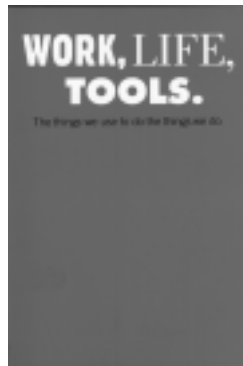


■ ANDREW RUPPEL, Feature Editor, McIntire School of Commerce, University of Virginia

## Tools, Tales, and Techniques

Andrew Ruppel, University of Virginia

How do humans tackle problems, how do they deal with numbers and uncertainty, and how well do they communicate their efforts to others? Sounds like every-day situations for the decision scientist. Here are some new, not-so-everyday books that address these key situations.



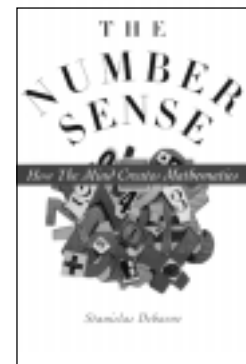
*Work, life, tools: The things we use to do the things we do.*

Compiled by Milton Glaser.  
Monacelli Press,  
1997, 237 pp.  
[www.amazon.com](http://www.amazon.com)

“WHAT IS YOUR MOST VALUABLE TOOL? The one that is a physical extension of yourself.” This question was asked of a not-so-random sample of 50 individuals, mainly professional and creative individuals from a variety of endeavors. Their answers, their rationales, and some specifics about their tools are attractively presented in this ‘almost’ coffee-table type book. Each of the 50 profiles consists of three parts: a photo of the individual at work using their preferred tool, a few paragraphs about it in their own words, and a double-page spread close-up of the tool in question. This last photo item could have been reduced and more information provided instead about the various offerings of the tool available in the marketplace. The book would be far more valuable had such catalogue-caliber information been provided. Only 18 of the 50 tools were specifically branded items (e.g., Apple’s ToolBook).

In the introduction, design critic Stanley Abercrombie groups the answers to the “most valuable tool” question in various ways, for example, new vs. old, tool vs. machine, ugly vs. beautiful. In the tally, portable computers and cellular phones, i.e., hardware, were actually outnumbered by the really soft ware, i.e., paper-based products like graph paper, three-by-five cards,

and notebooks. Drawing pencils and pens also drew prominent responses (the sample favored architects and designers). Nevertheless, one is struck by the reliance on ‘analogue’ tools versus ‘digital’ tools. Abercrombie also examines larger question about the changing nature of work and the office—which he declares to be “our most complex tool.” He sees a number of changes taking place here. A shift from productivity to performance, from organizational control to personal control, and from formality to flexibility. Browsing through this book (actually a catalogue of an exhibit put together by the Steelcase Design Partnership and Milton Glaser) is worthwhile because it causes one to reflect on one’s own work style and preferred aids in carrying work out. It engenders a greater appreciation of the creative, energetic aspects of life.



*The number sense: How the mind creates mathematics.*

By Stanislas Dehaene.  
Oxford University Press, 1997,  
274 pp.  
[www.oup-usa.org](http://www.oup-usa.org)

THE AUTHOR, A FRENCH BIOLOGIST and medical researcher, brings together tales of number geniuses—tales of animals that purportedly add, and tales of patients who can’t add (because of neuro-cranial injuries) to develop insights of how humans work with numbers. He is thus concerned with mathematical cognition. Among the points made by the author are that infants have a core counting



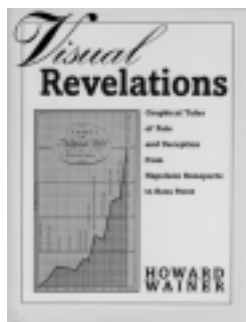
### Andrew Ruppel

is a professor in the QM/MIS area at the University of Virginia’s McIntire School of Commerce. His Ph.D. is from the University of North Carolina. Dr. Ruppel has received faculty

fellowships from the American Society for Engineering Education and the American Assembly of Collegiate Schools of Business, and has served with NASA and the International Atomic Energy Agency (with diplomatic rank). He teaches in the areas of statistics and global business.

capability and that the associated intuitive powers connected with this capability can and should be exploited to develop their mathematical competence. Debaene argues that aspects of the Oriental approach to training children in arithmetic are more in tune with these intuitive powers than are Western approaches. Rote memorization and recall of multiplication tables bog down the memory components that are needed to stay on top of a given problem's complexity. He favors the use of pocket calculators coupled with fun, but mind-extending, examples in the teaching of arithmetic and math. In discussing round numbers versus 'sharp' numbers, Debaene recognizes the role of language in expressing uncertainty in a numerical value: "words . . . can separate arbitrarily close meanings [and] allow us to move beyond the limits of approximation." There is a link between mathematical aptitude and spatial reasoning—these capabilities reside in proximate cerebral locations. Counting is related to locating and tracking objects in space. "Counting is the Swiss Army knife of arithmetic," says the author.

