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ABSTRACT

BALLOTS (Bibliographic Automation of Large Library Operations using a Time-sharing System) is an on-line interactive library automation system that supports the acquisition and cataloging functions of the Stanford University Libraries' technical processing operations. The BALLOTS system is being implemented in a series of 11 modules. This paper describes the first module, BALLOTS-MARC, or simply the MARC module, and various aspects of system hardware and software as they pertain to this module. The MARC module supports the production of purchase orders, catalog card sets, spine labels, and several types of file slips and management reports. An on-line MARC file stored on disk is updated from the weekly Library of Congress MARC tapes. Several indexes are maintained in the file in order to support extensive on-line interactive file searching. One way of describing BALLOTS is to explain how the system looks to the user and how it is used in normal day-to-day library operations. A typical book cycle will be traced in the examples that follow. (Other documents on BALLOTS are available as ED 038 153, 044 049, 049 786, and 060 883.) (Author)

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A USER'S VIEW OF BALLOTS

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Glee Cady (former staff member),
Jack Cheng,
Wayne Davison,
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and programmers

Gilbert Chang,
Donn R. Martin (Manager, Applications Programming), and
Baxter Moyer.

The search routines and file service routines used in BALLOTS were developed by members of Project SPIRES (Stanford Public Information REtrieval System); the work of Richard Guertin, John Schroeder, and William Kiefer has been vital to the success of BALLOTS.

The file definition language used in both SPIRES and BALLOTS, a modified BNF (Backus-Naur Form), was developed by Thomas H. Martin.

Michael Hu, Manager of Engineering at the Stanford Computation Center Campus Facility, and Richard Levitt, James Powell, and Craig Will, of the Campus Facility Systems Group, developed hardware and software at the Campus Facility to support the operation of the BALLOTS video display remote terminals.

INTRODUCTION

BALLOTS* is an on-line interactive library automation system that supports the acquisition and cataloging functions of the Stanford University Libraries' technical processing operations. The BALLOTS system is being implemented in a series of 11 modules. This paper describes the first module, "BALLOTS-MARC" (or simply "the MARC module"), and various aspects of system hardware and software as they pertain to this module. The MARC module was scheduled for implementation in the late summer of 1972. As you read the published Proceedings, it should be in operation. The other modules are briefly described at the end of this paper.

The MARC module supports the production of purchase orders, catalog card sets, spine labels, and several types of file slips and management reports. An on-line MARC file stored on disk is updated from the weekly Library of Congress MARC tapes. Several indexes are maintained in the file in order to support extensive on-line interactive file searching.

The BALLOTS system operates through programmable CRT (cathode ray tube) terminals in the library that are connected to the Campus Facility IBM 360 Model 67 computer in the Stanford Computation Center, approximately one mile away. The Campus Facility computer also handles the faculty and student academic and research computing requirements. About 2,000 computing jobs unrelated to BALLOTS are run on this computer each day.

The type of video display terminal being used for BALLOTS is shown in Figure 1. It consists of a keyboard, a cathode ray tube capable of displaying 1,920 characters at a time, and a 4,096-byte programmable microprocessor. The CRT terminal could be called a window into the BALLOTS system; through it the Library communicates with the system. Printed outputs, like the purchase orders, catalog cards, and spine labels, are produced overnight as a result of the daily on-line activity at the terminal.

One way of describing BALLOTS is to explain how the system looks to the user and how it is used in normal day-to-day library operations. A typical book cycle will be traced in the examples that follow.

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*Bibliographic Automation of Large Library Operations using a Time-sharing System. A large part of BALLOTS development up to the development of the first module was funded by a grant from the U. S. Office of Education, Department of Health, Education, and Welfare.

