The book is strongly recommended to all research workers interested in applications of probability theory; for specialists in queueing theory, it will become essential reading. J. GANI

EIDEL'MAN, S. D., *Parabolic Systems* (North-Holland, Wolters-Nordhoff, 1969), v+469 pp., £7·60.

Since the appearance in 1938 of a fundamental paper by Petrovskii parabolic equations and systems have been subjected to a great deal of scrutiny—not least by the Russian school. This book, an English translation by Scripta Technica of the Russian original first published in 1964, is devoted exclusively to the study of parabolic systems (mostly linear or near linear) and embodies the sizeable contribution of the author to that study over the two decades prior to its publication.

Using classical analytic methods throughout, the author first directs himself to the construction and analysis of the fundamental matrices of solutions of parabolic systems then applies them to the study of the Cauchy problem and the initial-boundary-value problem. Fundamental matrices of solutions thus constitute a unifying theme. A very adequate résumé of the contents can be found in Friedman's review (MR **26** #4998) of the Russian original. Specific omissions are the theories of quasi-linear second order parabolic equations, an active field of research at the time of writing, and of systems strongly parabolic in the sense of Vishik, where functional analytic techniques are appropriate.

This book in translation, although by now somewhat dated, must be a welcome addition to the very small number of specialized texts in English on this particular topic. Of major appeal is the fact that it gives, for English readers, ready access to the large corpus of Russian research on parabolic systems up to the beginning of the last decade. A good seventy-five per cent of the extensive bibliography refers to the Russian literature, for example.

Finally the translation and presentation appear adequate except for the rather annoying omission of an index. D. DESBROW

ROGERS, C. A., *Hausdorff Measures* (Cambridge University Press, 1970), viii+179 pp., £3·80.

The purpose of this book is to give an account of some of the research done on Hausdorff measures. Since the initial work by Hausdorff in 1919, this subject has been developing steadily, mainly as a result of the research work of Besicovitch and his students. The first chapter contains a systematic account of measures and their regularity properties in abstract spaces, topological spaces and metric spaces. (The author uses the terms " measure " instead of " outer measure " and " countably additive measure " for " measure ".) Lebesgue measure in n-dimensional Euclidean space is discussed. There are also sections on metric measures on topological spaces, and the Souslin operation. In Chapter 2, various definitions of Hausdorff measure are given and their equivalence proved. Special Hausdorff measures arising in the theory of surface areas are discussed. There are sections on existence theorems, comparison theorems, Souslin sets, sets of non σ-finite measure, and the increasing sets lemma. §7 of this chapter contains some recent joint work of the author and Dr. R. O. Davies on the existence of comparable net measures and their properties, not previously published elsewhere. The final chapter contains a survey of the literature on applications of Hausdorff measures together with specific applications to (*a*) the theory of sets of real numbers defined in terms of their expansions in continued fractions and (*b*) the study of non-decreasing continuous functions on [0, 1]. There is also an index and extensive bibliography. This is a well-written book containing full details of proofs of the main theorems. It should prove particularly valuable to the research worker in the field.

H. R. DOWSON

OGILVY, C. STANLEY, *Excursions in Geometry* (Oxford University Press, 1970), vi+178 pp., £2·60.

This pleasantly written little book is an account of some especially attractive topics in elementary geometry aimed at " people who liked geometry when they studied it . . . but who sensed a lack of intellectual stimulus in the traditional course and . . . felt that the play was ending just when the plot was beginning to become interesting ". Given this objective the choice of subject matter follows the expected lines. Topics discussed include circle geometry, with emphasis on inversion; conics from the standpoint of their focal distance and mirror properties and as sections of a cone; projective geometry introduced via conical projection and the invariance of cross-ratio; the golden section; some unsolved and unsolvable problems.

One naturally makes a comparison with an established text such as H. S. M. Coxeter's *Introduction to Geometry*. The work under review is, of course, much smaller, less ambitious and less technically detailed (for instance coordinate techniques are little used, which is rather a pity now that they are being given greater prominence in elementary school work). The common aim of selecting entertaining material means inevitably that some topics are dealt with by both authors; however there are differences of approach and depth. The present book, besides being very welcome in its own right, would serve as a good apéritif for the larger one. Its purpose is certainly to be commended. Worthy of particular mention is the discussion of Soddy's hexlet and its modifications. The book is produced to the press's usual high standard. A nice prize for a sixth-former!

D. MONK

NAIMPALLY, S. A. and WARRACK, B. D., *Proximity Spaces* (Cambridge Tracts in Mathematics and Mathematical Physics No. 59, Cambridge University Press, 1970), x+128 pp., £3.

The subject of proximity spaces is a sufficiently compact subset of topology that a tract of this size can be introductory in character and yet succeed in its aim of enabling the reader to understand current literature. I conjecture that a necessary and sufficient condition to comfortably read the first half of the book would be knowledge of the Stone-Cĕch compactification, though it receives mention but twice. However at least a nodding acquaintance with uniform spaces is required for the second half.

I welcome the inclusion of an excellent historical introduction, which reveals, as do all histories of recent events, that the nearer one comes to the present day the harder it becomes to unravel a sense of direction in the subject. The following lines are developed in the text:

The axioms for a proximity on a set are motivated by five properties of " nearness " between pairs of subsets of a pseudo-metric space. A proximity induces a completely regular topology. A subspace proximity and proximity mapping are defined in a natural way.

The main result in the first half of the book is the construction of the Smirnov compactification of a proximity space by means of clusters, revealing the order-isomorphism between the proximities and compactifications of a completely regular space.

Proximity lies between uniformity and topology in the sense that a uniformity induces a proximity and a proximity induces a topology. The equivalence class of