viously included, of authors, clerics, and scholars. Although they are all without exception lesser known people, I would suggest that libraries might consider keeping old editions for reference value.

A major improvement has been made in the style of the text. Although always quite well written, the *Americana* has made an obvious effort to rid itself of unnecessary stiffness or complexity. The new articles I read were uniformly better in these respects and much easier to read, while including more information.

But style changes are not all; some editors or authors apparently have had qualms about neat distinctions and decided to do something about them. For instance, the stopping of the Star of Bethlehem over Jesus' manger formerly "must have existed in the imagination of the beholders"; now it "has been set down to poetic imagery." If one has to express an opinion, I suppose that's better. And we will all be happy to find that Lady Hester Stanhope is identified as an "English traveller," no longer as an "eccentric Englishwoman"—even if she was.

Again, statistics cannot show the quality of the work. I personally am greatly impressed, almost overwhelmed, with what is obviously a major effort to make a fine encyclopedia finer. Many of the older articles will never need revision. And, as *Americana's* luck would have it, type is probably being set now to correct those small shortcomings noted. I think one cannot say more than that no general library can do without it.—*G.A.H.*

A Directory of Information Resources in the United States. Physical Sciences. Biological Sciences. Engineering. U.S. Library of Congress. National Referral Center for Science and Technology. Washington, D.C.: Govt. Print. Off., 1964. iv, 352p. $2.25. (64-62809).

This is a most useful bibliographic tool in the fields of science and engineering. It lists over a thousand organizations which are actively operating as information pools in these fields. Museums, observations, industrial organizations, professional and learned societies, academic research groups, government agencies and offices, information centers, special libraries, private research institutes, and many other institutions are included. Under each, the address and telephone number are given, followed by a descriptive section indicating the fields of interest of the institution, its borrowing, photocopy, and inter-library loan policies; consulting, translating, legal, literature searching, and similar services available; the languages covered by materials in its collections, as well as publications issued and their prices. The coverage includes books, journals, reports, documents, patents, maps, charts, films, data collections, photographs, drawings, artifacts and special collections of many varieties. It is, in fact, an inventory of the widespread resources available, but not necessarily known to be so heretofore, in a most convenient and usable form.

The scope and purpose of each organization is given briefly, which should be very helpful in cases where a user is not sure whether he has found the best place to look for help. Full cross references are employed throughout the *Directory.*

A subject index, comprising almost one-fourth of the total text, completes the *Directory.* Subject indexing terms are taken directly from the descriptions and "each resource has been entered under the several subjects reported in the description of that resource in order to provide multiple avenues of approach." In the index, cross-references have been made from general to specific and among related terms.

The index seems quite comprehensive, but with this type of reference book, there is no such thing as over-indexing. Anything that can be put into it can be used. The index does lack an entry for collections of *translations.* This, even more than translating services (also not included), would be most convenient to have because translations are hard to locate. At the present time, for example, pre-war German work in rocketry, aeronautical engineering, and electrical engineering is in some demand. The SLA-John Crerar Translation Center does not have everything. The index term for translations should be broken down to include such major divisions as German, Russian, Japanese, and East European languages.

The identification of information resources is a continuing function of the National Referral Center for Science and Technology. The first results are impressive and

the *Directory* so obviously fills a need that we look forward to more of the same.— *Phyllis A. Richmond, University of Rochester.*

Catalog Card Reproduction. Report on a Study Conducted by George Fry & Associates, Inc. Chicago: Library Technology Project, ALA, 1965. (LTP Publications, no. 9), xii, 81p. Illus. Cloth, $8.50. (65-13196).

Those librarians who noticed the press releases from the American Library Association and the Council on Library Resources on May 21, 1961, announcing a grant for study of library catalog card reproduction looked forward to an aid in comparing and choosing a cheaper, quicker, or clearer way to prepare catalog cards. Now, four years later, the results of this study by the management firm of George Fry & Associates of Chicago are available. If the estimate in that release is accepted, that one hundred million cards a year were then produced by individual American libraries, and if a factor for everyday explosive growth is also permitted, then we can estimate roundly the number of cards that have been generated in the interval at half a billion. And who dares say how many more *fiches* will be spawned before we each have read, absorbed, and put to use the simple instructions of this slim green volume?

Like Gaul, this guide is divided in three parts. First is a listing of the problems of card reproduction, with a summary of the most economical techniques that were found in use by small and larger libraries cataloging fewer or more than 2,000 titles per year. Total costs for twenty requirement levels are given in a table for an arbitrary standard set of four cards produced by thirteen different processes and one variation. Some makers of cards will be satisfied, especially if it reinforces what they are now doing, to read no farther.

For others, the second part is a description of the common card reproduction processes. The information provided is sufficient to differentiate the processes, but is no substitute before a final decision for the more extensive explanation found in such compilations as H. R. Verry's *Document Copying and Reproduction Processes* (London, Fountain Press, 1958. 328p.). The absence of a bibliography in *Catalog Card Repro-*

duction, with the exception of some references in passing (see pages 14 and 58), may foster too much dependence on the judgment of the Fry report. Numerous illustrations are given, but too many are devoted to the manufacturers' courtesy shots of their big black boxes. The more useful ones are originals showing special techniques or the results obtained. A profuse index is provided.

The third part takes up cost data and comparison of processes. All methods were found capable of producing "good," as opposed to "perfect quality." The report urges the acceptance of "good quality" for the substantial savings in staff time and, therefore, money. Lack of uniformity between methods used in existing catalogs was found to be "far more noticeable and much less pleasing esthetically than the quality of cards produced by even the poorest of the processes described here." Need for an objective measure of over-all reproduction quality, such as resolution charts provide for photographic methods, is apparent. Other qualitative tests are possible, as shown by W. J. Barrow's investigations of paper permanence, but were not developed. There seems to be a basic prejudice against the subject's importance, expressed in the report's first paragraph, which prevented refinement of the product to the same degree as reduction of the time and cost in disposing of it.

A procedure is given, and blank work sheets are provided, to help the librarian calculate the total costs of his card reproduction operation and compare it with others. Standard costs are given for equipment (as of May 1, 1964), for materials (with allowance for variation in titles processed and cards required), and for operation (to be calculated at local rates from hours of staff time per one hundred titles). For the librarian with experience in only one or two of the processes, the provision of these "normal times," corrected for fatigue, performance differences, and unavoidable delays, may well be the most important contribution of the study. While examining processes in use at seventy libraries, project staff exposed about fourteen thousand feet of 16mm motion picture film. The times for operations were developed by counting frames of film, but the results were tempered with subjective analysis of