Some thirty grants have been made to improve the administrative bases of library work, among them, interlibrary cooperation, the survey of federal libraries, promotion of the use of library services, setting of standards for school libraries, improvement of circulation systems, the planning of library buildings, and the testing of supplies and equipment.

Over twenty grants related to fact-finding and planning for research in library development. The largest grant went to the Rutgers University Graduate School of Library Service for its "Targets for Research" series. Five volumes in eighteen parts have been issued. They tend to be anthologies of library literature and are disappointing in format and too infrequently spell out the ways and means for future study. The final category of grants relates to the application of mathematics and mechanical and electronic devices to library work.

The text of the five year survey and the annual report for 1960/61 merit close reading and reflective thinking. The young Council has matured in these five years. Some "crippling frustrations" may be eased as a result of large and small grants. The majority of the grants were for less than $10,000—seed corn that is well worth while. The larger grants, notably the Library Technology Project, with all of its various facets, is to be continued. Some of the frustrations remain with us—the grants may not yield a final solution, but better techniques may result in gradual improvement.

The second portion of the fifth annual report relates to the fiscal year 1960/61 with fifty-nine grants totaling over a million and a half dollars. Seven grants were extensions of earlier ones. A number of projects were completed; notably, the mechanization of bibliographic operations which made possible the conversion of the *Current List of Medical Literature* to the *Index Medicus*, making use of the mechanization of production, although further work needs to be done on retrieval of information for subdisciplines of medicine. Arrangements for the procurement of foreign publications under Public Law 480 are under way, and the study of circulation systems undertaken by George Fry and Associates was published by the ALA in 1961.

It is good to know that the Council is un-daunted and is still seeking solutions for problems not yet solved or even identified, and is prepared to receive suggestions and applications from individuals and organizations for future investigations. Doubtless there are more worthwhile applications than money to grant. Some proposals will not merit encouragement, but judging from the first five years, the beginning has been good —the future may be even better.—*Flora B. Ludington, Mount Holyoke College Library.*

Retrieval Systems

The State of the Library Art—Volume 4, edited by Ralph R. Shaw. Part 1, Notched Cards by Felix Reichmann; Part 2, Feature Cards (Peek-a-Boo Cards) by Lawrence S. Thompson; Part 3, Punched Cards by Ralph Blasingame, Jr.; Part 4, Electronic Searching by Gerald Jahoda; Part 5, Coding in Yes-No Form by Doralyn J. Hickey. New Brunswick, N. J.: Rutgers, the State University, Graduate School of Library Service, 1961. 373p. $8.00.

As the running head, but not the title page, shows, volume four of the State of the Library Art is about retrieval systems. This volume is a useful survey of some of the peripheral frontiers of librarianship which extend into documentation. The authors have worked hard on a difficult assignment and have produced a creditable first attempt to describe their topics. The extensive references are the nucleus of a good bibliography. Dr. Jahoda has made the greatest contribution to the literature with his part, followed by Miss Hickey and Dr. Thompson, in my opinion. The contents of the volume are of such interest that the authors and the editor should make every effort to publish a second, much revised and improved edition within a year.

It is difficult to review this volume without being so critical as to distress the authors and editor if not to alienate them from the reviewer. The value of the book is reduced by defects in organization and presentation

and by the lack of expository and critical evaluation of the current situation. The book is virtually alone in its field and as such merits detailed criticism.

One of the lessons librarians can learn from this volume is that the state of the art of retrieval systems cannot be reported adequately by authors who limit themselves to a consideration of the published literature. The published literature contains only accounts submitted voluntarily by their authors; the actual state of the art must be uncovered by digging out the unpublished literature, by personal visits to outstanding activities, by questionnaires, and survey operations, and from careful analysis of the information gathered this way. Unless a broader and deeper survey is made, any survey volume on retrieval systems is likely to have the substantive defects of this book: 1) summaries which are misinterpretations of the articles; 2) exaggerated and untrue statements; and 3) inclusion of ideas and statements which will not themselves bear thoughtful and critical examination. Most of these deficiencies are presented without any warning from the surveying authors, and deficiencies are sufficiently numerous that all readers must be prepared to question nearly every sentence in the volume. A few examples are included at the end of this review to substantiate my observation; they also serve very well to show the difficulty of the authors' tasks.

Blasingame finds that machine-sorted punched cards are used for 1) routine, repetitive tasks; 2) bibliographic control, i.e., literature searching, and 3) preparing copy for published lists and catalogs; and he organizes the examples according to commonly accepted administrative divisions in libraries. He attempts to leave the impression that the literature shows no record that punched cards may be used efficiently for any purpose in libraries, particularly citing the absence of cost figures in support of this view. Statistical information, especially "before and after" comparisons of operations, is also lacking. However, the continued use of punched cards in libraries argues for the conclusion that there are criteria other than efficiency which persuade librarians to continue their use.

