and too late", and it is still far from clear how serious the effects of lead in petrol on children's health and intelligence actually are.

ALAN J. MAYNE

**Prior Information in Linear Models**
H. TOUTENBURG
John Wiley and Sons, Chichester, 1982. 215 + ixpp. £16.50
ISBN 0 471 09974 0

The title of this book, although technically correct, is somewhat misleading. At least, it misled me when I volunteered to review the work. "A good Bayesian title!", I thought, "Right up my street." Alas, no. Toutenburg, quite explicitly in the introduction, eschews the Bayesian approach and adopts classical least squares and minimax approaches to the incorporation of non-probabilistic prior information into regression models. Thus I did not find myself naturally at home with the material. Moreover, to confound my discomfort there are two important words missing from the title: "for econometricians". This is a work written with the econometrician in mind, although, being in the major part a review of mathematical results, it can in principle be read by anyone interested in theoretical aspects of linear regression.

The book contains a short introduction followed by five main chapters: The General Linear Model; Mixed Estimation; Minimax Estimation; Problems in Model Choice; and Prior Information in Econometric Models. In addition there are appendices on matrix algebra and matrix differentiation. The coverage did not strike me as exceptional, and in one case, the chapter on model choice, I thought it rather limited.

The approach is mathematical throughout. Theorem follows theorem, with few numerical examples or practical statistical details. This in itself is not a criticism, for Toutenburg clearly intended to write a mathematical statistics text. However, I was slightly uncomfortable with the development of the results. Proofs are accomplished by matrix manipulation and differentiation with little recourse to geometric insight. Thus the audience is immediately limited to those of some mathematical sophistication, or at least those whose intuition is not primarily geometric. Indeed, I found the intended audience difficult to identify. If this is meant as a teaching text book, where are the exercises and worked examples; and if it is meant as a research monograph, why spend a quarter of the work proving standard results on the general linear model? For a reference book the bibliography seemed somewhat restricted and idiosyncratic.

My reaction to this book, therefore, is somewhat negative, but that may be to a large extent due to my Bayesian and non-econometric background. Perhaps I should close with some more comforting words to the author. I can think of many, many statistical texts that are much, much worse than this one.

SIMON FRENCH

**Applicable Mathematics of Non-Physical Phenomena**
F. OLIVEIRA-PINTO and B.W. CONOLLY
Ellis Horwood, 1982. 269pp. £19.50 (hardback), £6.00 (paperback)
ISBN 0 85312 366 7

This book is more specialised than its title suggests. It contains a collection of nine papers or extracts originally published between 1908 and