

# Judaica Automation in Israel — an Overview

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## Introduction

The use of computers for the organization, retrieval and analysis of textual information is not new, and scientific and technological information services have been automated for many years. The use of computers in the humanities, however, has become widespread only very recently for a variety of reasons — among them the fact that scholars of the humanities have been among the last to become "computer-literate." Regardless of the reasons — the last few years have shown activity and interest in this field.

In the area of Judaica much of the computer development has centered in Israel — both because Israel is the center of Judaica research today and because the hardware, software and personnel for dealing with Hebrew data are readily available. Many varied, sometimes overlapping, projects are underway. Some are well known; others are hardly known even in Israel.

The purpose of this overview is to report on the various systems — both operational and under development — which are found in Israel. It will not deal with library "housekeeping" functions such as circulation or acquisitions which have no unique Judaica aspects. Similarly, the library and information systems being used by the medical, scientific and technological libraries in Israel will be omitted as they are no different from such systems in other countries.

In this report I will try to present an overview of Judaica automation in Israel with a brief description of some of the projects underway. In subsequent columns, more detailed information regarding specific projects will be given.

In libraries where ALEPH is fully implemented (at this point only the Mount Scopus library) there is no card catalog and all user access is via terminals. The user has a choice of conducting his search with either Hebrew or English prompts. Bibliographic data are either in Roman upper-case or Hebrew letters, all other scripts being either "romanized" or "hebraized." As of Summer 1983, ALEPH includes the following functions: catalog search, cataloging (but not card production), authority file maintenance and circulation.

Acquisitions and serials check-in are planned.

ALEPH currently runs on a dedicated CDC 170-815 mainframe to which all terminals are connected. Network development plans envisage a decentralized framework with local mini or super-mini computers in each library capable of communicating with each other and/or with a central network computer.

## *The University of Haifa*

The University of Haifa Library has developed systems for both automation of library management functions and general-purpose bibliographic processing (see below). These systems are quite different from ALEPH, for reasons which are both professional-philosophic and economic. The Haifa system is based on a PDP 11/34 minicomputer and several microcomputers.

The Haifa approach has been to gradually automate individual library functions (at this point cataloging and circulation, with acquisitions under development) — leaving the online catalog with its extensive computer requirements for last. The cataloging system is therefore designed for the creation and storage of machine-readable cataloging records as well as for card production and includes the following services:

1. cataloging copy and card sets from LC MARC
2. original cataloging and card production (Roman and Hebrew) using local microcomputers as data entry stations
3. retrospective conversion and creation of COM (Computer-Output-Microform) or book catalogs
4. maintenance of archival files

Four of the seven Israeli university libraries (Haifa, Ben-Gurion, Bar-Ilan and the Technion) make use of all or part of these services. This has created a de-facto network, although no formal network framework exists (Adler, 1983). The relation between this system and the proposed ALEPH-based network is as yet unclear. The University of Haifa intends to continue developing its system with an eye towards its integration in the decentralized national model previously mentioned.

## Information Storage and Retrieval Systems

### *Hobits*

HOBITS (Haifa Online Bibliographic Text System) is the University of Haifa's software package for the maintenance of bibliographic files and thesauri, creation of printed bibliographies and online searching. HOBITS is currently being used for some twenty different bibliographic projects, some in-house and some on behalf of various research institutes and scholars. Among these projects are:

*The Index to Hebrew Periodicals, 1977- :* printed annual volumes and tri-annual microfiche cumulations. The *Index* data base of some 60,000 citations can be searched online using a thesaurus of over 10,000 terms and a state-of-the-art search program. Indexing is done by the University of Haifa Library.

*The Eretz Israel Data Bank:* a retrospective data base containing books and articles in all languages dealing with the history, geography and archaeology of the Land of Israel. As of 1983 it contains over 5,000 items which are accessible via the above-mentioned thesaurus and online search program. Part of the data base will probably be published on microfiche in the near future. Indexing is done by the University of Haifa Library with financial support from Yad Ben-Zvi and several foundations.

*Index to 19th Century Eretz-Israel Newspapers:* As of 1983 it contains over 7,000 articles from *ha-Havatsalet*; input of material from *ha-Magid* is underway. Indexing is done by Yad Ben-Zvi. The index is searchable via printout at Yad Ben-Zvi or online at the University of Haifa.

Other projects underway or completed include: Yiddish literary periodicals (published), Kibbutz bibliography (2 vols. published), Psychological and medical effects of concentration camps (published), Jewish history in the Hellenistic and Roman periods (1976-1980, published), Israeli-Hebrew monographs, 1948-1982 (Center for Public Libraries cataloging data, published).

Projects beginning include: Index to the Israel Folktale Archives, Retrospective index to Judaica journals (Indexing by Bar-Ilan University Library) and an index to literature on Medieval poetry and Piyutim, based on the annual Schirmann bibliographies in *Kiryat Sefer* (a joint project of the libraries of Haifa and Ben-Gurion Universities).

