The authors give an excellent and carefully thought-out presentation of the theory of extreme points and support points, not just for S but for various subclasses of S such as typically, real functions, starlike functions and close-to-convex functions. They explain clearly the relation between these problems and problems about subordination and H^p-spaces. This is a book which everyone interested in extremal problems in geometric function theory will wish to have.

Unfortunately, just as the book appeared, de Branges announced his solution of the celebrated Bieberbach conjecture stating that $|a_n| \leqq n$ for $f \in S$. This has raised enormous interest not just for the intrinsic importance of the problem, but also for the elegance and unexpected nature of the proof. Hamilton's proof that there exist support points which are not extreme points also came too late for inclusion. I fear that both of these developments will lead to a quickly diminishing interest in extremal problems for S. This would be a pity, since as the authors have so capably shown, the subject is still able to raise deep and interesting questions about univalent functions.

J. M. ANDERSON

HANCHE-OLSEN, H. and STØRMER, E. *Jordan operator algebras* (Monographs and Studies in Mathematics, Vol. 21, Pitman, 1984), 183 pp. £27.50.

Jordan algebras are a class of non-associative algebras first introduced by Jordan, von Neumann and Wigner about fifty years ago in connection with their studies on axiomatic quantum mechanics. For the next thirty years mainly the algebraic aspects of Jordan algebra theory was studied although some interesting links with other branches of mathematics were discovered and investigated. It is relatively recently that Jordan algebras arising in functional analysis have been studied. Initial work by E. Størmer and D. Topping was further developed by E. Alfsen, F. Shultz and E. Størmer to give the theory of classes of Jordan algebras which closely resemble that of C*-algebras and von Neumann algebras. These classes of algebras called JB-algebras and JBW-algebras include the original algebras of Jordan, von Neumann and Wigner and all C*-algebras. As this theory has now achieved a certain degree of completeness it seems an opportune time for the appearance of *Jordan Operator Algebras* which presents the theory of JB-algebras for the first time in monograph form.

The authors aim to present a complete self-contained account of the theory of JB-algebras, presupposing only basic results in functional analysis (concerning Hilbert spaces and Banach spaces) but no familiarity with Jordan algebras. The first chapter contains preliminaries in functional analysis and the second develops the algebraic theory of Jordan algebras required in the sequel. This chapter is in fact the longest in the book, partly because the reader is assumed not to have much knowledge on this topic and partly because some of the proofs are quite technical. All the results in this chapter have previously been published in, for example, *Structure and Representations of Jordan Algebras* by N. Jacobson, but their omission from this monograph would have given the reader quite a lot of difficulty in extracting the relevant material. The more introductory parts of the theory of JB-algebras and JBW-algebras are given in Chapters 3 and 4, for example, ideals, the centre, spectral theory, states and projections while more detailed analysis of specific algebras is given in Chapters 5 and 6, for example, equivalence of projections, and analysis of type I factors. The final chapter contains the main representation theorem together with one or two applications.

The book is clearly written, for example, not only are the technical proofs in Chapter 2 given in detail, but the main steps are separately indicated for the reader who does not wish to get bogged down in these details. In general it succeeds in being self-contained although at least some prior acquaintance with the theory of C*-algebras and von Neumann algebras would be an advantage. On the other hand, although the authors briefly indicate in the preface some of the applications of JB-algebras, this is not further expanded upon later in the book and so there is little indication given of future developments in the area other than as a generalisation of C*-algebra theory. These however are minor points and overall this monograph provides a clear concise introduction to the theory of JB-algebras.

M. A. YOUNGSON