In bringing together the various accounts of mathematical performance and non-performance, Debaene maintains his researcher's skeptical attitude. He readily cites counter-evidence in the discussions of the findings reported by others. This book is recommended to those who strive to be effective instructors of quantitative methods and who ponder over the difficulties experienced by some students in grasping what to instructors seems to be obvious.



**Visual revelations: Graphical tales of fate and deception from Napoleon Bonaparte to Ross Perot.**  
By Howard Wainer.

Copernicus/Springer-Verlag, 1997, 180 pp.  
[www.springer-ny.com](http://www.springer-ny.com)

THE BOOK COVERS GRAPHICAL TRIUMPHS and failures, formats and procedures. The book is similar to the series by Edward Tufte (whom the author acknowledges). Wainer's overall approach is: here's the bad, deceptive ex-

ample, now here's how to make it a good, revealing one. He is dismayed when he encounters bad graphics in the leading newspapers and government publications and has come to hate pie charts—ranked bar charts tell much more. A statistician with the Educational Testing Service, Wainer assembled the materials for this book primarily from his column in ASA's magazine, *Chance*. The leadoff chapter offers twelve rules for displaying data badly. Personally, I've never liked this approach, as I fear someone will mistakenly take the rules as sound advice. Some novel graph forms that he does advocate are the rose chart (first promulgated by Florence Nightingale) and trilinear plots, (which some of you may remember from chemistry). Also, he promotes rounding to just two digits and the organization of text material in line lengths that correspond to the idea or sense being conveyed. We see this done in poetry, of course. You should see what it does for some IRS gobble-dygook. He mourns the typographical domination of page-layout that relegates graphs, charts, tables, etc. to discrete, isolated rectangular segments, thus building chasms of white space between thoughts and data display. The more I read Wainer's slim book, the more I appreciated its advice. Tufte's books on this subject are more sophisticated and certainly more elegant, but Wainer's is more direct and immediately useful.



**Forecasting: Methods and Applications.**  
By Makridakis, Wheelwright, and Hyndman.  
John Wiley & Sons,  
1998, 642 pp.  
[www.wiley.com/college](http://www.wiley.com/college)

A USEFUL UPDATE BY THE THIRD AUTHOR, Rob J. Hyndman, of Australia's Monash University, to a well-recognized compilation of forecasting techniques. The approach of this third edition has not changed from its predecessors—it takes a very practical view. Among the new topics covered are refinements to time series decomposition methods, to regression-based methods, and to aids to model selection, such as Akaike's Information Criterion. There are 12 chapters,

subset sequences of which are appropriate for different audiences. Thus there is one sequence for managers, one for those who prefer explanatory models (presumably economists), and one for devotees of moving average-based approaches. Eight of the 12 chapters deal with forecasting mathematics, the remaining four deal with forecasting philosophy. The pages have a clean presentation—important when one is trying to keep track of subscripts. There is new material on assessing forecast accuracy and the outcomes of forecasting competitions. Neural networks are discussed, but Hyndman is uncomfortable with their black-box character. Data sets referred to in the text (plus others) are available from his web site:

[www.maths.monash.edu.au/~hyndman/](http://www.maths.monash.edu.au/~hyndman/)

One can also find other text details, including *errata*, at this site. The book's three useful appendices cover forecasting resources, terms, and tables. Among the definitions of terms is an incorrect (or at least confusing) one for *p-value*. That minor point aside, this is a recommended book for students and practitioners alike. Hyndman sees forecasting getting tougher, with intensified market forces creating more random-walk-like data series and trickier turning points. As a result, he predicts more interaction among forecasters and subject-matter experts in the production of forecasts. This book will be a valuable aid to participants in that process. ■

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