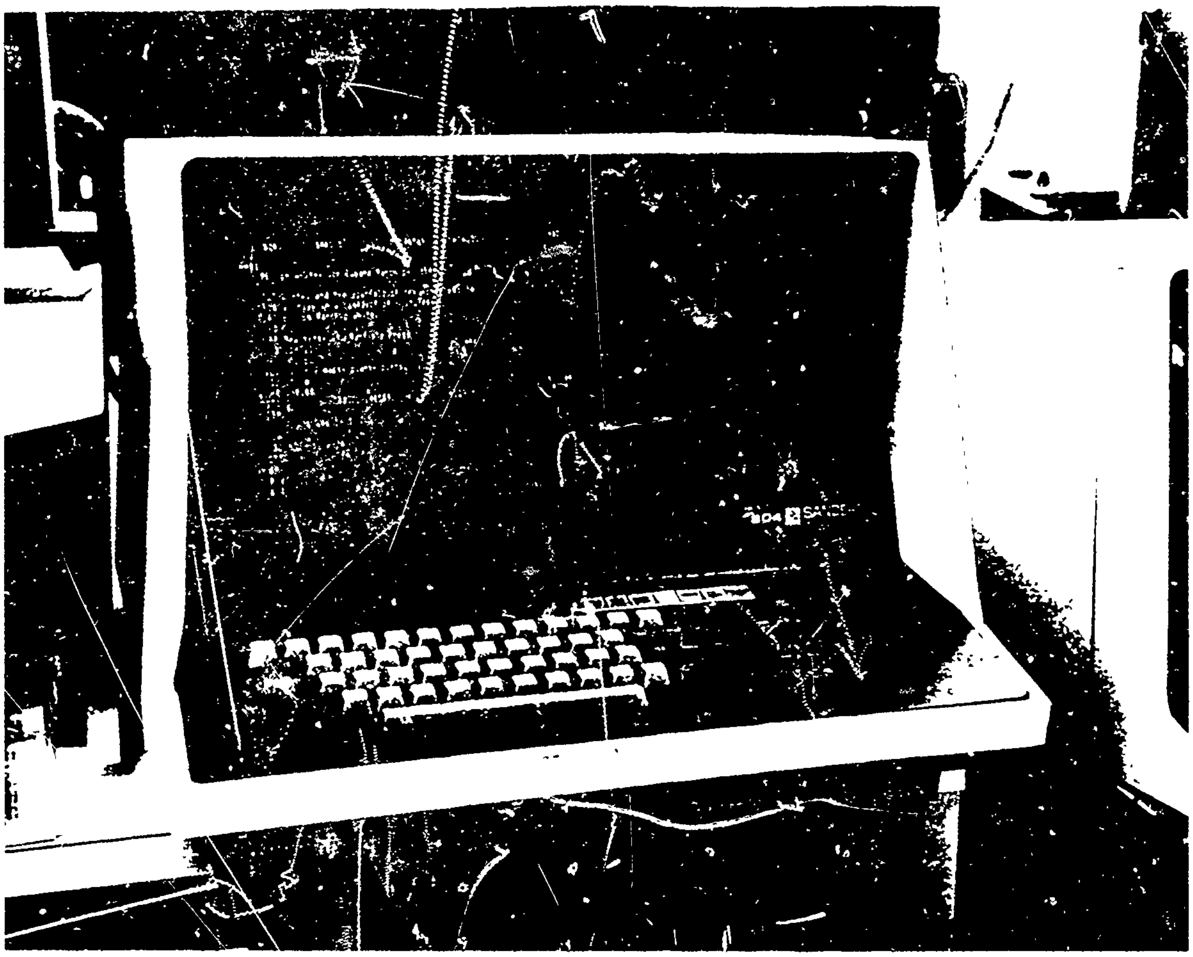


Figure [illegible]. The Sanders PDS 804 Programmable CRT Terminal

SEARCHING

A typical book processing cycle begins when the Acquisition Department receives a book request from a faculty or staff member requesting that a particular book be added to the collection. A sample book request is shown in Figure 2. On receiving the book request, the librarian keys in a search request for that particular book at the CRT terminal keyboard. This search request, shown shaded in Figure 3, is displayed on the CRT screen as it is keyed. (In the following figures, all the data supplied by the terminal operator is shown shaded; all the data supplied by the computer is shown unshaded.) The operator in this example chose to search ("find" or "fin") by one personal name ("pn"), and because he was unsure of the spelling of the author's name ("Jon" or "John"?), typed "J." instead. The operator chose two words from the title. Because he was unsure of the spelling of "Cortes," he truncated the word to "Corte#," which would locate a record for any title word beginning with "Corte."

The search request is entered into the system, the on-line MARC File is searched, and the search results are returned to the screen in about two seconds. In the BALLOTS system, when only one record is found in a search, it is assumed that this record is the correct result, and the full bibliographic record is displayed at the terminal (Figure 4).

Searching can be done using any word or words in the title (trivial words, like "the" and "in," will be recorded in an exclusion list for the file, and the system will reject them as search terms). One can also search using the Library of Congress card number, the main entry, the title statement, and added entries. And the personal name can be given to the system in various forms. For instance, in Figure 4 the author's name turned out to be stored in the MARC File as "White, Jon Ewbank Manchip." The following variations on this name, or any combination of them, would also be accepted as valid search terms and would locate the same record:

WHITE, J.E.M.	(initials)
White, M.	(some initials omitted)
White, J E M	(initials without periods)
white, jon ewbank manchip	(capitalization ignored)
J.E.M. White	(surname first or last)
Manchip White, J.E.	(surname first or embedded)
White, Jo Ewb Man	(first names implicit truncation)

Author	White, Jon M.	RUSH
Title	Cortes and the Downfall of the Aztec Empire	
Edition	Place: New York	Publisher: St. Martin's Press
Date of Publication: 1971	No Vols	Series
No Cop: 2	Price	
Req by: JMB	Order From: Abel	Other Info
Dept: RDP		
Fund		
Acct. No: NKA-004		
Shelve: Stack, IAH	Cat	Item
Searcher	Date	

Figure 2. Book Request

Figure 3. A Search Request on the SI01 Screen

```
SI01        BMRC-S                        ORDER       S        WED
fin pn J.N. White and t Corte[illegible]
```

```
BF01      BMRC-S        72140589      ORDER      S        WED
fin pn J.M. White and t Corte# and Aztec     RESULT:     1 BOOK(S)
OR01
White, Jon Ewbank Manchip, 1924-
  Cortes and the downfall of the Aztec Empire; a study in a conflict of
cultures, by Jon Manchip White.  New York, St. Martin's Press [1971]
  352 p.  illus., maps, plans, ports.  25 cm.  $10.00

  Bibliography: p. [335]-339.

  1. Mexico - History - Conquest, 1519-1540.  2. Cortes, Hernando, 1485-1547.
I. TITLE.
72-140589
F1230.W46 1971   972/.02/0924
CP:nyu    L:eng    REC:am     MS:N
```

Figure 4. A Full Bibliographic Display on the BF01 Screen

Whi#, J.E.M. (last name explicit truncation through use of pound sign)

The BALLOTS system makes extensive efforts to recognize different versions of a personal name, because in many of the library processing cycles the exact name of an author is not known. This helps to ensure success in on-line search efforts.

If the search in Figure 3 had been entered as simply "fin pn J. M. White," the search might have produced more than one result (because more than one record in the data base fulfilled the search criteria). In this case (Figure 5), the results would be displayed as a numerical total of the number of records found, rather than the first of these records being displayed in its entirety. Figure 5 shows a total of five records found that meet the search criteria. The librarian now has the choice of asking for each of the full bibliographic records to be displayed in turn, or of keying additional search criteria that, when added to the previous search request, would reduce the number of records found. This second option is shown in Figure 6. Such iterative searching would produce the same result as displayed in Figure 4. Figures 5 and 6 illustrate (very simply) the interactive searching capabilities of the system.

ORDERING

If the search described in the previous section has produced the desired record, and the library decides to order the book, then the terminal operator requests an ordering (OR01) screen for the same bibliographic record. This is shown in Figure 7. The terminal operator fills in the appropriate information: vendor data, accounting data, and enough additional information to produce a purchase order. In Figure 7, the values in the unshaded fields were supplied by the system as default options: "po" (purchase order) for the method of procurement, "01" for the address code (stands for Stanford University), "2" for the special notification indicator (indicates that a notice is to be sent to the requester when the material is received), and "WED" for the searcher's initials. The system also supplied a request for one copy ("1 c.") and the price ("$10.00"), but the operator has changed this to "2 c." and "$20.00."

Many of the items on this screen are coded, since a considerable amount of repetitive data is involved in the day-to-day use of this screen. For instance, instead of putting in a specific vendor's name, a vendor I.D. is entered; the system uses this I.D. to look up the vendor's name and address in another file.

