

consultants, educators, librarians, economists, sociologists, and historians. In addition to submitted manuscripts, there are commissioned reports of research in progress, statistics, updates on organizations, and book excerpts. Recent special issues—"Publishing Education," "Changes in the Environment of Scholarly Publishing," and "Europe 1992"—focus on timely topics. In another vein entirely are the interesting historical studies of reading that have appeared from time to time. These studies reflect the current interest in popular culture, literacy, and reader response.

Not surprisingly, this variety is both a strength and a weakness. At times the journal appears thin, uneven, or choppy, as when a study of "Economic Reform and the Dearth of Books in Nigeria" is followed by an explanation of "CD-ROM Data Storage Technology." The whole does not always succeed in being more than the sum of its parts.

Academic librarians should definitely take a look at this journal, which regrettably is not included in the standard indexes of librarianship. They should do so for two reasons. First of all, librarians need to understand how publishers view issues such as pricing, distribution, copyright, and changing formats. One comes away with a strong sense of what is worrying at least some publishers: loss of readers to audiovisual media, loss of the trust of universities and librarians, uncertainty about the risk of publishing in new formats, and anger that increasing consolidation and globalization of publishing, printing, bookselling, and distribution have destroyed "many authors, entrepreneurs, managers and publishing programs."

The second reason for reading *Publishing Research Quarterly* is of less immediate relevance to libraries: the intrinsic value in understanding the world of publishing, described by the editor, Beth Luey, as "our most important cultural industry." Long dismissed as the "accidental profession," publishing is only now beginning to establish itself as a full-fledged profession. Educational programs and degrees are springing up (at

NYU and Simon Fraser, for example). Boundaries are being defined. Academic conferences are taking place. Professional publications (such as this journal) are appearing. This fragile growth is occurring at a time of unprecedented mergers, cutthroat international competition, declining readership, and dizzying technological change. Librarianship seems almost placid in comparison.—*Jean Alexander, Northwestern University, Evanston, Illinois.*

Kohler, Robert E. *Partners in Science: Foundations and Natural Science 1900–1945.* Chicago: Univ. of Chicago Pr., 1991. 414 p. alk. paper, \$34.95 (ISBN 0-226-45060-0). LC 90-43520.

Historians of science have since tired of the debate in their ranks between internalists and externalists. The former group, which provided the core around which the discipline crystallized in this country shortly after World War II, has concentrated on the internal dynamic of the growth of scientific knowledge and often assumes that broader cultural features are not of great significance to the content of science. The externalists, who came to dominate the field in the 1970s, have concerned themselves with the political, economic, and institutional environments in which science is done. The debate has faded because many historians of science saw it as fruitless. In some ways, the difference is merely aesthetic: one group likes to study the changing content of scientific knowledge; the other prefers to look at the circumstances in which scientists work. Moreover, some observers would say that the best work of the past decade and a half has combined aspects of both programs—concerning itself with the content of scientific knowledge, but seeing contextual factors as crucial in the development of that knowledge.

Robert Kohler, a trained biochemist and an unabashed advocate of traditional externalism, abandoned internalism soon after he began doing research at the newly opened Rockefeller Archives in 1974. Kohler's work since then has concentrated on the institutional history of laboratories, university depart-

ments, and the like. In the preface to *Partners in Science*, Kohler describes how he "became aware that science was a complex social system with many actors, in which securing resources, negotiating with patrons, creating departments and disciplines, competing for talents, designing products and services, and projecting public images were no less essential than bench research." As a consequence, he moved away from the history of science ("that is, of finished intellectual products") and toward the history of *scientists* ("that is, science as a social process").

This book is the natural outcome of Kohler's fascination with the Rockefeller patronage of science and culminates his nearly twenty years' work with manuscript sources. In some detail, yet in a readable style, it tells the story of how Rockefeller (and to a lesser extent, Carnegie) money was applied to basic research in physics, chemistry, and the nonmedical life sciences during the first half of this century.

During the early years, foundation support was modeled on the older practice of grants-in-aid to individual scientists, and ultimately was channeled through fellowships offered by the National Research Council (established for this purpose by the National Academy of Sciences in 1916). The scene changed in 1923, when the Rockefeller-funded General Education Board (GEB) and the International Education Board (IEB) began giving grants directly to institutions for support of science departments and laboratories. The growth of the California Institute of Technology and of graduate science programs at Princeton University, in particular, was the result of Rockefeller activities at this time.

