Nonetheless, for persons involved with quantitative analysis for the application areas emphasized by Berthouex and Brown, this book would be a nice desktop reference.

REFERENCES

El-Shaarawi, A., and Piegorsch, W. (eds.) (2002), *Encyclopedia of Environmetrics*, Vols. 1–4, West Sussex, UK: Wiley.

Gatliffe, T. (1996), Review of *Statistics for Environmental Engineers*, by P. Berthouex and L. Brown, *Technometrics*, 38, 182–183.

Ziegel, E. (2002), Editor's Report on *Encyclopedia of Environmetrics*, Vols. 1–4, by A. El-Shaarawi and W. Piegorsch, *Technometrics*, 44, 408–409.

Modern Applied Statistics With S (4th ed.), by W. N. VENABLES and B. D. RIPLEY, New York: Springer-Verlag, 2002, ISBN 0-387-95457-0, xi + 495 pp., $69.95.

This is the fourth version (4E) of this book to appear in less than 10 years. Most recently, the third edition (3E), published in 1999, was reported by Ziegel (2001). In the Preface, the authors call the S language "the statistician's calculator for the 1990s" (p. v). Perhaps there should be a poll, but I imagine that the SAS Institute might question that claim. SAS users, already burdened with one cumbersome syntax-oriented language, probably, like me, have never wanted to learn another, especially one that is not nearly as capable. The recent S-PLUS GUI, which encouraged my purchase of a copy of S-PLUS, merits only a 4-page Appendix here. The comment by the authors that "we do not discuss the interface here, as it does not provide enough power for our material" (p. 3) indicates that they have a more masochistic approach to statistical computing than I do.

The authors have continued to enhance the book. The 4E makes only a few modest additions to the material of the 3E. They emphasized one change, which must interest someone—the addition of coverage of the R-version of the S language. The introductory chapters have been reorganized to provide a complete chapter on data manipulation. A chapter on computation using generalized linear mixed models has been added. Neural network methods are discussed for both nonlinear regression and classification applications. Sections on splines and projection pursuit regression have been added. The book concludes with a completely new chapter on optimizations.

The authors have promised a website that provides all of the datasets and the S code used in the book. In addition, it is supposed to contain "on-line complements, additional sections and chapters" (p. v). The site was not yet developed when this report was written.

REFERENCE

Ziegel, E. (2001), Editor's Report on *Modern Applied Statistics With S-PLUS* (3rd ed.), by W. Venables and B. Ripley, *Technometrics*, 43, 249.

Statistical Inference (2nd ed.), by Paul H. GARTHWAITE, Ian T. JOLLIFFE, and Byron JONES, New York: Oxford University Press, 2002, ISBN 0-19-857726-3, xi + 328 pp., $70.

Here is another of the new generation of books in mathematical statistics in which the authors make a serious effort to make their books more enjoyable for students and other readers. In the report on the book by Rice (1994), it was noted (Ziegel 1995) that "it is fine to teach mathematical statistics, but it must be connected to application; that is what this book does better than any similar book that I have seen." Recently, in the report on the book by Casella and Berger (2002), it was commented (Ziegel 2002) that "in addition to being up-to-date, this revision focuses on what people need to learn from statistical inference to support modern practice." Here, in the Preface (p. vii), Garthwaite, Jolliffe, and Jones state that "the emphasis is on explaining what various techniques do, with mathematical proofs kept to a minimum." Perhaps some of my professors who mumbled away, sometimes in barely comprehensible English, as they filled the chalkboards with tightly written lines of proofs have finally retired.

The first half-dozen chapters, a little less than half of the book, cover all of the traditional topics for a typical mathematical statistics book: properties of estimators, methods of estimation, hypothesis testing, interval estimation, and decision-theory approach to inference. The last four chapters, more than half of the book, provide a more modern perspective: Bayesian inference (including empirical Bayes), nonparametric and robust inference, computationally intensive methods, and generalized linear models (GLMs). The computational methods include Monte Carlo, permutation and randomization tests, cross-validation, jackknife methods, bootstrapping, and Gibbs sampling. The last section in the chapter on computations even discusses computer software. The chapter on GLMs includes sections on determining whether a model adequately fits the data and on diagnostic checking for GLM models.

In a book of only 300 pages, especially one that includes an unconventional set of topics, obviously some topics will not be covered at all. Most notable here is the almost complete absence of material on linear models and regression analysis.

REFERENCES

Casella, G., and Berger, R. (2002), *Statistical Inference* (2nd ed.), Pacific Grove, CA: Duxbury Press.

Rice, J. (1994), *A Manager's Guide to the Design and Conduct of Clinical Trials*, Belmont, CA: Duxbury Press.

Ziegel, E. (1995), Editor's Report on *A Manager's Guide to the Design and Conduct of Clinical Trials*, by J. Rice, *Technometrics*, 37, 127.

——— (2002), Editor's Report on *Statistical Inference* (2nd ed.), by G. Casella and R. Berger, *Technometrics*, 44, 407–408.

Statistical Methods for the Analysis of Biomedical Data (2nd ed.), by Robert F. WOOLSON and William R. CLARKE, New York: Wiley, 2002, ISBN 0-471-39405-X, xxv + 677 pp., $94.95.

This is the second edition (2E) of a book that appeared in its original edition (1E) back in 1987. It was the first book on medical statistics reported here. This update includes the addition of a coauthor. Despite the additional perspective, this remains a very traditional textbook which, considering that 16 years have elapsed since the publication of the 1E, has received only a very modest updating.

The report on the 1E (Ziegel 1989) characterized the book as "a standard statistics textbook that is simply illustrated with applications for a specific area." Although the book was described as "very well illustrated" (ibid.), it was criticized for not using the computer for any of its illustrations. There has been a somewhat gratuitous improvement in the computing situation in the 2E. Now each chapter is concluded with a section called "Using SAS for Computations." These new sections are nice enough. Each includes SAS code, SAS outputs, and discussion of both the setup of the problem and interpretation of the results.

The other major addition is an 80-page chapter on multiple linear regression. This comprehensive chapter includes subset selection, analysis of covariance, use of dummy variables, and logistic regression among its topics. Despite the extent of this coverage, the section on using SAS for computing in multiple regression analysis comprises only eight pages. Both students and scientists working in biomedical applications need to learn statistics in conjunction with experience in practical application. This certainly needs to be done with computational software as a feature, not as a postscript, in every statistics textbook.

REFERENCE

Ziegel, E. (1989), Editor's Report on *Statistical Methods for the Analysis of Biomedical Data*, by R. Woolson, *Technometrics*, 31, 274.

Statistical Methods in Diagnostic Medicine, by Xiao-Hua ZHOU, Nancy A. OBUCHOWSKI, and Donna K. McCLISH, New York: Wiley, 2002, ISBN 0-471-34772-8, xv + 437 pp., $94.95.

If this book has no relevance to you or to people whom you care about, then life has greatly blessed you, even if you are young. Sometimes diagnosis of disease for us or our loved ones can seem very explicit. Other times, diagnoses can be very vague. This book deals exclusively with a very specific situation—the use of a diagnostic test to conclude whether one does or does