In the example shown in Figure 7 there are three errors in the input. When the operator has decided that the ordering information is complete and has transmitted this information to

Figure 5. Search Results Displayed on the S102 Screen

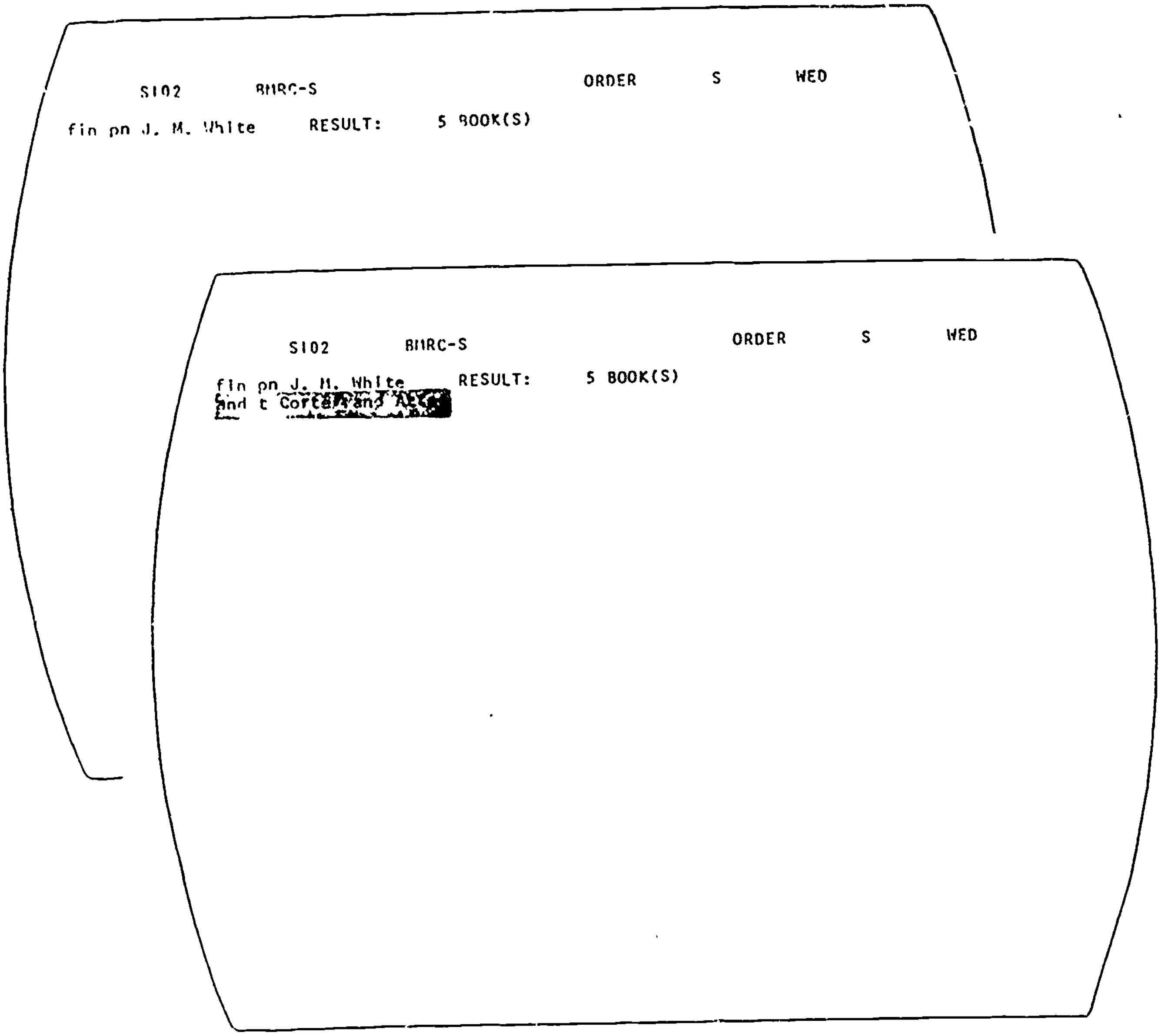


Figure 6. Iterative Searching on the S102 Screen

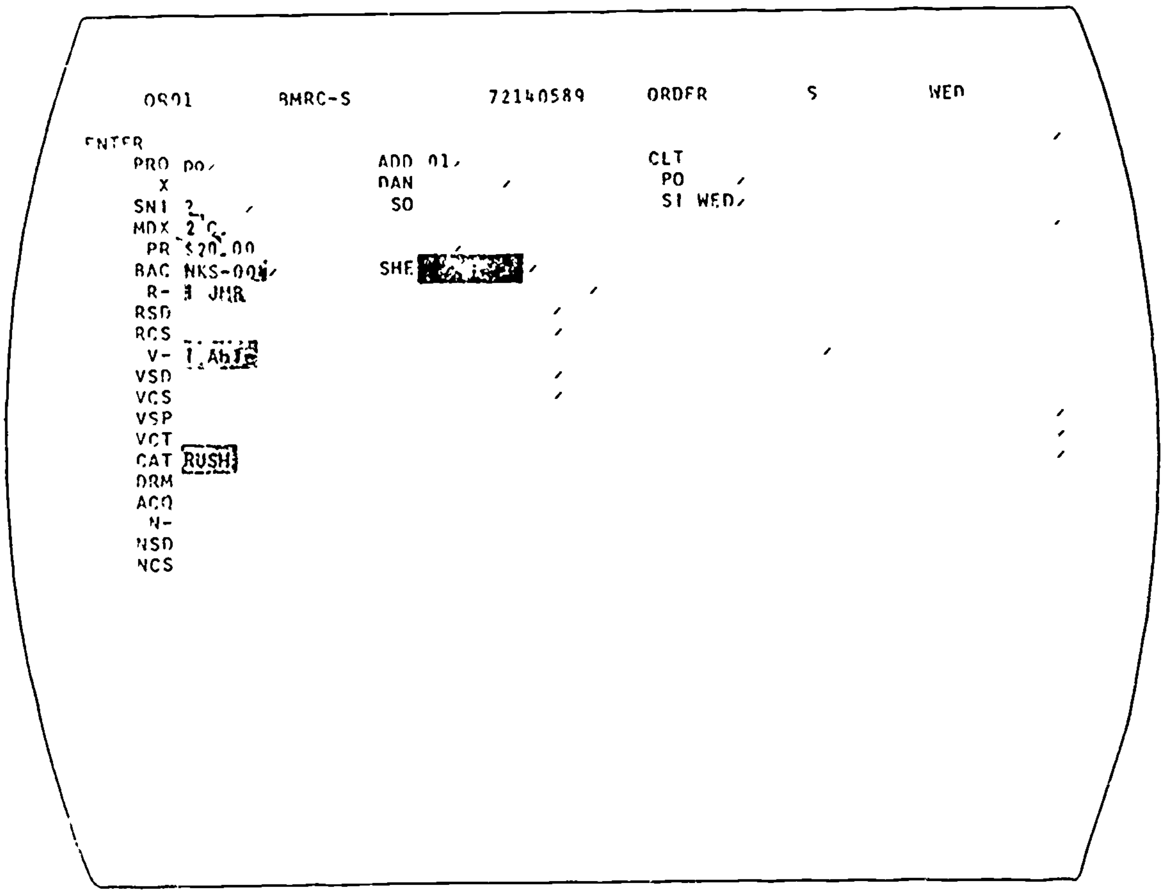


Figure 7. Preparing a Purchase Order on the OR01 Screen

the computer (by depressing the "SEND" button on the keyboard), BALLOTS programs perform on-line editing of all the data elements on the screen. As part of this, for instance, the budget account code ("BAC") is scanned and the codes and values file is searched; this check reveals that the data contains an invalid code. As a result, the ordering screen is returned to the user. An error code, indicating the invalid code, appears on the screen preceding the BAC field. Error codes are also returned to the operator indicating that the vendor I.D. is an invalid code and that a field where a data element value is required is blank (the shelving location field--"SHE"). When the screen is edited, the system moves the first line containing an error up to the position of fourth line on the screen. The correct lines above it are not displayed. When these errors have been corrected (see Figure 8), the screen is sent a second time to the computer and the data is then accepted.

Once the final screen needed to perform a function is accepted by the system, the transaction is considered complete and the system prompts the terminal operator to go on to another activity by responding "ENTRY PROCESSED" (see Figure 9). As a result of the successful on-line activity shown in figures 3-9, several outputs are printed overnight in the computer batch partition. These outputs are the purchase order (Figure 10), a catalog work slip (Figure 11) for use by the Catalog Department when the book arrives, and a temporary order slip (Figure 12) for use by the Acquisition Department.

We have looked at a typical BALLOTS ordering cycle. The cataloging cycle consists of a similar sequence of searching, input (using some different screens), and output. This cycle will be discussed in a later section.

THE PROGRAMMABLE CRT TERMINAL AND BALLOTS SOFTWARE CAPABILITIES

Several basic functions of the BALLOTS system were demonstrated in the activities just described. But this interaction between the user and the CRT terminal is only the tip of the iceberg that is the BALLOTS system. Having looked at some initial uses of BALLOTS, we can now go a little further into some components of the system.

The terminal used in the BALLOTS system is the Sanders PDS 804 programmable CRT terminal. This terminal includes a microprocessor in its hardware that permits specific computer programs to be loaded directly into the CRT terminal. These programs control the display of data entered at the keyboard and the communication of the terminal with the main computer. The Sanders CRT terminal can display 1,920 upper- and lowercase characters on a screen, in 24 eighty-character lines The BALLOTS development staff were able to assign specific functions to certain keys (such as the paging keys--see the last paragraph under "PROTOCOLS AND COMMANDS"), to adapt the Sanders terminal to the uses of the system even further.

Figure 8. Corrected Ordering Screen