### **Responsa Project**

The Responsa Project at Bar-Ilan University is a full-text information retrieval system containing several hundred responsa monographs from the 8th century to the modern period. Unlike bibliographic retrieval systems, this system stores the entire text (40,000,000 words, as of August 1983) in the computer and the searcher can read the entire text of a responsum retrieved in reply to a query. Access is via a concordance of words appearing in the text rather than indexing terms. Much important research in Hebrew computational linguistics has been done as part of this project (Choueka, 1980).

The project runs on the IBM 370/168 computer at the Bar-Ilan computer center. Remote terminals exist for off-campus access.

### **Hardware and Software**

All major Judaica projects in Israel are based on hardware of American manufacture (primarily Control-Data, IBM and Digital Equipment Corporation). Peripheral devices are usually American also — terminals and printers being adapted in Israel to enable display of Hebrew characters according to the accepted Israeli standards (for details see Adler, 1982).

Programming languages are also standard, most software being written in COBOL, PL/1 or BASIC. Most application software is locally developed — adapting a foreign software package to handle processing and display of Hebrew data has been generally considered more difficult than original development. Standard system software, including data base management systems, are often retained. Programs are usually written in-house, within the institution operating the system.

### **Library Automation Systems**

Library automation activity in Israel is centered in the university and special libraries. The public and school libraries have as yet shown little activity in this

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area, although this will change soon as inexpensive microcomputer-based systems come more and more into use. The two major library systems which were planned to handle large quantities of Hebraica are found at the Hebrew University of Jerusalem and at the University of Haifa Library.

### **The Hebrew University of Jerusalem**

ALEPH (Automated Library Expandable Program, Hebrew University) is an on-line catalog and library management system able to support a network of libraries with a shared catalog or separate catalogs. At this point ALEPH primarily serves the Social Sciences and Humanities Library of the Hebrew University at Mount Scopus and is being gradually expanded to cover other Hebrew University libraries. The Jewish National and University Library (JNUL) enters its current cataloging into ALEPH while maintaining its manual cataloging apparatus. Reader access at JNUL is still via the card catalog. ALEPH has been chosen by the University Grants and Planning Committee of the Council on Higher Education to serve as the basis for a national inter-university bibliographic network. Implementation of this plan will be gradual for many reasons: professional, technical and economic.

### **Diaspora Museum**

The Diaspora Museum in Tel-Aviv, as part of its audio-visual approach to Jewish history, has a full-text retrieval system which presents information on various Jewish communities. The data retrieved is primarily from the *Encyclopedia Judaica* and therefore the system is, at this stage, more of a tourist attraction than a research tool.

The software, which was written by an outside software house, is able to handle both Hebrew and English data and contains sophisticated features which are not being fully used because of the popular nature of the data processed to date. The system runs on the museum's PDP 11/70 minicomputer.

### **Hebrew Paleography Project**

The Hebrew Paleography Project (of the Israel Academy of Sciences and Humanities in association with the Jewish National and University Library) uses a computerized system to record codicological features of Medieval Hebrew manuscripts as well as data on date of writing, scribes, owners, script, place of writing, etc. An online retrieval program is being developed.

### **Text Processing Systems**

In addition to the Bar-Ilan Responsa Project which stores and analyzes text for retrieval purposes, several other projects are underway which process Hebrew texts for a variety of other research purposes. Two major ones are:

### **The Historical Dictionary of the Hebrew Language**

The Academy of the Hebrew Language uses a computerized system to analyze Hebrew texts from various periods with the aim of establishing when a certain word was used, in what grammatical form, in what type of literature, etc.

### **Critical Edition of the Mishnah**

The Israel Academy of Sciences and Humanities sponsors a project to collect and process various manuscript texts of the Mishnah with the aim of preparing and typesetting the critical apparatus of variant readings via computer.

### **Cooperation and Coordination**

All the above-mentioned projects came into being independently, with little formal or informal coordination. In March 1983, the Israel Academy of Sciences and Humanities called a meeting of representatives of the universities and the major Judaica automation projects, as well as individual scholars of Judaica doing computer-aided research. The consensus of this meeting was that there is a need for greater coordination,

particularly to prevent duplication of effort in software development and in data entry (i.e., re-keying of major textual files). As a result of this meeting a questionnaire is being prepared which should lead to a detailed inventory of automated Judaica projects. Whether this will lead to real cooperation and coordination is yet to be seen.

### Conclusion

Although a relatively recent development, the use of computers in Israel for Judaica and Hebraica applications has reached a significant level of achievement in the areas of library automation, bibliographic control, online searching, and textual analysis. The future will, we hope, see greater cooperation and coordination, both on national and international levels.

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