When the GEB and the IEB were dismantled in the late twenties as part of a reorganization of the Rockefeller charities, these grants ended and support for the natural sciences was transferred to a Rockefeller Foundation division, headed by the mathematician Warren Weaver. Weaver, driven by a vision of interdisciplinary scientific work, cultivated close relations with individual scientists through a system of project grants and used the proj-

ect grant system to bring physicists and chemists into partnership with physiologists and other life scientists. The term "molecular biology" came into use during this period in association with Weaver's program, and researchers made good use of Rockefeller money in investigating the structure of protein and genetic material. Kohler clearly admires Weaver for having finally created a system for the management of scientific research, but he wisely avoids making a direct link between the success of Weaver's strategy and developments in genetics that came after 1953, in the wake of the description of the double helix.

Kohler also avoids making a link between the foundations' funding programs and the federally dominated "big science" of World War II and the postwar period. The difference in scale is too great; and the type of relationship that prevailed between patron and scientist is too different: for example, peer review of funding proposals was unknown in Weaver's natural science division. Kohler postulates that the extramural programs of the National Cancer Institute (founded within the National Institute of Health in 1937) set much more of a precedent for the activities of war-time and postwar federal science funding agencies.

What then is the import of Kohler's story? It is an account of the activities of a group of scientists and university administrators who came to manage a portion of the private wealth of this country in support of a set of working scientists at a particular moment in history. This book does not address the development of scientific knowledge; and, contrary to his assertion in the preface, Kohler tells us very little about the activities of working scientists beyond their relations with the foundations. Nor, for that matter, is the politics of philanthropy discussed much, although Kohler implicitly denies that the Rockefellers and their associates had any object other than to put a portion of the family wealth to use in disinterestedly advancing knowledge.

But the story is more important than it appears when described in this way. For a time, Rockefeller money was central to

scientific research in the United States and around the world; and Weaver, in particular, helped create a paradigm for creatively managing science through control of funding. Kohler provides crucial material with which other scholars can further explore the means by which institutional arrangements—and especially patronage—served as intermediaries between broader political and cultural contexts and both the daily activity of working scientists and the knowledge they produced. The story of foundations and natural scientists is one worth telling; and it is hard to think of anyone better equipped than Robert Kohler to tell it in as lucid and engaged a fashion.—*Ed Morman, Institute of the History of Medicine, Johns Hopkins University, Baltimore, Maryland.*

Johnson, Peggy. *Automation and Organizational Change in Libraries.* Boston: G. K. Hall, 1991. 201p. alk. paper (ISBN 0-8161-1919-8, hardcover. ISBN 0-8161-1920-1, paper). LC 90-26147.

Peggy Johnson has provided an excellent summary of state-of-the-art management of research libraries that have undergone or are in the process of undertaking a transition to automated systems. While the monograph describes the results of a survey of academic libraries in the United States and Canada, it also contains a well-researched historical overview of academic libraries, followed by a description of the organizational environment of libraries. The introductory chapters provide substantive background for the work that follows and include many references to supplemental reading and supporting documentation, including a substantial number of articles and monographs from the general areas of organizational development and management.

The remainder of the work describes the survey methodology devised by Johnson, the responses to the survey, and the interpretation of the data as they relate to organizational development and human factors in large automated academic libraries. A comparison of the survey responses to predictions in the

literature places the developments in the library world into a larger management context.

The survey research both confirms and refutes commonly held predictions and beliefs about the structural and organizational changes to be brought about by automation. Examples of issues addressed are the "flattening" of the organizational structure, increase in the number of departments, growing emphasis on task specialization, blurring of distinctions between technical and public services, changing communication and decision-making patterns, modifications to staff classifications, and paradoxical centralizing and decentralizing effects of automation. The author demonstrates that although some changes have been slower in coming than originally predicted, the overall impact of automation has been revolutionary on collections, services, and the ability of libraries to deal effectively with the dual problems of rapid inflation in the costs of goods and services and the information explosion.

A separate chapter describes the management literature on change in innovation, especially as it applies to technological change, and libraries in particular. Finally, trends for the future are analyzed and "new understanding of libraries" described. The author challenges library leaders "not only to make the transition to an automated organization as painless as possible for the library and its users but to take full advantage of the opportunities presented." The first step is to recognize that a paradigm shift is happening: librarians must not passively let the future happen, but must actively seek it.

This book is both useful and interesting; it is also exceptionally well written. The general library reader will come away with a basic understanding of the impacts of technology on modern large academic libraries, and the reader desiring a more sophisticated understanding of the state of the art will benefit from both the details of the research reported in this text and the many references to the literature of general management and organizational change, as well as to