```
     OR01       BMRC-S            72140589     ORDER        S         WED

ENTER                                                                       /
04   BAC NK[illegible]-004/    05  SHF [illegible]    /
       R-  I JMB                                 /
     RSD                                      /
     RCS                                      /
04     V-  I Ab[illegible]                                       /
     VSD                                      /
     VCS                                      /
     VSP                                                                    /
     VCT                                                                    /
     CAT RUSH                                                               /
     DRM
     ACQ
       N-
     NSD
     NCS
```

```
     SI01       BMRC-S                        ORDER        S         WED
ENTRY PROCESSED
```

Figure 9. Order Screen Accepted, Return to Begin Search Screen

STANFORD UNIVERSITY LIBRARIES

PURCHASE ORDER

[redacted] 10/13/72 | 721...

White, Jon Ewbank Manchip, 1924-

2 Cortes and the downfall of the Aztec Empire; a study in a conflict of cultures, by Jon Manchip White. New York, St. Martin's Press [1971]

SHIP AND BILL IN DUPLICATE TO:
Order Division
Stanford University Libraries
Stanford, CA 94305

$20.00 | Abel

DEALER SEE OTHER SIDE

Figure 10. Purchase Order

CATALOG WORK SLIP 72140589
F1230.W46 1971 STK
RUSH
White, Jon Ewbank Manchip, 1924-
Cortes and the downfall of the Aztec Empire; a study in a conflict of cultures, by Jon Manchip White. New York, St. Martin's Press [1971]
352 p. illus., maps, plans, ports. 25 cm.

Bibliography: p. [335]-339.

1. Mexico - History - Conquest, 1519-1540. 2. Cortes, Hernando, 1485-1547. I. TITLE.
DC 972/.02/0924
MS:N

Figure 11. Catalog Workslip

ORDER FILE 10/13/72 72140589
White, Jon Ewbank Manchip, 1924-
Cortes and the downfall of the Aztec Empire; a study in a conflict of cultures, by Jon Manchip White. New York, St. Martin's Press [1971]
F1230.W46 1971
2 c.

VENDOR:Abel $20.00
PRO:po REQ. BY: SHI:2
SHIP TO:01 WED James Breedlove
STK NKA004 Resources Development Program
REC'D: Main Library

Figure 12. Order Slip

The BALLOTS terminal is programmed so that specified segments of lines on the screen or ranges of lines on the screen can be considered as single data element fields. These fields may be either protected or unprotected. A protected field is one in which the user cannot input data, although the system may display data there. During input at the keyboard, the cursor is prevented from entering protected fields; this constraint is part of the control program loaded in the terminal. (The cursor is a fast-blinking underline character that indicates to the user his position on the screen.) When the user is typing data in a field, he cannot type past that field into another field unless a "CR" ("carriage return") or "TAB" key is depressed. A "CR" will move the cursor to the first input position on the next line; a lowercase "TAB" will move the cursor to the first input position of the next field (which may be on the same line or the next line). An upper-case "TAB" moves the cursor back to the beginning of the current field. If the cursor is already at the beginning of the field, it is moved to the beginning of the previous input field.

