Book Reviews

Tufte, Edward R. *Envisioning Information.* Cheshire, Conn.: Graphics Pr., 1990. 126p. $48 (ISBN 0-9613921-1-8). LC 90-166920.

Tufte, Edward R. *The Visual Display of Quantitative Information.* Cheshire, Conn.: Graphics Pr., 1983. 197p. $36 (ISBN 0-9613921-0-X). LC 83-156861.

Envisioning Information is Edward R. Tufte's second book on information design. His 1983 *Visual Display of Quantitative Information* is already a classic; the new book is sure to become one as well. *Visual Display* deals with statistical graphics, charts, maps, and tables, setting forth principles for design and criticism, applied to a rich variety of good and bad historical examples, and illustrated with new designs. *Envisioning Information* goes much further, covering visual displays of information of all kinds, from the Vietnam Veterans Memorial to railway timetables, electrocardiograms, guidebooks, scientific visualizations, maps, computer screens, dance notations, and much, much more.

The two books complement each other, and both should be studied. The new work does not add much to the theory of the first, but extends its range of application—notably in the direction of color, which is treated rather grudgingly in the first book, but celebrated in the second: color used to label, to measure, to represent, as well as to enliven and decorate. (*Envisioning Information* is printed in six colors, except for the chapter on color, which is twelve colors on eleven—that is, twenty-three printing units.) The first book is about "the use of abstract, nonrepresentational pictures to show numbers"; the new book is about ways of representing complex and multidimensional information of any sort. Tufte says it is about the "escape from flatland," his

way of describing the attempt to represent the dynamic and multidimensional in two dimensions—the flat, static page.

Tufte teaches statistics, political economy, and graphic design at Yale, but he can as well be called an information scientist and these books contribute to information theory. Consider these to be works on alternatives to discourse. For many librarians and information scientists, as for many cognitive scientists, the word is primary, the sentence (or its abstract shadow, the proposition) is the basic unit of thought and communication, and discourse, connected strings of sentences, is the basic vehicle for reasoning and instruction. Graphics are merely illustrative or decorative, but not essential and not efficient. These books argue against such views. In the words of its author, *Visual Display* is about "how to communicate information through the simultaneous presentation of words, numbers, and pictures." It catalogs the basic structures for showing data: sentences, text tables, tables, semigraphics, and graphics. Which is best for what purpose is one of the basic tactical problems of the information designer. For instance, tables are often preferable to graphics and to prose for small data sets. But "often the most effective way to describe, explore, and summarize a set of numbers . . . is to look at pictures of those numbers."

Tufte will have nothing to do with the idea that simplification in the presentation of information is necessary to avoid information overload, boredom, or incomprehension. "What is to be sought in designs for the display of information is the clear portrayal of complexity." High information density, data-rich displays are what people want, and adding detail may often clarify. "We thrive in informa-

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