BOOK REVIEWS

HAMMER, J., *Unsolved Problems concerning Lattice Points* (Pitman Research Notes in Mathematics; no. 15, Pitman Publishing Ltd., 1977), 101 pp.

The author attempts to cover his subject comprehensively in a short book. To this end, he omits proofs and, indeed, any indication of the techniques involved. He gives references to the literature for all proofs. As a result, the reader who wishes to get the full flavour of the subject will need access to a well-stocked library.

The book is in three sections. The first two concern, respectively, geometrical and combinatorial problems for a single lattice. The third concerns problems on sets of lattices. In each section, there is a wide range of classical results, each with the subsequent refinements and generalisations, and with related open questions.

Given the nature of the presentation, the book is unsuitable as an introduction to the subject, but it should have some appeal to those who have a knowledge of the geometry of numbers.

W. W. STOTHERS

GIBSON, C. G., *Singular Points of Smooth Mappings* (Pitman, 1979), £8·00.

The recent upsurge of interest in singularity theory has led to the publication of a number of books on its various aspects. Nevertheless the present text is a valuable addition to the literature.

The layout is as follows. An introductory first chapter is followed by chapters on the basic ideas of transversality and unfolding respectively. The heart of the book is Chapter IV on singular points of smooth functions (mappings from smooth manifolds into the reals) and here we are given the list of singularities of codimension ≤ 5. In the final chapter more general mappings are considered, giving the classification of stable germs by their local algebras. The author has understandably refrained from getting involved in catastrophe theory. Nevertheless the book has some overlap with that of Poston and Stewart ("Taylor expansions and catastrophes") in the same series. However the reviewer found it mathematically much more appealing than the latter. This is only to be expected as the book is directed specifically at a postgraduate (but not expert) mathematical audience. The approach is intuitive but rigorous, although the omission of some proofs tends to make it somewhat lightweight. Many excellent geometric examples are given. There are numerous misprints, particularly in the last two chapters, but almost all are of a trivial nature.

In conclusion this book is to be highly recommended as a clear and stimulating introduction to the subject.

A. G. ROBERTSON

BOLLOBÁS, BÉLA, *Extremal Graph Theory* (Academic Press, 1978), 488 pp., £19·50.

Extremal graph theory is usually considered to have its origins in a 1941 paper of the Hungarian mathematician Paul Turán. In that paper Turán found how many edges a graph G on n vertices can have if G contains no complete subgraph K_r on r vertices; further, he obtained all "extremal" graphs G with the maximal number of edges. This work is typical of the vast body of extremal graph theory which has grown up since then, "developed and loved by Hungarians", as Bollobás writes. A further quote from the preface explains more fully the nature of the subject. "In extremal graph theory one is interested in the relations between the various graph invariants, such as order, size, connectivity, minimum degree, maximum degree, chromatic number and diameter, and also in the values of those invariants which ensure that the graph has certain properties."

This encyclopaedic work, for which the author's article "Extremal problems in graph theory" in the first volume of the *Journal of Graph Theory* acts as a short introduction, is the first attempt to