It should be pointed out that all of the features described here are programmed into the terminal and are <u>not</u> part of the hardwired logic of the terminal. This flexibility was one of the primary reasons for choosing the Sanders programmable terminal.

There are two types of input fields in the BALLOTS system. One is a fixed-length field and the other is an expandable field. In a fixed-length field, the amount [illegible]ce is predetermined, and only the maximum number of characters allowed for that field may be entered. If the user continues typing, the cursor will not move to the next field, but will remain at the last character position in the current field. Each additional character input will simply overlie the previous last character. The only way to get to the next field is to hit a "TAB" or "CR" key.

If data is being input to an expandable field and there is not enough room preallocated on the screen, the user keeps typing. As soon as the first character beyond the current end of the field is keyed, the microprocessor recognizes this and immediately inserts a blank line following the overflowing field, so that the continued data is input in this new line. (An expandable field always extends to the end of the line.) All the lines on the screen below the overflowing field are consequently pushed down one line on the screen, whether they are protected (the cursor cannot enter them during input) or unprotected (the user may alter their contents). Thus the user need not watch the screen to see where the "end" of an expandable field falls, since the computer will provide however much space is needed to input all the data.

Sometimes, when an input field expands beyond a single line, the last word on a line may be split and continued on the next line. Although this presents no problem for the computer software, it is difficult for the user visually to verify the screen and is aesthetically displeasing. The microprocessor software will therefore automatically adjust the data in the field, reconnecting the broken word by moving the first half of the word from the previous line down to the succeeding line. This adjustment takes place as the user is keying data.

SCREEN FORMATS

Given these basic features of the terminal software, we can look at the actual screen format developed for BALLOTS. The ordering (OR01) screen (Figure 7) is the example used; but the rules and methods described here apply to all of the BALLOTS screens.

1. The first horizontal line of the screen is called the control line; it consists of the following fields.

a. The first field is the screen identification: "OR01." This I.D. identifies the screen format to both the user and the computer programs.

b. The second field is the file I.D.: "BMRC-S." This I.D. notifies the user that the BALLOTS-MARC File for Stanford is being used in displaying the data.

c. The third field is the record I.D.: "72140589." The search that preceded the use of the ordering screen obtained a specific title. The record I.D. of this title in the MARC File is "72140589" (this is also its Library of Congress card number).

d. The fourth field is the function code: "ORDER." The user supplies this information, which describes the type of work the user will be performing (in this case, ordering). (The use of this field is described in "PROTOCOLS AND COMMANDS," below.)

e. The fifth field is the library identification: "S," for Stanford University.

f. The sixth field in the control line is the terminal operator's initials: "WED."

2. The second line on the screen is called the message line. This is used by the system to send messages to the user. In it the search argument is redisplayed, together with the search results (see figures 4 and 5). Other possible messages include a warning that the system will be shut down in thirty minutes, or any other communication that is required from the computer system to the operator.

3. The third line is the command line; it is used for communication from the terminal operator to the computer. This

could be a request to conduct a specific search or to display a specific screen. An entire command language has been developed for the BALLOTS system that includes commands for searching, requests for screens, logging on and off the system, paging commands, etc. (Some of these commands will be discussed below.) Uses of the command line can be seen in figures 3, 4, and 6. In Figure 3 the command line has been used to request a search; in Figure 4 it has been used to request an ordering screen; in Figure 6 it has been used to add parameters to the search in progress.

4. The remaining lines on the ordering screen contain fixed-length or expandable fields. If the fixed-length fields are short, more than one field may be placed on the same line. This is shown in figures 7 and 8. When a field is expandable, it must be the only field on a line. The "CAT" field is an example of this. The end of a field is shown on the screen by a "⌿." The temporary end of an expandable field is shown by a "/" in the last space on the line.

The first eight positions (character spaces) preceding each input field on the screen follow a consistent pattern. The first two positions are for the error code for the data element. If after a screen has been transmitted the on-line editing detects an error, an appropriate error code will be displayed in these first two positions (see Figure 8). Position 3 is usually protected, although it may be used by the operator in certain cases to indicate updated data elements. Positions 4, 5, 6, and 7 contain the data element mnemonics (right-justified). Position 8 is blank and protected. From position 9 to the "/" mark is the user input area. Some lines may contain more than one fixed-length field. In these cases the position allowance is the same for error codes and mnemonics (see "SHE" on the "BAC" line in Figure 8).

PROTOCOLS AND COMMANDS

An elaborate system of protocols has been developed in the BALLOTS system. A "protocol" is a logical sequence of operations performed at the CRT terminal, requiring specific screens. The function code in the control line ("ORDER" in the preceding example) determines which protocol the terminal operator will be following. These protocols prescribe the availability of screens and commands to various parts of the library. Some screens are used only for display; others are used for input and update. Someone in the Acquisition Department would not be making changes to the holdings portion of a record; therefore, the holdings (HH01) screen would not be available to that department. On the other hand, the Acquisition Department would use the ordering screen in order to input vendor information and pricing information; but the ordering screen would not be available to someone in the Catalog Department.

In addition to determining the uses of the various screens, the protocol system presents a logical sequence of screens to the terminal operator for each particular function. These screens are default options, and if the user does not request a variance, they are automatically displayed one after the other as each is successfully completed. For example, on the third line of Figure 4, the ordering protocol automatically supplies the next screen request for the ordering (OR01) screen; this is the default request following the display of a full bibliographic (BF01) screen.

A protocol map of the ordering function is shown in Figure 13. This is a simplified diagram representing the protocols (sequences of operations) possible in ordering. The default path is shown by the heavy line, and the available options are shown by light lines. The options available at any point in the protocol are shown on the horizontal line just below each CRT screen. For example, when the full bibliographic (BF01) screen is in use, the user may:

1. Go directly to an ordering (OR01) screen (default option)
2. Page to the next bibliographic record of several found in a search
3. Request a bibliographic input (BI01) screen
4. Request a supplementary input (BI02) screen
5. Begin a new search
6. Continue interactive searching (SI02)
7. Request a fresh search (SI01) screen

Each protocol automatically displays certain commands in the third line of the screen; these can be changed by the user if the default option is not desired. (This will be illustrated below, in "CATALOGING.") There are several types of commands. One type tells the system which screen the operator wants to use next. These commands are simply the screen I.D.'s (SI01, HH01, BI01, etc.)

