tion-thick worlds because of our marvelous and everyday capacities to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, refine, abstract, scan, look into . . . . Clutter and confusion are failures of design, not attributes of information." Tufte's books are profound meditations on ways in which information can be envisioned, "in order to reason about, communicate, document, and preserve that knowledge." They are exhibits of, and reflections on, works of "cognitive art," beautiful works of useful information, works at the intersection of image, word, number, and art.

Anyone involved in the design of information displays, from library handouts to computer interfaces, should take time to study these books. But I would also put these books on the reading lists for library school courses in reference and bibliography (especially the evaluation of reference works), collection development, communication, cataloging, information retrieval theory, and information systems design, and would recommend them to anyone seriously interested in any of those subjects, not just to clarify their ideas about what makes for good or bad visual displays of information, but as instruments for thought about thought, communication, and information.

These are source books, vivid demonstrations of graphic power, that have the potential to change an individual's view of information: away from the view that discourse is primary and graphics are simply illustration, toward the view that discourse is often problematic and that methods for the graphic display of information are for many purposes superior in the portrayal of density, complexity, and dimensionality. Tufte offers us deep considerations on the limits of discourse, with implications for how we think about communication and the storage and retrieval of information.

Envisioning Information is, not at all incidentally, irresistibly beautiful. It is cheap at its price. Both books must be in any decent academic library; many librarians and information scientists will insist on having their own copies as well.—*Patrick Wilson, University of California–Berkeley.*

Advances in Library Resource Sharing. Cargill, Jennifer, and Diane J. Graves, eds. V.1, Westport, Conn.: Meckler, 1990. 238p. alk. paper, $55 per year (ISSN 1052-262X; ISBN 0-88736-490-X).

In one of the best essays in this book, Marsha Ra makes a credible case that "resource sharing as we now understand it will probably cease to exist." We almost certainly are looking at a paradigm shift in libraries. Whether *"advances"*—the optimistic word used in the title of this collection of essays—is the right word for this shift is profoundly uncertain.

This is not a good book. It is cluttered with too many essays that were written without evident purpose. We do not need yet another account of the Center for Research Libraries, or an article on the economics of resource sharing that contains no economic analysis, or a set of unthoughtful reports on regional resource sharing, or a complaint about library services from a faculty person who is myopic, uninformed, and cranky. There is not much in this book to suggest that its compilers had a definable editorial purpose (other than to produce a book) or took much care to create a volume of value and merit. The compilers promise an annual volume on resource sharing. Let us hope for other things.

Amid this dross, there are some essays that merit attention. Richard M. Dougherty and Carol Hughes issue the now familiar call for libraries to shift their mission from owning information to providing access to it, to shift from delivering bibliographic units to delivering information, and to do this in ways that are speedy, convenient, and customized to the individual reader's needs. Marsha Ra picks up this theme and observes that electronic networks, uniform communication standards, expert systems, and workstations will soon permit resource sharing with little direct involvement of librarians. Some of the transformations in authorship and publishing that electronic media will require, if we are to

avoid information chaos, are thoughtfully described by Bonnie Juergens and Gloriana St. Clair.

And in one of the book's most useful chapters, Adrian W. and Julie S. Alexander summarize the transformation of intellectual property rights that may accompany the electronic dissemination of information. As the Alexanders make clear, the traditional business of libraries has been the distribution—at both circulation desks and interlibrary loan departments—of copies of printed works. Digital and other dynamic media (such as recording tape) bring radical change to our notions of "distribution" and "copy." These changes have prompted many to observe that libraries are now in competition with other information providers and may not survive, except as museums for materials that predate the electronic age of information distribution.

Two observations might be offered on this vision of the future. The first is that someone will have to ensure continued access to printed information, and no one can do that better than librarians. Perhaps librarians should avoid pejorative descriptions of this vital and enduring function of libraries. We have other functions as well, one of the most fundamental of which is captured in the phrase "resource sharing." Ever since libraries began to function in the public interest about 250 years ago, their economic and social function has been to enable users to share among themselves, rather than to own individually, the books, journals, and other materials they need. The question before the library profession now is not whether we embrace digital media (we have!), but whether we will continue to deliver the economic and social benefits of shared usage to our readers. Powerful technological and marketplace forces are arrayed against such service.

Libraries will not "advance" by competing with the for-profit sector on its own terms. Libraries, working in a transformed environment, must instead find ways to preserve a different communal set of terms for information use that protects the individual economic benefits and the more general public interest that have so long been embedded in both copyright law and the profession of librarianship.—*Scott Bennett, Johns Hopkins University, Baltimore, Maryland.*

Pool, Ithiel de Sola. *Technologies without Boundaries: On Telecommunications in a Global Age*. Eli M. Noam, ed. Cambridge, Mass.: Harvard Univ. Pr., 1990. 283p. alk. paper, $27.50 (ISBN 0-674-87263-0).

Ithiel de Sola Pool had a long and illustrious career as a political scientist and pioneer in the field of communications research. For thirty years, he was on the faculty of M.I.T., where he founded and headed both the political science department and the interdisciplinary Research Program on Communications Policy. He was a prolific writer, and his books consistently won acclaim. Even in the last two years of his life, he published some twenty articles and two books. One of these, *Technologies of Freedom* (1983), dealt with the social and political status of the media in the United States. A second volume was to deal with the same issue in the international realm. This manuscript, edited by Eli M. Noam of Columbia University, became *Technologies without Boundaries*.

The extraordinary mental vigor and optimism that enabled Pool to continue working at an intense pace after the onset of his illness are evident in this book, which Noam describes as "a specialist's book for generalists, and a generalist's book for specialists." Clearly written and passionately argued, *Technologies without Boundaries* is the final expression of Pool's missionary conviction that the new telecommunications and computing technology will have untold social, material, and political benefits, if only they remain free of government regulation. To this battle against government encroachment, Pool brought an impressive understanding of technology as well as a humanistic perspective and a close familiarity with social science research in the field of communications.

Technologies without Boundaries contains a very good introduction to the technologies of telecommunications and