Editorial deficiences are conspicuous, from the howler, "Peek-a-Book Cards" on the title

page to the meaningless entry, "Type V device" in the index on page 371. Reichmann devotes several pages (22-25, 31, 32,) to feature cards and subject-term files without apparently realizing that the title of his part, "Notched Cards," and the arrangement of notched cards by item entries, eliminates the need to discuss feature cards in his part; and the editor has ignored this overlap with Thompson's part on "Feature Cards." Reichmann also treats of yes-no coding and related mathematical formulas (p. 14-20), and this overlap is also ignored by Hickey, the author of part five on this subject, and by the editor. These overlaps would not be so serious except that the full treatments are to be preferred in both instances.

All five parts suffer for lack of a full table of contents or a printed outline.

Thompson has attempted to conform to the organization indicated in the preface by dividing his text into: 1) a summary without his comments and 2) his own examination of the evidence provided in the literature, but the result is repetitious description and a failure to identify his effort, because the captions are numbered 1 through 12 and then repeated a second time with 1, 4 and 9 omitted without explanation. The other authors ignored this division but appear to have offered summaries and conclusions without making it clear which are their own comments and which are derived from the literature.

The authors have failed to define technical terms, both in their own thinking and in the text. If Reichmann had defined notched cards, he would have thereby excluded slotted cards (p. 21), plain or unpunched coordinate index cards (p. 25), and pegboard ticket posting—an experiment which has never been adopted (p. 25), from his part of the book. Jahoda, in preparing the most difficult part, has separated information retrieval systems from data files without attempting to say that information is all kinds of text, numbers, formulas, etc., while data is essentially nonliterary text—formulas, values, etc., and that both kinds are being retrieved.

There are separate lists of references for each part. They should be combined for the readers' convenience, to save space, and to demonstrate the actual size of the bibliography; and should then be provided with an

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author index. The index provided in the book does not include author entries for the references. The compilation of one list would have revealed that Reichmann, Blasingame, and Jahoda used the second edition of Robert S. Casey's *Punched Cards, Their Applications to Science and Industry,* and that Thompson and Hickey used the first edition. The compilation would have revealed interesting failures to cite fundamental chapters in Casey's book, such as that Reichmann does not refer to Madeline Berry's chapter ten, "Application of Punched Cards to Library Routines" although Thompson does; Thompson missed Wildhack and Stern's chapter six on the Peek-a-Boo System because he completed his part before the second edition was published; neither Reichmann, Thompson, nor Blasingame cites Ree's extensive chapter three on commercial equipment and supplies; and Miss Hickey's part would be improved had she seen my chapter nineteen on "Holes, Punches, Notches, Slots and Logic."

The book presents many examples of deficiencies. Blasingame (p. 113) quotes one advantage of machine-sorted cards as "Rapid sorting, even when there are very large numbers of cards." The original article refers to one machine only, the collator, for sorting on 16 characters, and states that it will require 4 hours 16 minutes to search 100,000 cards, using both feeds together. Librarians will not be impressed by such speed! This quotation and related discussion are given under the general account of punched cards in literature searching; they belong under the "Single Card—Multi Field Method" on pages 117-18.

Thompson writes (p. 68) of "the rhomboid design of the squares" of Delta feature cards; this is geometrically impossible. I have checked these examples. Reichmann says (p. 33): "In the vast bibliographical organization of the Library of Congress almost all known methods of information retrieval are employed (non-mechanical, semi-automatic and fully mechanized); the activities of these installations are coordinated by a Committee on Mechanized Information Retrieval." Neither part of this sentence is true; there are no fully mechanized information retrieval systems anywhere. Jahoda quotes Shaw in 1956 (p. 193-94) to the effect that a complete Minicard installation should cost about $350,000

for one unit or $150,000 each if 100 sets were produced. There are several operational Minicard systems now, but the cost of one more is more nearly $2 million than the figures predicted. Hickey shows pictures of machine-sorted punched cards on pages 324-26 as "actual size," but they are reduced about 26 per cent.

The COMAC and the IBM 9900 Special Index Analyzer are paper-tape machines with mechanical sensing, not photoelectric, as stated by Jahoda (p. 167-71). Zatocards have plain notching positions, not holes—Reichmann (p. 18). Thompson describes the Alpha-Matrex machine (p. 77-78) and quotes claims for it, without adding that only one experimental model was constructed and that is now gathering dust because of cumbersome input and output features and an unacceptable number of false drops on retrieval, perhaps because of poor indexing.— *C. D. Gull, General Electric Company.*

German Research Libraries

Handbuch der Bibliothekswissenschaft. 2d ed. Volume II. Edited by Georg Leyh. Wiesbaden: Harrassowitz, 1961. 1025p.

The second volume of the second edition of the *Handbuch der Bibliothekswissenschaft* is the most comprehensive work on the administration of research libraries in any language.

It is especially valuable to us for the contrasts it suggests between European and American research library administration. The traditional doubts that American librarians have for libraries which 1) shelve books by size and *numerus currens* and 2) offer delivery only in four to twenty-four hours need further analysis. As for the "dogma of classified arrangement" to which we are so devoted, it may only be observed that no major research library will be able