A second type instructs the system on how to handle the contents of the current set of screens. For example, the "enter" command would cause all of the data elements on the current screen and on all previous screens used for the same bibliographic record to be processed and used to update the file. The "cancel" command would cancel all the steps taken so far by the current protocol.

A third type is the search commands. These commands use any of the available file indexes; search terms can be combined by using the logical operators "and," "or," "not." An example of the first of these logical operators is shown in Figure 3. Here all three criteria must be satisfied in each record found. If the operator is not sure of a search term, he can input likely alternative terms, using the "or" operator. This approach will

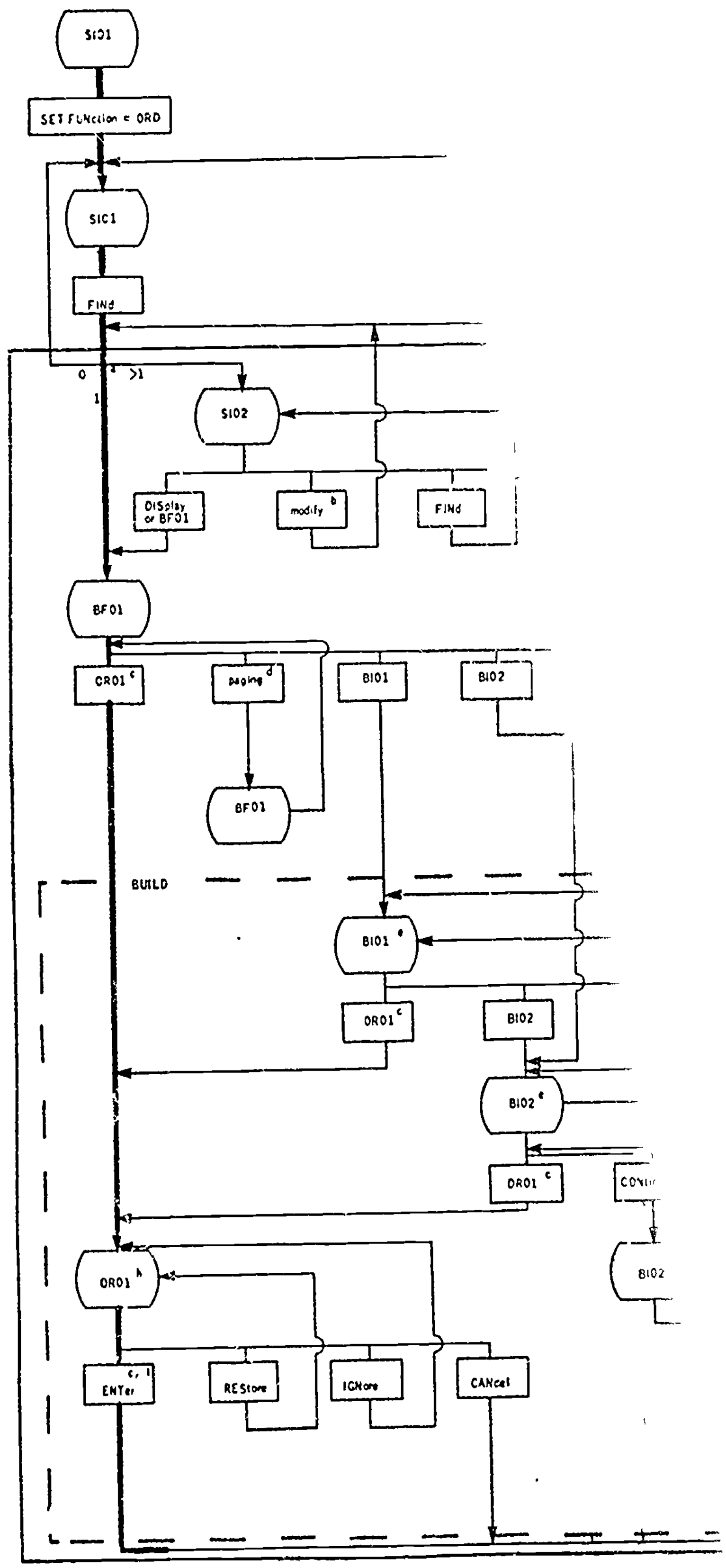
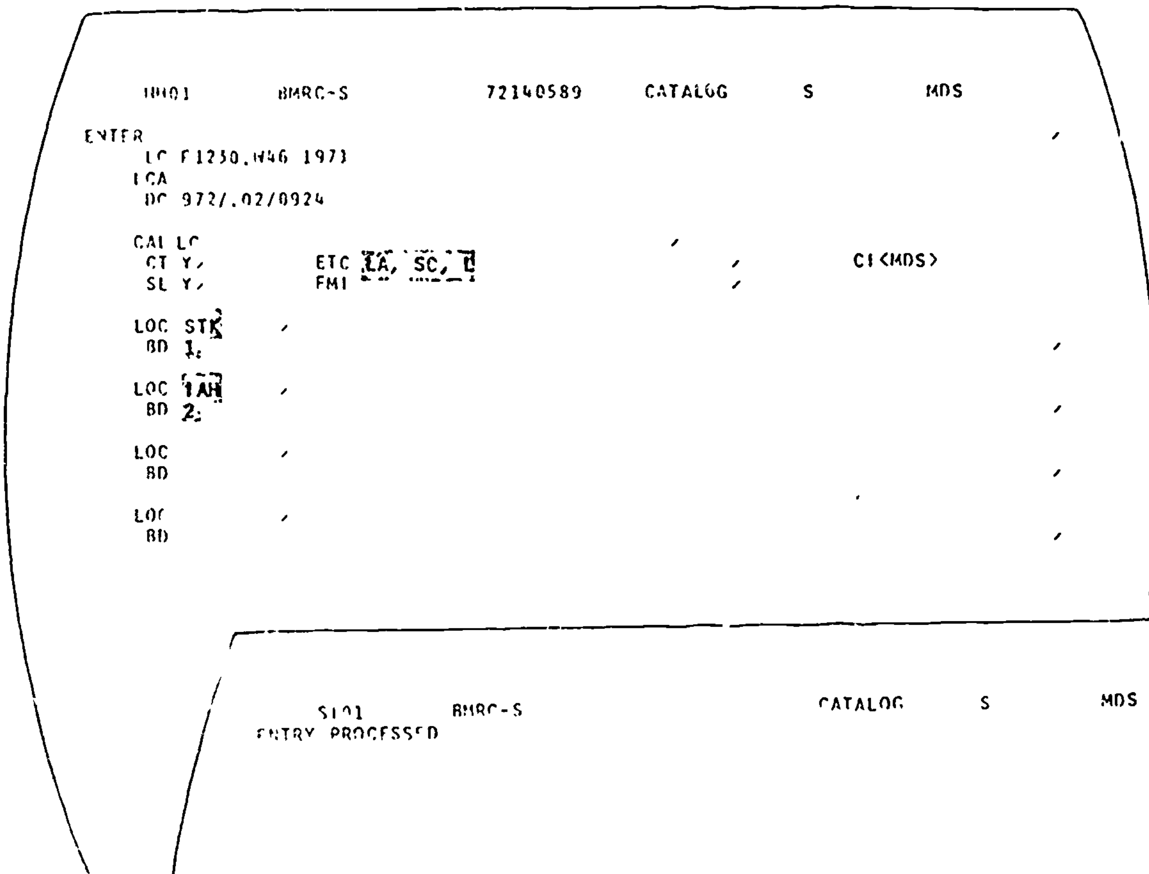


