Bibliographic Programs: Part One

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This is the first of a three-part review featuring bibliographic programs for IBM PCs and compatibles.[1] Part One examines two products, i.e., *Library Master* and *Endnote*. Before introducing these packages, however, I will provide a brief explanation of what a bibliographic program is, and what it does.

A bibliographic program[2] automates the production and maintenance of bibliographies.[3] It accomplishes this task by carefully organizing data into fields, records and databases. A field is a unique category of data (e.g., Camille Paglia). A record is simply a set of fields (e.g., 1. Camille Paglia; 2. Sexual Personae: Art and Decadence from Nefertiti to Emily Dickinson; 3. Vintage Books; 4. New York; and 5. 1990). A database is a collection of all records. This structure is often likened to that of a filing drawer. The database is the file drawer itself. The database is composed of records in the same way that a file drawer contains individual file folders. Fields are the individual pieces of data inside the folder. This organizational structure insures that even very large quantities of data can be rapidly searched and powerfully manipulated.[4]

As a way of describing bibliographic programs in more practical terms, we may highlight some of their operating characteristics. Bibliographic programs request data by presenting the user with a series of prompts (field labels). Because font attributes, field order, connecting punctuation and page formatting are handled automatically by the program when a bibliography is generated, only "raw" data needs to be entered. Indeed, if the relevant data already exists in electronic form one can escape the drudgery of data entry by utilizing an automatic import facility.

Once the raw data is entered, records can be swiftly edited or browsed. In addition, powerful searching capabilities allow case specific data to be quickly retrieved. Editing, browsing, retrieving and sorting data, however, is just the beginning. It is in generating hard copy (or a text file that can be readily converted to hard copy) that a bibliography program is guaranteed to astonish. Only a few keystrokes are needed to convert hundreds, thousands, or even tens of thousands of raw entries into a finished

bibliography, correctly formatted according to the rigorous specifications of a selected academic style. Some programs will even prepare a document's in-text citations, and automatically append a formatted list of works cited to the end of a document.

Anyone who performs academic research will benefit richly from this type of program. In fact, because bibliographic programs are to bibliographical data what word processors are to free form text, new users will quickly wonder how they ever worked without one!

Library Master

Program Orientation. Library Master is a textual database management system capable of handling all types of data including engineering project reports, lecture outline, catalogues, mailing lists and archive holdings. It is also a powerful bibliographic management system that has been developed with a sensitivity to the demands of scholarly research in religion.

General Aspects. The 270+ page manual clearly documents the program's many features. However, its cluttered, manuscript-style layout and proportionally small index make it somewhat difficult to navigate. In addition, those purchasing *Library Master* will be disappointed that a tutorial and quick reference guide to bibliographic management are not part of the package. On the brighter side, installation is straight forward, context sensitive online help is included, and a menu interface provides for relatively easy program navigation. While mouse support is not included, macros help simplify repetitive keyboard operations. A set-up utility (that might better be integrated into the main *Library Master* program) permits users to customize easily various aspects of the program (e.g., screen colours and default paths).

Database Structure. Library Master comes pre-configured with two full bibliographic database structures. BIBLIO1 represents the standard structure, while BIBLIO2 adds an extra field for scripture or literature references. A USE field, SUBJECT field and DESCRIPTION (annotation) field (present in both structures) allow records to be adorned with a variety of special information. In fact, each record may contain as many as 65,000 characters, and each database as many as 65,533 records. (Of course, multiple databases are also supported.) Different types of bibliographical

entries (e.g., book, journal, thesis, interview, etc.) are supported through the use of multiple field and record types. Each database can contain as many as 50 record types! In terms of database structure *Library Master* is an extremely flexible program indeed.

Figure 1: Edit Screen Showing Preview Window

    Data Entry. Data input/editing features include automatic word-wrap, cut and paste, search and replace, variable font attribute support, and full support for accented Western European characters. Function keys provide access to other first-rate options. For example, <F2> allows one to preview the current record, formatted according to the default bibliographical style in a pop-up window (Figure 1). <F4> pops up a menu list of available record types. Record types can be changed even after editing has begun. Data is then automatically transferred to the corresponding fields in the new type. Three relatively important features are missing from the present version of *Library Master*. These are automatic capitalization, a pop-up glossary of journal abbreviations, and an Undo/Restore field edit option.[5]

