this book contains many useful tips and code fragments. For most GUI programmers this book is neither practical nor an introduction.

MIKE JOY
University of Warwick

WILLIAM J. KAUFMANN III AND LARRY L. SMARR
Supercomputing and the Transformation of Science. Scientific American Library. 1993. ISBN 0-7167-5038-4. £18.94. 239 pp. hardbound.

It is important to note at the outset that *Supercomputing and the Transformation of Science* is published by the Scientific American Library. That should in itself give the reader of this review some measure of the book's writing and presentation style; it is easy to read and the many pictures very pleasing and informative.

Eight chapters in all introduce first the evolution of supercomputers and the rationale for and variants of discrete methods, followed by applications in the quantum world, living creatures, engineering design, the earth and finally astronomy.

The many illustrations (artwork, tables, displays of simulations, etc.) on the 220 pages require over three pages of acknowledgements. This adds to the editorial discipline that must have been applied, to make the book accessible to all at undergraduate level and above. Anyone with basic scientific training—in the natural, physical or pure sciences—will be able to understand the book. It really is aimed at a diverse scientific audience.

This book belongs as much in a Computer Department's library as in the Biology Department's. It could also be placed in a general science section. Additionally, though the book is true to its name, all sorts of people in industry and commerce, increasingly becoming interested in supercomputing, will benefit by reading the book.

Perhaps inevitably, the book has a North American bias and the lay reader, new to the field, would be left thinking that all things exciting only happen in the US of A. This surely cannot be the impression we should be fostering in our students here in Europe. There is scope for a UK or European perspective.

Whilst massively parallel machines are covered, distributed computing is not. PVM, for example, is not mentioned. To be sure the authors are focusing on supercomputers (memorably defined by someone I now forget, as "machines that Los Alamos have only one of"). However, this can leave one feeling that only vast resources, prestigious institutions and state-of-the-art applications have access to such computing power. Though in actuality this is mostly true, a chapter that came down from the ivory tower to campus level would have been welcome. Readers—inspired and dazed by the book—would be left with something tangible.

The book is also most definitely not about technology. Communications, semiconductor and software technologies are not covered. They are covered in other tomes and their exclusive has contributed to the accessibility of the book.

I was not left with a clear rationale for the many architectural variants. Illustrations of the facilities at the US NSF sites showed a mix of machines—any manager's nightmare. Though there is a lucid introduction to discrete methods, the close linkage of classes of scientific problems with particular algorithms that solve them and the linkage between algorithms and hardware is not made manifest. This would have been a subject worthy of the authors' extensive explanatory prowess—a pity therefore that they do not address it.

I expect I shall have cause to refer to this book from time to time for at least the next few years.

ASHOK GUPTA
Philips Research Laboratories
Redhill

M. KA'RNY' AND K. WARWICK (eds)
Mutual Impact of Computing Power and Control Theory. Plenum Press. 1993. ISBN 0-306-44590-5 £95. 385 pp. hardbound.

The book comprises papers which are reprinted from the IFAC Workshop on 'Mutual Impact of Computing Power and Control Theory' held in Prague in September 1992. In consequence there is a mixture of contributions of varying quality on commonly recurring themes related to the use of digital computers in an advanced control systems environment. Some of the main themes include:

- Development of predictive algorithms or the use of parallel processing and systolic arrays to achieve faster sampling rates for real-time control or adaptive control.
- Description of statistical methods to enable on and off-line estimation and identification of processes subject to uncertainty.
- Development of intelligent controllers which imitate the actions of optimal controllers and make use of neural networks, expert systems, transputers and intelligent sensors performing supervisory or signal functions.

With contributions from so many different sources and with so many different specialist topics it is not possible to regard the book as an integrated description of how modern computing power has enhanced the control of complex systems. It is more a collection of different experiences and ideas that suggest possible areas of advancement for the future development of intelligent systems.

It is perhaps significant of the specialist nature of the publication that about one third of the contributions have been produced by members of the Programme and Organizing Committees!

R. C. JOHNSON
Aston University