Figure 13. Ordering Function Protocols foı

(see Notes on attached sheet)

Figure 18. Holdings (HH01) Screen



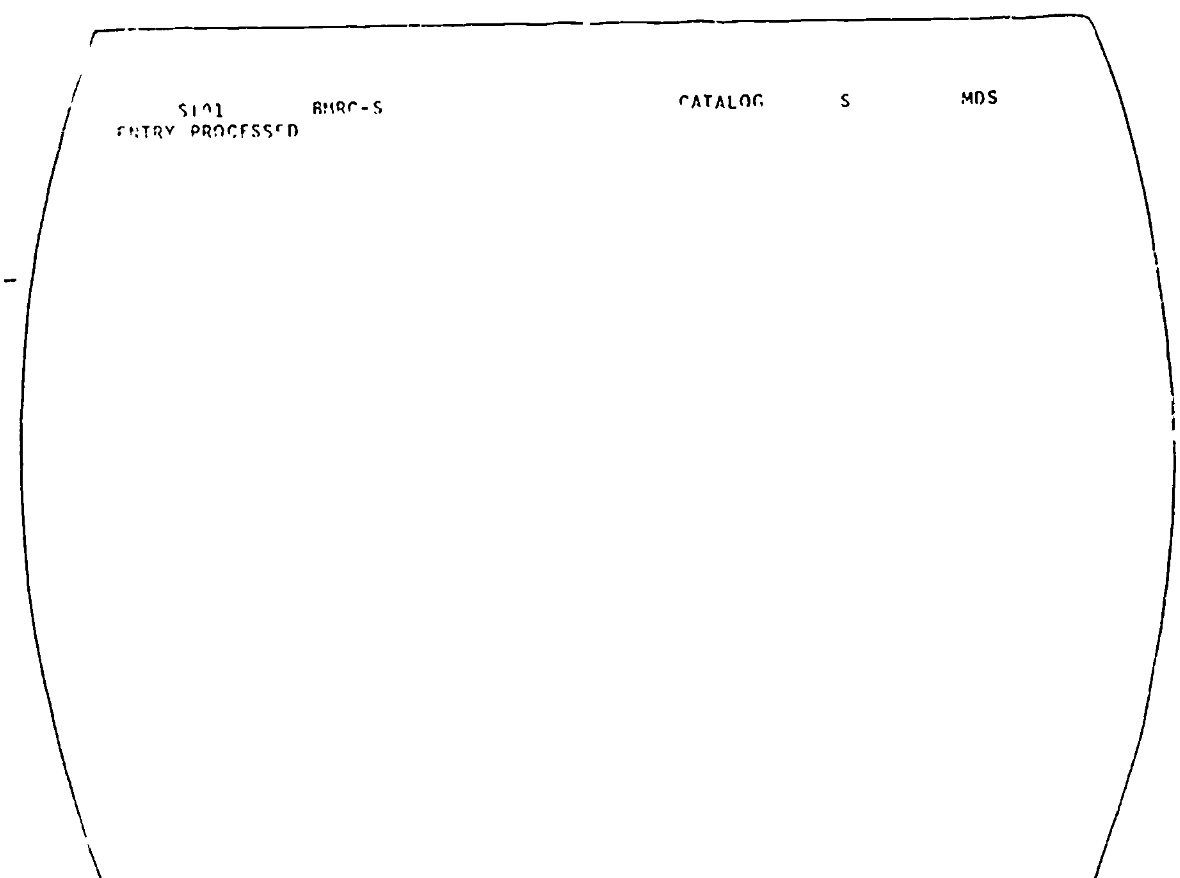


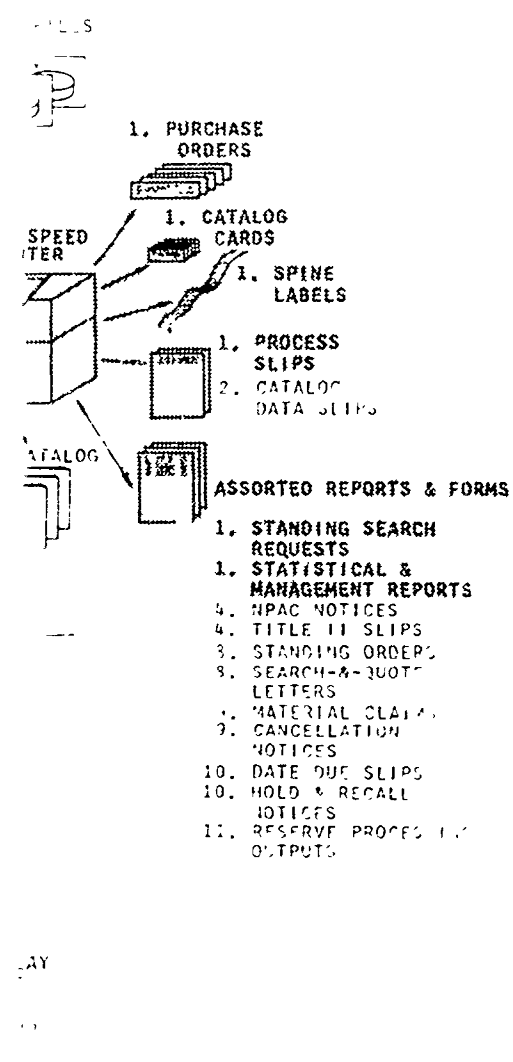
Figure 19. Holdings Screen Accepted, Return to Begin Search Screen

bibliographic display screen will appear for the next book, with "ENTRY PROCESSED" and the search command displayed in the message line (line 2).

