

result, however, is uneven in content and presentation. Methods are provided in detail in some cases but not in others. Readers who are well informed about statistical methods will find Motulsky's discussions of methods unnecessary; others who lack statistical expertise will not find enough detail.

Although I enjoyed reading *Intuitive Biostatistics*, I think the audience who would appreciate it is quite small. I would not recommend it as the primary textbook in a statistics course, but it may be one of the first books I would give to a graduate student or a colleague who wanders into my office and asks about one of the many topics reviewed by Motulsky.

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APTITUDE REVISITED: RETHINKING MATH AND SCIENCE EDUCATION FOR AMERICA'S NEXT CENTURY.

By David E Drew. *Baltimore (Maryland): The Johns Hopkins University Press.* \$35.95. xiii + 254 p; ill.; index. ISBN: 0-8018-5143-2. 1996.

The general message underlying David Drew's latest book is by now quite familiar: achievement in science and math of students in the United States lags far behind the rest of the world, and the students left farthest behind are members of societal groups that possess the least power, namely minorities and women. A less familiar spin on this message, however, is that the causes of our dismal international performance are not new; they have been plaguing us for at least two decades despite the existence of research and programs that can improve learning. Because the book focuses on this research and the successes of innovative science and math programs, even those familiar with international performance evaluations will find something worthwhile.

Drew organizes this readable but meticulously referenced review of the learning and assessment literature, especially that devoted to equity issues, around two themes: an overview of the specific problems afflicting science and math instruction, and a variety of possible solutions. These themes are not as clearly distinguished as one might hope.

Chapters 1 through 4 examine the problems: the relationship between technological training and economic competitiveness, issues of scientific literacy, the structure of technical education at the elementary and high school levels, the results of international science assessments, and the status of post-secondary science and math education. Chapters 5 through 7 identify potential solutions to the problems of preparing adults to work effectively in an economic system that increasingly depends on their ability to collect, evaluate, and use information. One way to increase the proportion of quali-

fied individuals, according to Drew's thesis, is to tap the well of hidden talent in our schools—the students, largely minority and female, who have lost interest in or have been actively discouraged from studying quantitative subjects. Central to his argument are convincing data from cognitive psychology that there is more variation in intellectual ability within groups than among them, and thus it is inappropriate, and indeed foolish, to discourage traditionally underrepresented students from the pursuit of science.

To his credit, Drew avoids reducing sizable challenges in science and math literacy to simple, formulaic fixes. Instead, he presses the case, quite hard and compellingly at times, for a place to begin our repair work, and to recognize that the racial and gender inequalities in science and math result not from differences in aptitude but from differences in opportunity. Drew describes some of the consequences of these opportunity differences on careers and competitiveness, but there are ethical consequences as well. If we deny female students and students of color the opportunity to learn science and math, we also deny them the opportunity to reap the intellectual and economic rewards of these fields.

Ultimately, Drew's solutions are more a wake-up call for change than novel recommendations: "The most important solution to the problems discussed in this book . . . is a national consciousness raising about expectations" (p 211). For several decades, we have known that students will perform precisely as well as we expect them to, yet we have not followed this lesson through to its logical conclusion in our classrooms. Drew argues that it's about time we start.

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SIZE, FUNCTION, AND LIFE HISTORY.

By William A Calder III. *Mineola (New York): Dover Publications.* \$14.95 (paper). xvi + 431 p; ill.; index. ISBN: 0-486-69191-8. [First published in 1984 by Harvard University Press.] 1996.

MINITAB FOR WINDOWS. Release 11.

State College (Pennsylvania): Minitab Inc. \$895.00 (Commercial); \$495.00 (Academic). [Requirements—IBM PC: DOS 5.0 or later, Windows 3.1, 3.11, Windows NT, Windows 95, 8MB RAM (minimum), 16MHz microprocessor or greater, 20MB hard disk space, 1.44MB 3½" disk drive, VGA or SVGA, math coprocessor.]

Minitab is one of the most enduring statistical packages available for almost any platform. The latest release (11.2) for Windows 3.1, Windows 95, and

Windows NT, is as powerful a statistics package as any available for desktop computers. It performs every conceivable regular statistical procedure, including nonparametrics, the general linear model, multivariate analyses, time series, experimental design, and quality control. All of the statistical procedures run quickly and efficiently, with easy-to-understand output. Data can be imported from a variety of standard sources, including text, Excel, and Lotus. Minitab also has excellent data-handling procedures. It can generate a series of random distributions and perform matrix operations. Minitab's raw computing power makes it an excellent tool for large number crunching.

In addition to its strength as a statistical package, Minitab provides a bridge between command-line users accustomed to older versions of Minitab (or similar statistical packages such as SAS) and Windows users accustomed to a mouse-driven menu interface. In addition to running in the mode more comfortable to the user, it is also a tremendous aid to those wishing to learn how to use command-line commands, since every mouse-driven command is

reflected by the corresponding command line in the history window.

The major weakness of Minitab is its graphical output. Although the graphs it produces are decent and can be fully customized, they do not have the sharp feel produced by packages specifically designed for graphics, such as DeltaGraph, JMP, or PSI-Plot. Furthermore, graphs cannot be directly saved to standard formats for importation into other programs. The only available options are to copy your graphs to the clipboard or to save them as printer files, either of which may allow you to import the graph into another program. Simply allowing the graphs to be saved directly as more standard formats, such as bitmap or TIFF, would be a definite improvement.

The reference manual is excellent, containing detailed equations, references, and examples for each procedure. The only drawback is that the dual syntax of mouse-driven menu commands and typed-command line commands may be somewhat confusing at first, even though this is ultimately a plus.

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