Book Review

Visualizing Data

**William S. Cleveland,
Summit, NJ: Hobart Press;
1993, 360 pages, $40.00**

A series of books, starting with Edward Tufte's *The Visual Display of Quantitative Information* (Cheshire, CT: Graphics Press; 1983) and currently ending with William Cleveland's latest book, Visualizing *Data,* belongs in the library of every researcher and editor who is serious about depicting information effectively.

Visualizing Data builds on results in Cleveland's earlier book, *The Elements of Graphing Data* (Monterey, CA: Wadsworth Advanced Books; 1985), and other research on graphical perception. As the introduction notes, a penetrating look at data structure afforded by visualization is a different paradigm from probabilistic inference. Cleveland's new book presents powerful tools for encoding information on revealing visual displays and for fitting mathematical functions that disclose important aspects of the data. Reading the book is like watching a talented data analyst peel away layers of chaff to reveal kernels of meaning.

Following an introductory chapter, the book is organized into five more chapters on methods for univariate, bivariate, trivariate, hypervariate (four or more related quantitative variables), then multiway data (combinations of two or more qualitative variables with dependent quantitative variable[s]). Every method presented is illustrated, with plots conveniently placed within or on the page facing pertinent text, and the plots frequently reveal inferences not evident from probabilistic analyses applied to the same data. Cleveland introduces each tool in the context of progressive examination of real data sets, demonstrating how visualization complements or sup plants probabilistic numerical methods. Each chapter explains the nature and history of data selected as an example, explains the purpose and interpretation of visualization tools applied, alludes to false starts or other problems in the analysis, then refers readers who want more technical details to "for the record" sections. The book is written in a clear and thoughtful style, richly illustrated, thoroughly referenced and indexed, and typeset and published with extraordinary attention to detail.

The quality and value of this book are exceptional. Some pictures are worth more and some less than the proverbial 1,000 words, and *Visualizing Data* provides cogent insight that can help us to discover the most effective portrayal of our data. An exciting aspect of this book is the discovery of new findings in examples that are real, sometimes classic, data sets. Exciting is hardly a common description for statistics texts, but this one starts with a mystery and promises to "retain the suspense of the full story" throughout. I enjoyed reading the book, admit to not understanding completely all aspects of each chapter, nor seeing many of the subtleties caught by Cleveland's experienced eye, but look forward to perusing sections again and again as my knowledge builds. There is much to learn here, regardless of one's starting point. Whether you are a statistical software developer, a master at statistical graphics software, a teacher of statistics, an experienced researcher, or a complete novice at data analysis, this step-by-step examination of real data introduces important methods and refinements from an innovative perspective.

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CDC Releases Final TB Guidelines

**by Gina Pugliese, RN, MS
Medical News Editor**

The Centers for Disease Control and Prevention's (CDC) final "Guidelines for Preventing the Transmission of TB in Health Care Facilities, 1994" were published in the Friday, October *28,* **1994,** *Federal Register,* vol. 59, no. 208, pages 54242-54303. These guidelines also will be published in the CDC's *Morbidity and Mortality Weekly Report (MMWR).* A free copy of the 130-page document from the *MMWR* can be obtained from CDC's Voice Information System at (404) 639-1819.