Importing/Exporting. A customizable import utility is included at no extra cost. However, it is not accessible from *Library Master's* main menu. This utility has the ability to transfer data from a broad spectrum of database programs, bibliographic programs, word processors and on-line services, directly into a *Library Master* database. For example, material downloaded from on-line library catalogues (e.g., McGill's MUSE or University of Toronto's FELIX), or bibliographical data saved as a text file, can be effectively imported with only a minimal amount of pre-import or post-import formatting. While a wide selection of import parameter files are included, users can also design their own. For exporting data to other database programs, a tagged format file is included. Custom export files must be designed by the user.

```
MODE: SEARCH     DB: E:\LIB\DATA\BIBLIOG
                          ┌───────── AUTHORS: ─────────┐
                          │ Churton, Tobias            │
   1 AUTHORS      11 VO   │ Countryman, L. Wm.    ER 31 ORIG PERIODI
   2 TITLE        12 PA   │ Cowen, Gerald         NUM 32 ORIG VOLUME
   3 PUB LOCATION 13 TR   │ Croce, Benedetto      ON  33 ORIG PAGES
   4 PUBLISHER    14 OR   │ Crossan, John Domini      34 ORIG BOOK
   5 DATE         15 SE   │ Cunningham, Agness    S   35 RECORD TITLE
   6 EDITION      16 ED   │ Dart, John                36 BOOK AUTHORS
   7 CALL NUMBER  17 US   │ Davies, J. G.         LE  37 PERFORMER
   8 ABBREVIATION 18 BO   │ Davies, Stevan L.     LOC 38 PERFORM ROLE
   9 LOCATION     19 TY   │ Davison, James E.     ISH 39 SECTION
  10 PERIODICAL   20 NU   │ Deissmann, Adolf          40 TRANS TITLE
                          │ Donovan, Mary Ann          │
                          │ Drijvers, Han J. W.        │
                          │ Eagleton, Terry            │
                          │ Eusebius                   │
                          │ Farmer, William J.         │
                          │ Febvre, Lucien             │
                          │ Finegan, Jack              │
                          │ Fox, Robin Lane            │
                          │ Frend, W. H. C.            │
                          │ Godwin, Jocelyn            │
                          └─────PRESS ESC TO QUIT─────┘
 F1HELP    F2SELECT FLD    F3FLD CONT    F5CLEAR       F10SEARCH      ESCQUIT
```

Figure 2: Search Screen with Pop-Up Indexed Field Window

Searching. *Library Master* excels in its provision for fast and flexible searching. Users can search for words which appear anywhere in a field, words which appear anywhere in a record (global search), word stems (truncation) and phonetic equivalents (approximate search). Empty fields can be located, and leading articles ignored. Multiple field searches are performed

using Boolean[6] AND, OR and NOT operators.[7] Date fields can be search-
ed using equals, not equals, greater than and less than, relational operators.
In addition, up to eight fields per database can be indexed. Searching an
indexed field almost immediately pops up an alphabetically ordered list of
the terms in that field (Figure 2). Highlighting a term selects all the records
to which that term is attached. For example, searching the author field will
immediately pop up a alphabetized list of authors. Highlighting a particular
author will automatically select all those works written by her/him. Once
records are located they can be saved as a subset or immediately processed.

Bibliography Generation. Processing a formatted bibliography is as
easy as selecting five menu options, namely, the Generate Mode, a Record
List, a Format File, a Style Sheet and a Sort Order (of course, a macro
could reduce this procedure to a single key combination). The Generate
Mode refers to the place where the bibliography will be processed. Data can
be sent to the screen (useful for previewing data before producing a
hardcopy), a printer (dot-matrix and laser support is included), or a text
file. *Library Master* provides support for *WordPerfect 4.x/5.x, Microsoft
Word RTF, Wordstar, WordStar 2000, MegaWriter* and ASCII text file
formats. The Record List represents the group of entries which will be
processed. One can process an entire database or any subset thereof. A
Format File controls general page formatting and field selection,[8] while a
Style Sheet handles the more delicate job of field selection, font attributes
(e.g., underlining) and field order.[9] The Sort Order option allows one to
select which fields are being compared when the bibliography is sorted. All
of this choice is indicative of *Library Master*'s flexibility, and the author's
desire to give the user maximum control over the output.