As a result of the cataloging activity, a set of catalog cards and spine labels will be produced. The default option [illegible] by the system in the "CT" (catalog cards) and "SL" (spine [illegible] fields in Figure 18 signified "yes" to the [illegible]. This is done in an overnight batch [illegible] the catalog cards

F1230.W46 Stack

Whit[illegible], J[illegible] [illegible]ark M[illegible]hip, 1924-
Co[illegible] and [illegible] downfall of the Aztec Empir[illegible]:
[illegible] a conflic[illegible] of cultures, by Jon
[illegible]. London, [illegible] Hamilton, 1971.
[illegible], plans, ports. 25cm.



SPEED
1. PURCHASE ORDERS
1. CATALOG CARDS
1. SPINE LABELS
1. PROCESS SLIPS
2. CATALOG DATA SLIPS
ASSORTED REPORTS & FORMS
1. STANDING SEARCH REQUESTS
1. STATISTICAL & MANAGEMENT REPORTS
4. NPAC NOTICES
4. TITLE II SLIPS
3. STANDING ORDERS
8. SEARCH-&-QUOTE LETTERS
9. CANCELLATION NOTICES
10. DATE DUE SLIPS
10. HOLD & RECALL NOTICES
11. RESERVE PROCESSING OUTPUTS

The shaded portions of the figure are those aspects of the full system that are incorporated in the BALLOTS-MARC module. This first module handles the ordering and cataloging of titles found in the MARC File. The MARC File shown in Figure 23 is preceded by the number 1. This indicates that the MARC File is available in the first module. The output documents produced by the BALLOTS-MARC module are identified in the same way. These include purchase orders, catalog cards, spine labels, process slips, standing search requests, and certain statistical and management reports.

The standing search request capability of the MARC module is a convenience to the library and performs a unique "SDI" (selected dissemination of information) function for a specific title. In a search of the MARC File, a title may not be found ... will appear there (because

3, and 5. This module processes approximately 35 percent of Stanford's acquisitions and 26 percent of its cataloging. The percentage of support to network library processing (again, see "CLAN" below) is slightly larger that the Stanford figures in this and later modules.

2. In Process File (IPF). This module adds an in process file and additional printed outputs. Only MARC material is handled; when a record is found in MARC it is transferred to the IPF and is retained there as an updateable record throughout technical processing. Since the record will not be purged from the IPF until module 3 has been implemented, the IPF will represent all titles ordered and cataloged by the library using the automated system. A record in the IPF can be used again if additional copies of a book are ordered.

3. Catalog Data File (CDF). This module involves building

and 6 percent of cataloging. Modules 1 through 7 will process a total of 97 percent of acquisitions and 82 percent of cataloging.

7. Book Catalog. This module can be used to create any book catalog done in the Stanford format. At Stanford it will allow the Meyer Book Catalog to be produced directly from the INV without going through the punched card process presently used.

8. Standing Order and Out-of-Print Desiderata. The capability of establishing standing orders (SO) and receiving the non-serial materials arriving with SO's will be added with this module. In addition, out-of-print items (OP) will be added to the IPF, and search-and-quote letters produced for OP dealers. If an OP item can be procured, it can be ordered using the record already in the IPF.

9. Automatic Claiming and Canceling. This module adds programs to review IPF records automatically to determine if ordered material is overdue. Material may be claimed several times and finally canceled if the dealer does not respond. The Acquisition Department may override a scheduled claim or a cancellation. The department may also initiate an unscheduled claim or cancellation.

10. Circulation. This module is designed to handle the ... circulation system. Using ... service

CLAN (CALIFORNIA LIBRARY AUTOMATION NETWORK)

The features of the BALLOTS system have been kept as generalized as possible, so that the system could be adopted by other libraries for their use. At the present time, the staff of two autonomous libraries at Stanford (The Law Library and Lane Medical Library) and of five libraries in the San Francisco Bay area are preparing for the implementation of parts of the BALLOTS system in their libraries. These libraries have been reviewing the BALLOTS specifications in order to note any changes or additions they require. To date, the number of these changes seems to be very small, and they do not represent any substantial modification of the BALLOTS system. Assuming adequate funding, the plan for network implementation is as follows.

For the first four to eight months after a module has been implemented and placed in operation at Stanford, it will be closely observed and monitored. During this period, the network version of the module will be checked out and tested for network use, and the network libraries will install equipment and conduct training classes and acceptance tests. When all this is completed, the module will be put into network pilot operation. Thus, the module will undergo four to eight months of heavy use in its original version prior to its network installation. This will reduce implementation time and effort for the network users.

CONCLUSION

ADDITIONAL REFERENCES

(The following publications describe the initial planning and designing of BALLOTS, the development of the proposed network, and the evolution of the system from 1967 to 1971.)

SPIRES/BALLOTS Project Staff. System Scope for Library Automation and Generalized Information Storage and Retrieval at Stanford University. Stanford, California, SPIRES/BALLOTS Documentation Office, 1970.

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Montague, Eleanor. Summary of a Feasibility Study on the Participation of Four Colleges and Universities in a Stanford University Library Automation Network. Stanford, California, SPIRES/BALLOTS Documentation Office, 1971.

Epstein, A. H., Douglas Ferguson, Eleanor Montague, John Schroeder, and Allen B. Veaner. Final Report, Project No. 7-1145, Grant No. OEG-1-7-071145-4428, Bibliographic Automation of Large Library Operations using a Time-sharing System: Phase I. Stanford,