out into their own specific aspect of the subject. It is almost as if they had been written in isolation. This has the effect of making the reader thoroughly familiar with the material, which when introduced earlier in the book, seemed abstract and remote. As a result, readers who become overwhelmed with the formality of the early material, would be well advised to read on to the later chapters and then re-read the earlier ones. They may well find that the earlier chapters are much more transparent in the light of repeated application of their subject material.

The only disappointment with this book was in the quality of production. Mathematical formulae in the early sections are subject to typographical errors and every occurrence of one character is so faint it is only detectable by spaces in the text. The lack of contrast in grey tones r esults in figures which are difficult to interpret. All of these could prove troublesome to a reader unfamiliar with the subject. Hopefully, these shortcomings will be corrected in later editions.

In conclusion, this book is potentially a very good book indeed. It will always have a classical text book style more suited to a researcher than a practitioner and more palatable to a mathematician than to a computer scientist. But, for anyone who is prepared to expend the effort required to read it, this book is very rewarding.

PAUL C. RHODES
University of Bradford

N. METROPOLIS and GIAN-CARLO ROTA
A New Era in Computation. MIT Press. 1993. ISBN 0 262 63154 7 £12.50. 241pp. softbound.

This book, based on a 'Daedalus' special edition and two fresh articles, is a tour de force exploring the area of massive parallel computation(MPC). As the title implies, the book deals with all aspects of computation using this latest technology which in a way is a nascent one. What is significant is the attention paid to the applications covering the whole range where MPC may be used, thus opening up new vistas. It gives us a glimpse of what may be the future. In the introduction itself however there is a debunking of some of the earlier predictions of the social, economic and political effects of the 'computer revolutions'. I shall not deal with the myriad applications discussed in the book. Suffice it to say there are chapters dealing with neuroscience, robotics, simulation, air traffic control, virtual reality and many other possible applications of MPC, particularly in business, industry and daily life—the stock exchange on one hand and the home robot on the other.

The book is focussed on the policy maker, the industrialist, the economist, the sociologist and the user. This is helped by the almost total avoidance of technical jargon. Thus it can be read with interest and ease by a broad cross-section of interested people who may be laymen and not necessarily computer specialists, although it is expected that they will be 'computer literate'. Towards this end it starts with chapters describing what MCP is. What may be slightly controversial is an emphasis on a central computing facility as different from the extensive use of personal computers now becoming the trend. The arguments set forth are valid on economic and technological grounds. The comparison with the central power utility versus in-house captive power stations makes the point strongly and effectively. It raises the spectre, if one may say so, of a large system based on MCP monitoring our lives! Will the PC or the computer terminal become as ubiquitous as the telephone! There are very thoughtful chapters dealing with the sociological aspects. What to me, as a one-time policy maker, was immensely interesting was the thought-provoking chapter on 'America's Economic-Technical Agenda for the 1990s'. Even for the free capitalist society of America, a strong plea is made for the Government to invest in technology. I hope this message is also heeded by many other countries which are jumping on the bandwagon of the market economy. The last chapter on MCP and information capitalism deals, amongst other issues, with that of employment and the educational profile which is needed for MCP to be utilised in a meaningful manner. It also bemoans the fact that most communities develop an insular attitude and examine the social dimensions of their specialised technological 'niche de novo'. It is an aspect to which all of us should give thought and break out of the mental barriers we have created for ourselves. A chapter looks at the educational requirements and pleads for degrees in computation—something which I expect will and must happen sooner rather than later. To conclude it is a thought-provoking book covering the whole range of issues relating to MCP and perhaps 'required reading' for leaders in industry and Government. The concluding sentence of the last chapter reflects the theme of the book and I quote 'This is a superb time to carefully observe the social dynamics that generate these uses, and the ways that they, in turn, influence organistions, jobs and social life'.

P.P. GUPTA
New Delhi

MICHAEL F. WORBOYS (Ed.)
Innovations In GIS 1. Taylor and Francis. 1994. ISBN 0-7484-141-5 £23.00, 267pp. softbound.

Geographical Information Systems (GIS) are increasingly to be found in use in business, local government and utilities (one can no longer talk of 'public' utilities),