General Assessment and Upgrade Notes. Library Master offers a great
deal of power and flexibility at a reasonable cost. I especially like the fact
that *Library Master* is not only a first-rate bibliographical package, but is
also a capable general textual database management system. (For example,
I use it to handle multiple mailing lists.) Almost all the shortcomings of the
present version's (1.24) bibliographic implementation will be addressed by
version 2.0, which Balboa Software plans to release in mid-1992. This
upgrade will support in-text citations (with humanities footnote formats and
automatic creation of bibliographies from citations in a document), a journal
abbreviation table, more powerful name parsing in bibliographies (e.g.,
automatic abbreviation of first and middle names to initials and case conver-
sion, etc.), more bibliographic styles and import formats, and duplicate

eliminations. If the written documentation improves and the price increase is kept modest, version 2.0 will be an awesome package indeed.

Endnote

Program Orientation. Endnote is best described as an in-text citation processing program with database management capabilities. As such, it possesses a level of functionality foreign to *Library Master* (in its present incarnation). *Endnote* excels at preparing *WordPerfect* and *Microsoft Word RTF* text files with properly formatted in-text citations[10] and a formatted list of works cited. While it offers a satisfactory array of database management features, it cannot compete, in this respect, with the power and flexibility of *Library Master*.

General Aspects. The written documentation is well designed, and includes a sufficiently detailed index. A brief "guided tour," a quick reference sheet and context sensitive on-line help are all part of the package. The user-friendly menu interface represents an aesthetically pleasing combination of pull-down menus and resizable pop-up windows that can be navigated most effectively with a mouse (Figure 3). Keyboard users will find access to the menu options via the <F10> or <\> keys a little awkward. However, many commands are more directly accessible via <CTRL> and <ALT> combinations. Macros are not supported, and a set up option/program is not included.

Data Entry. A variety of input/editing features are supported. Among these are automatic word-wrap, cut and paste, variable font attribute support, full support for accented Western European characters and partial support for a Greek ("symbol") font. While a search and replace feature is not included, a handy Undo field edit feature is. Previewing a formatted entry is possible via the Copy Formatted and Show Clipboard command combination. This approach to previewing data is indirect and awkward, especially if one is using a keyboard (<CTRL> quick keys are not supported for these options). Finally, there is no automatic capitalization feature or a pop-up glossary of journal abbreviations.

Importing. Automatic importing/exporting of data from/to the MS-DOS version of *Pro-Cite*, and the UNIX programs *Refer* and *BibIX* is supported. To import data from a word-processing text file users are advised to reformat their references into the tagged *Refer* format. Automatic

importing of data from on-line databases is supported via the add-on *Endlink* program.
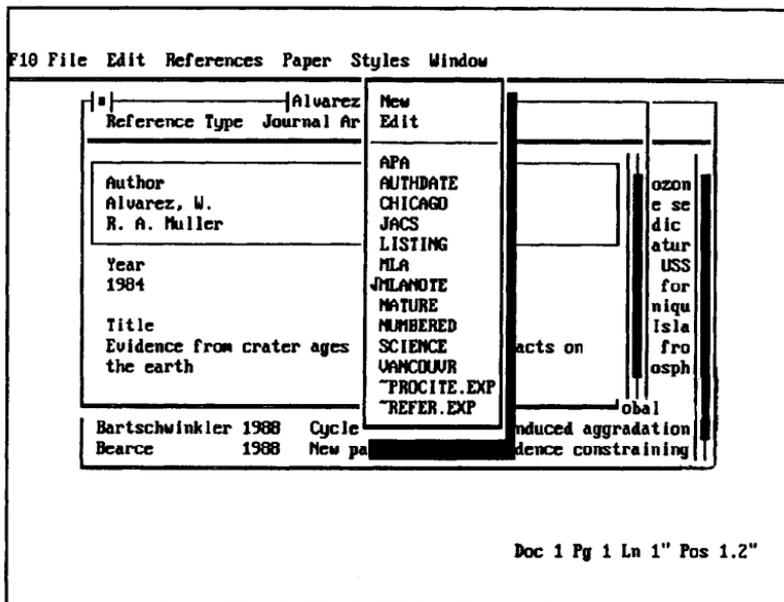


```
F10 File  Edit  References  Paper  Styles  Window

     ┌─■┤──────────┤Alvarez│ New │
     │  Reference Type  Journal Ar│ Edit │
     │                             ├──────────┤
     │ ┌───────────────────────┐   │ APA      │
     │ │ Author                │   │ AUTHDATE │       │ozon│
     │ │ Alvarez, W.           │   │ CHICAGO  │       │e se│
     │ │ R. A. Muller          │   │ JACS     │       │dic │
     │ │                       │   │ LISTING  │       │atur│
     │ │ Year                  │   │ MLA      │       │USS │
     │ │ 1984                  │   │ ~MLANOTE │       │for │
     │ │                       │   │ NATURE   │       │niqu│
     │ │ Title                 │   │ NUMBERED │       │Isla│
     │ │ Evidence from crater ages │ SCIENCE  │ acts on│fro │
     │ │ the earth             │   │ VANCOUVR │       │osph│
     │ │                       │   │ ~PROCITE.EXP│     │obal│
     │ └───────────────────────┘   │ ~REFER.EXP│──────┘
     │ Bartschwinkler  1988  Cycle│██████████│nduced aggradation│
     │ Bearce         1988  New pa│          │dence constraining│


                                    Doc 1 Pg 1 Ln 1" Pos 1.2"
```

