinberg, Bella Hass. *Hebrew Computers for Libraries: The State of the Art.* Transcribed [from a presentation] to the CARLJS Biennial Meeting at the Convention of the Association of Jewish Libraries in Atlanta, June 25, 1984 and summarized by Shirley Schwartz. New York: Council of Archives and Research Libraries in Jewish Studies, 1984.

Weinberg, Bella Hass. "Retrospective Conversion of Hebraica Catalog Records: Options, Issues, and Visions." *Judaica Librarianship* vol. 4, no. 1 (1987–1988), p. 17–20.

Weinberg, Bella Hass. "From Copy Cataloging to Derived Bibliographic Records: Cataloging and its Automation in American Judaica Research Libraries from the Sixties through the Eighties." In: *Judaica Librarianship: Facing the Future:* Proceedings of a Conference held at Harvard, May 1988. Cambridge, MA: Harvard University Library, 1989, p. 1–13. Reprinted in *Judaica Librarianship* vol. 4, no. 2 (Spring 1988–Winter 1989), p. 118–122.

Wiener, Theodore. "A Report of the 15th Annual Convention of the Association of Jewish Libraries, Philadelphia, PA., June 22–25, 1980." *AJL Bulletin* vol. 15, no. 2 (Winter 1980), p. 8, 22. Reprinted from *LC Information Bulletin,* Sept. 26, 1980.

Wiener, Theodore. "Convention 1987." *AJL Newsletter* vol. 6, no. 3 (Sept./Oct. 1987), p. 3–4.

Yeshiva University, Library Staff. "MINCE: Hebrew-English Word Processor: Some Useful Hints." *Judaica Librarianship* vol. 4, no. 1 (1987–1988), p. 13.

Zafren, Herbert C. [1969a]. "Computers, Transliterations and Related Things." *Proceedings of the 4th Annual [AJL] Convention* 1969, p. 55–56.

Zafren, Herbert C. [1969b]. [Letter]. *AJL Bulletin* vol. 4, no. 1 (Dec. 1969), p. 4.

Zafren, Herbert C. "Romanization of Hebrew: an Interim Report." *Proceedings of the 7th Annual [AJL] Convention,* Toronto, 1972, p. 33–39.

Zipin, Amnon. [Hebrew in Computerized Cataloging in the USA."] *Yad Lakore* vol. 17, no. 4 (1978), p. 194–199. In Hebrew. Abstract in English.

Zipin, Amnon. "Romanized Hebrew Script in the Online Catalog at the Ohio State University Libraries." *Judaica Librarianship* vol. 1, no. 2 (1984), p. 53–57.

Appendix: Initialisms and Acronyms

The following initialisms and acronyms are used in the paper. The full meaning of each is given the first time the abbreviated form appears in the text. The complete list is given here for ease of reference.

ALA: American Library Association

AJL: Association of Jewish Libraries

AJL-NYMA: AJL-New York Metropolitan Area Chapter

ANSI: American National Standards Institute

CARLJS: Committee [later] Council of Archives and Research Libraries in Jewish Studies

CJK: Chinese, Japanese, and Korean

ERIC: Educational Resources Information Center

HUC: Hebrew Union College—Jewish Institute of Religion

JAMES: Jewish and Middle East Studies (Program Committee of RLG)

JTS: Jewish Theological Seminary of America

LC: Library of Congress

MARC: Machine-Readable Cataloging

NEH: National Endowment for the Humanities

NISO: National Information Standards Organization

NYPL: New York Public Library

OCLC: Ohio College Library Center; [later] Online Computer Library Center

RLG: Research Libraries Group

RLIN: Research Libraries Information Network

R & S: Research & Special Libraries [Division of AJL]

SSC: Synagogue, School and Center [Division of AJL]

YIVO: *Yidisher Visnshaftlekher Institut* = YIVO Institute for Jewish Research.

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