BOOK REVIEWS

PITT, H. R., *Integration, Measure and Probability* (Oliver and Boyd Ltd., 1963), viii+110 pp., 25s.

One of the main difficulties facing any writer on probability theory is that any rigorous account of the subject needs to draw on the theory of measures on abstract spaces. Many authors, in seeking to avoid this difficulty by judicious hand-waving, have succeeded in giving the unfortunate impression that the theory cannot be developed without sacrificing the standard of rigour which is expected of any branch of pure mathematics. It is refreshing, therefore, to find a book which adopts a different solution, and combines an introduction to probability theory with an account of abstract measure theory.

The remarkable feature of this book is that the author has managed to compress these two subjects into a mere 110 pages. He has done this by giving very little motivation and no exercises for the reader, and has thus produced a text which may be too concise for the students to whom it is addressed.

The account of measure theory is fairly straightforward. Measure is first defined on a ring of subsets, and used to define the integral, from which is deduced the extension of the measure to the generated σ-ring and its completion. After proving the usual convergence theorems, the Hahn-Jordan decomposition, and the theorems of Radon-Nikodym and Fubini, the author specialises to Lebesgue-Stieltjes measures in Euclidean space, and finishes with an account of convolutions and characteristic functions. This is all done in 44 pages.

The part of the book devoted to probability theory begins inauspiciously by rejecting the Kolmogorov definition of a random variable as a measurable function in favour of a less explicit one. Expectations are studied, and a severely classical account is given of the standard distributions in one or more dimensions. Conditional probabilities are defined, and a brief description of Bayesian inference given which is sure to cause confusion by using the term " likelihood " for what is usually called " posterior probability ". The book ends with a chapter on limit processes, which includes a long discussion of the general central limit problem (but nothing on the strong law of large numbers) and a section on stochastic processes with independent increments.

It will be seen that, within the small compass of this book, there will be found a wide (though arbitrary) selection of interesting material. The author is often careless about details, asserting for instance (on page 105) that a function continuous on the rationals has a continuous extension to the reals. For all its faults, however, this is a book which seems likely to exercise a considerable influence on the teaching both of measure theory and of probability theory in British universities.

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BRADIS, V. M., MINKOVSKII, V. L. AND KHARCHEVA, A. K., *Lapses in Mathematical Reasoning* (Pergamon Press, 1963), xiv+201 pp., 15s.

This is a revision and amplification by the second of these authors of an earlier work by the other two, now translated from the Russian by J. J. Schorr-Kon.

After an introductory chapter containing a classification of mathematical sophisms by type, with exercises in their correction, the next one is devoted to arithmetical