Figure 3: Edit Reference Window and Format Style Menu

Searching. The pop-up search window offers support for author and/or year field searching, global text searching, and partial field searching. Complex searches are carried out via Restrict Previous Search and Extend Previous Search options. The sophisticated search features included in *Library Master*, e.g., Boolean and other relational operators are not supported.

Bibliography Generation. The primary way *Endnote* generates bibliographies is by processing documents with in-text citations. Loaded as a "terminate-and-stay-resident" (TSR) program over *WordPerfect*, *Endnote* can be accessed via a "hot-key", i.e., <CTRL ALT E> (the TSR mode is not supported by other word processors). This allows one to enter bibliographical data into a reference library as works are cited within a document. Thus *Endnote* is oriented toward those academic styles that require in-text citations rather than footnotes. Citations may be entered manually or transferred from *Endnote* into *WordPerfect*. Once all the

necessary data has been entered, and the document has been closed, *Endnote* will format the in-text citations,[11] and append a list of works cited to the document, all formatted according to the preselected style. If a footnote reference type is required, *Endnote* allows one to copy a formatted reference to the clipboard, and paste it into a *WordPerfect* footnote screen (Figure 4).[12]

```
F10 File  Edit  References  Paper  Styles  Window

  ┌─■┤───────────────┤E:\ENDNOTE\PALEO.LIB├──────────────────┐
  │   EndNote         │        Showing 201 references out of 201.         │
  │                                                                       │
  │   Akiyoshi      1988   Radiative aspects of the Antarctic ozon│
  │   Allen         1988   Modern-period muddy sediments in the se│
  │   Alvarez       1984   Evidence from crater ages for periodic │
  │   Angell        1988   Relation of Antarctic 100 mb temperatur│
  │   Apollonov     1988   Baturbay section, South Kazakhstan, USS│
  │   Argus         1984   Stratigraphic excavation techniques for│
  │   Argus         1986   New paleantological excavation techniqu│
  │   Babcock       1988   New Permian comulariids from Devon Isla│
  │   Badejoko      1988   Unusual titanium-rich oxide mineral fro│
  │   Baginski      1988   Lightning-related fields in the ionosph│
┌─■┤───────────────────────┤Clipboard├───────────────────────┘
│ 1     W. Alvarez, and R. A. Muller,  "Evidence from crater ages for
│ periodic impacts on the earth,"  Nature  308 (1984): 718-720.
│
                                              Doc 1 Pg 1 Ln 1" Pos 1.2"
```
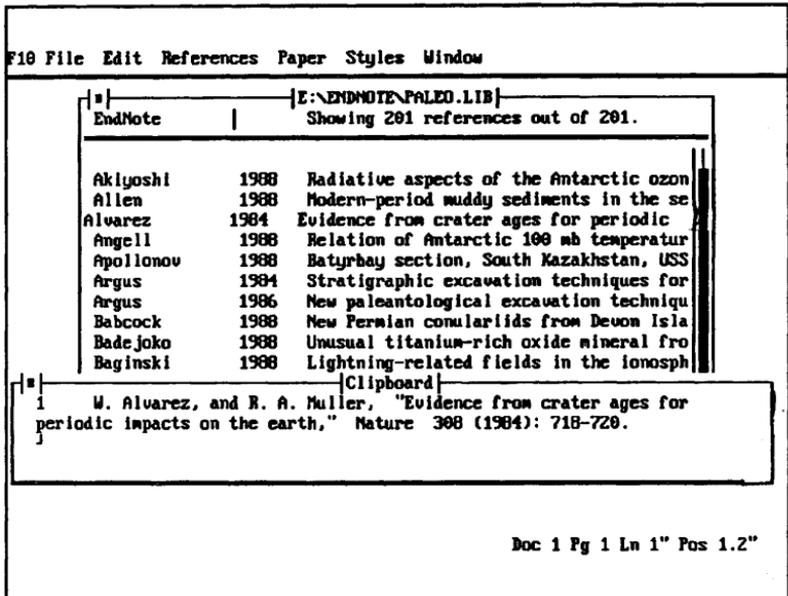
Figure 4: Author List and Clipboard with Formatted Reference

