If, however, one views the book from the standpoint of a reader who already has some knowledge of finite simple group theory, a different picture emerges. Such a reader will find the book an interesting, concise and clear summary. The main ideas are brought into focus. The general plan for the classification is laid out and Fischer's work is given its due place. I like the way the author has drawn attention to the contrast between the properties of semisimple and unipotent elements and I found helpful his attempts to divide the properties of finite simple groups into what might be called typical (or generic, to use the author's term) and untypical, the typical properties being those capable of being handled by general methods and theorems, and the untypical being those requiring special methods of their own.

N. K. DICKSON

BAXANDALL, P. R. and LIEBECK, H. *Differential Vector Calculus* (Longman Mathematical Texts, Longman, London, 1981) 240 pp. £7.95.

CRAVEN, B. D. *Functions of Several Variables* (Chapman and Hall, London, 1981) 134 pp. £4.95.

These two books covering aspects of the calculus of functions of several variables are different as regards choice of material and poles apart as regards presentation.

Baxandall and Liebeck concentrate on the differential calculus, going as far as the Chain Rule and Taylor's Theorem for functions from $\mathbb{R}^m$ into $\mathbb{R}^n$ and the corresponding general versions of the Inverse Function Theorem and the Implicit Function Theorem. To assist the reader in grappling with these results, the authors break the development into three easy stages. First, they deal with the case $m=1$, introducing the basic ideas of continuity and differentiability and discussing applications to curves, differential geometry and particle dynamics. Next, they consider the case $n=1$, introducing the concepts of the differential and the gradient and progressing through the Chain Rule, Mean-Value Theorem, etc. to an examination of critical points. Finally, the theory is presented in all its glory for general values of m and n. The reader, having seen special cases earlier, is now able to take the full force of Jacobians, etc., with relative ease. The importance of the theory is illustrated by a short concluding section on Lagrange multipliers. Not everything suggested by the title appears in the text; for instance, there is no mention of div or curl. However, the material selected is presented in a most readable and leisurely fashion. There is a plentiful supply of illustrative examples and exercises and, although a few tougher exercises would not have gone amiss, the reader will emerge with a very firm understanding of the material. There are a few misprints, wrong answers, etc., but these constitute a minor criticism of a book which can be warmly welcomed.

Craven disposes of the same material as Baxandall and Liebeck in a fraction of the space and goes on to cover much more including Kuhn–Tucker theory, surface and volume integrals, Stokes's Theorem, differential forms and even partitions of unity (in an Appendix). The style is very condensed and the notation used helps to make the going tough for the reader. A further drawback is the unacceptably large number of mistakes, misprints and wrong answers. The presentation seems rather disjointed and the text is more in keeping with a first draft rather than a finished article.

ADAM C. McBRIDE

FRANKEL, T. *Gravitational Curvature: An Introduction to Einstein's Theory* (Freeman, San Francisco, 1979) xviii + 172 pp. £18.50; paper, £8.95.

This little book, which presents the core of the general theory of relativity in a form suitable for mathematicians who have been exposed to a basic course on modern differentiable geometry, has much to commend it. In recent years it has become *de rigeur* for relativists to employ coordinate-free methods in their work rather than traditional tensor calculus with its sometimes tedious computations with components of tensors and a multiplicity of indices. This modern approach