While this approach to bibliography generation seems ideal in principle, in reality the TSR takes an unusually long amount of time to load. Each time I wanted to add a reference or copy a citation I was forced to wait. In the end, I much preferred to run *Endnote* as a stand alone program. While the footnote reference paste feature had to be sacrificed, I was still able to process the in-text citations in a completed document. I simply chose the Load Paper and Format Paper options from the main menu.[13] Once my document was processed I retrieved it into *WordPerfect* to inspect the results. The in-text citations were neatly formatted (with correct spacing, punctuation, font attributes, etc.), and a list of works cited was appended.

Bibliography generation independent of in-text citation processing is also supported. Records can be "copied" to the "clipboard" for previewing, or "exported" to a text file for printing within a word processor (ASCII, *Microsoft Word RTF* and *WordPerfect 4.x/5.x* text file formats are supported). Style support is strong (APA, MLA, Chicago B and a number of science styles are offered). Because of *Endnote*'s basic orientation, Chicago A and Turabian humanities styles are not supported. However, one can manufacture support for these styles with the Edit Styles option.

Endnote does not offer the flexible page layout features found in *Library Master*. Rather, generated bibliographies must be formatted manually with a word processor.

General Assessment and Upgrade Notes. If one uses *WordPerfect* or *Microsoft Word* and requires support for the processing of in-text citations and bibliographies based upon them, *Endnote* is the program for you. As a stand alone bibliographic database manager *Endnote* also maintains a satisfactory level of functionality. However, it lacks support for many features found in other programs such as *Library Master*. Some of *Endnote*'s weaknesses should be addressed by the soon to be released *Endnote Plus*. This package will offer indexed fields for rapid searching, support for Boolean operators, an enhanced sorting feature, a find duplicate records feature and a glossary of journal abbreviations. For importing data from on-line databases one might also wish to consider the *Endnote* add-on package *Endlink*.

Conclusion

Because this review represents the first in a series, I shall avoid drawing any decisive conclusions until all the facts are in. However, at this point, it can be said that both *Library Master* and *Endnote* are quality products. Clearly, *Library Master* is the more sophisticated data management package. It provides extremely flexible generation capabilities and a host of customization features. However, it does not yet offer in-text citation support. *Endnote* offers a TSR mode and excels at processing in-text citations. It lacks, however, *Library Master*'s searching capabilities, generation features and overall versatility. In their present incarnations, both products lack a journal abbreviation glossary, full duplicate record elimination and automatic capitalization.

In the end, picking the right program will depend upon the specific functionality one requires. Because I employ Turabian and Chicago A humanities styles, require strong searching capabilities, and use a database for tasks other than bibliography generation, *Library Master* best suits my needs. However, if I required in-text citation processing support I *might* be convinced to switch rather than wait for an upgrade.

Notes

1. The remaining two parts will appear in future issues of CARRF.

2. Packages in this software category are also referred to as "reference databases," "citation managers" and "bibliographic management systems."

3. The bibliographic program is a species of the genus "database." Long before word processing became popular and electronic spreadsheets were invented, computers managed databases. Therefore, the concept of a bibliographic database is hardly novel. What is novel is the proliferation of user-friendly bibliographic programs targeted at small-scale individual, rather than large-scale institutional use.

4. General purpose databases share this data structure. By way of comparison, "high-end" general purpose databases tend to be more powerful and flexible than bibliographical programs. However, they are far more complex, expensive and difficult to use. "Middle-level" and "low-end" general purpose databases are more comparable to bibliographic programs. While general purpose databases can be customized to handle bibliographical data, dedicated bibliographical programs eliminate the need for extensive user customization. Furthermore, they often exhibit superior bibliography specific functionality.

5. One is given the chance to abandon record changes before a record is saved.

6. The term "Boolean" derives from the figure of George Boole (1815-1864). This self educated intellectual and mathematician was the first

person to reduce logic to a set of propositions that could be expressed symbolically in the form of calculus, or algebra.

7. *Library Master* utilizes the symbols &, | and &~ instead of plain English AND, OR and NOT commands.

8. Some format files work in conjunction with style sheets, while others override them. In the former category are the Booklist, Numbered and Annotate format files. As the names suggest the difference between these formats is that Booklist produces a standard bibliography, while Numbered numbers the entries, and Annotate instructs the program to include an annotation for each entry. (Annotations are the contents of the description fields that must be filled out when the records are edited.) In the latter category is the Quick format which produces a short list displaying author, title and location of publication.

9. *Library Master* supports APA, MLA, Chicago A and B, Turabian and a selection of science styles.

10. "In-text citations" refer to those that are required by various "author-date" type style sheets.

11. By default an *Endnote* citation is any text enclosed in square brackets that is unique reference to a single bibliographical entry. For example, this string of text might consist of an entry number, an author's name (although this string would cause problems if more than one book from the cited author were present in the reference library) or only a partial name and a date.

12. Only MLA footnote style is supported by default.

13. Multiple documents that require a single cumulative list of works cited can be processed via an Open Next option.

Bibliographical Programs Compared

★ = *good*   ■ = *fair*   □ = *weak or not supported*

Product	Library Master 1.24	Endnote 1.0
Hardware supported	PC	PC/MAC

Ease of Use

Manual and index	■	★
Tutorial	□	■
On-line help	■	■
Technical support	★[1]	★
Automated backup/repair	■	□
Menus	★	★
Mouse support	□	★
Macros	★	□
Customizability	★	■
Copy protected	NO	NO

Database Structure

Records per database	65,533[2]	32,000
Characters per record	65,000	64,000
Record customizability	★	■
Fields per record	50	27
Flexible field formats	★	■
Field indexes	★[3]	■[4]

Data Entry

Automatic word-wrap	★	★
Automatic capitalization	□	□
Cut and paste	★	★
Search and replace	★	□
Undo/restore field edits	□	★
Undo/restore record edits	★	★
Flexible font appearance	★	★
Accented character support	★	★[5]
Journal abbrev. support	■	■
Preview formatted fields	★	■

Importing/Merging Data

Merging	★	★
Importing		
Other database programs	★	★
Online services	★	□
Comma delimited	★	□
User-defined formats	★	■

Searching/Sorting

Flexible field searching	★	★
Complex searches	★[6]	■[7]
Lookup tables	★	■[8]
Rapid searching	★	■
Flexible sorting	★	■

Subset handling	★	★
Duplicate record detection	□?	⊡

Bibliography Generation

Multiple page formats	★	★
Annotated bibliographies	★	★
Subject bibliographies	★	■
Academic style support	★	★
APA	★	★
Chicago A	★	□
Chicago B	★	★
MLA	★	★
Turabian	★	⊡
Science styles	★	★
Styles customizable	★	★
Generate to screen	★	■
Generate to printer	★	⊡
Generate to text file	★	★
WordPerfect 4.x or 5.x	★	★
Microsoft Word RTF	★	★
PC-Write	★	■
WordStar/Wordstar 2000	★	□
MegaWriter	★	⊡
ASCII	★	★

In-text Citation Support

Format in-text citations	☐	★
Generate bibliographies based on citations	☐	★
Footnote styles included	☐	■[10]

Other Useful Features

Support for non-bibliographic textbases, e.g.,[11]		
Mailing lists	★	☐
Lecture catalogues	★	☐
Access from within word processor	☐	★[12]

1. A user-supported *Library Master* LISTSERV is available on the internet.
2. All numbers in this chart are maximum values.
3. Supports modified B-Tree indexes which provide rapid retrieval on indexed fields.
4. A list view of the database sorted according to the author's last name is the default mode.
5. A Greek ("symbol") character set (no diacriticals) is also supported.
6. The following is supported: Boolean and/or/not operators, other relational operators (e.g., equals/not equals, greater than/less than, and approximate or phonetic searches), grouped search expressions, and global field searches.
7. Searching using Boolean and/or/not operators is not supported. Complex searching is carried out via Extend Previous Search and Restrict Previous Search options.
8. Once a database is opened the Endnote presents a lookup window which lists entries sorted according to authors and including dates and titles.
9. Duplicate field detection is supported.
10. MLA footnote/endnote style is included.
11. *Library Master* doubles as an all purpose textual database management system that can be customized to store, retrieve and format almost any type of information.
12. *Endnote* can run as a TSR that can be accessed within *WordPerfect*.