volume has been compiled by Mr. A. Visser, who retired a few years ago from the position of librarian and chief of the documentation section of the Netherlands Postal and Telecommunication Services. The basis of the book is the listing of all terms used in the telecommunication world arranged in alphabetical order in the English language. Below each term is given the equivalent word or phrase in French, Spanish, Italian, Dutch and German in that order. In many cases it has been necessary to give alternative words or phrases in interpretation of the basic English term or phrase. No definitions of the terms are given, but, in a large proportion of cases, the terms are sufficiently self-explanatory for the technical reader.

Following the basic section, alphabetical lists are given in each of the other five languages, each word being indexed as a reference to the basic table, so that the user can find the corresponding term in English, and all the equivalents in the other languages.

As with former volumes in this series, the production of the book is excellent. In spite of its size—more than one thousand pages—it is convenient to use, with the familiar semi-flexible binding, and a thumb-index to the different languages. All engineers and scientists engaged in the field of telecommunications will find this a most useful work of reference and aid to the reading of foreign literature.

A dictionary on similar lines to that referred to above but dealing with the field of electronics and waveguides was published by the same company in 1957 (see *Nature*, **181**, 801; 1958). To the language section of that volume has now been added a Swedish supplement. This is arranged in two parts: the first being an alphabetical list of terms in this language; while the second comprises a re-arrangement of the same terms in the numerical order corresponding to the numbered basic English section of the main dictionary. The publication of this supplement thus extends the former volume to be a complete work of reference in seven languages to all terms in use in the technique of electronics and waveguides.

R. L. Smith-Rose

PROBABILITY AND PHYSICS

Probability and Related Topics in Physical Sciences

By Mark Kac. With special lectures by G. E. Uhlenbeck, A. R. Hibbs and Balth. van der Pol. (Lectures in Applied Mathematics, Vol. 1.) Pp. xiii+266. (New York: Interscience Publishers, Inc.; London: Interscience Publishers, Ltd., 1959.) 43*s*.

THIS book, which is based on a course of lectures given in 1957, makes no claims to be a textbook; but it contains a wealth of material underlining the established place of probability technique in modern physics. Prof. Kac's enviable skill in analysis is somewhat naturally displayed to the full in many of the problems discussed, so that, while the mathematics always remain his servant, his book may in consequence appeal rather more to mathematicians than to physicists.

There are four chapters and four appendixes. Chapter 1 explains the nature of probabilistic reasoning, and includes discussion of the Maxwell velocity distribution in the theory of ideal gases and of the number of real roots in polynomial equations with random coefficients. Chapter 2 deals with "Some Tools and Techniques of Probability Theory", illustrated mainly by reference to various random walk problems. The longest chapter (3) is on "Probability in Classical Statistical Mechanics", and the first appendix by G. E. Uhlenbeck on the Boltzmann equation' should be read together with this chapter. Uhlenbeck's appendix gives a very clear survey of the various models, microscopic and macroscopic, mechanical (deterministic) and stochastic, that exist and the relations between them. In Chapter 3 itself, the fundamental problems and paradoxes of statistical mechanics are considered by reference to the Ehrenfest urn example, by the use of the so-called 'master equation' which represents a stochastic simplification of the exact Boltzmann equation, and by a modern account of Smoluchowski's brilliant theory of fluctuations.

The final chapter (4) is on "Integration in Function Spaces and Some Applications", and discusses the recent technique of path integrals introduced into quantum mechanics by Feynman and having analogues in the theory of stochastic processes. There is a relevant appendix (2) on quantum mechanics by A. R. Hibbs, recalling some of the special peculiarities of probability in this domain. The final appendixes (3 and 4) by B. van der Pol, on "Smoothing and Unsmoothing", and "The Finite Difference Analogy of the Periodic Wave-equation" and the "Potential Equation" respectively, are not directly related to the rest of the volume, which ends with some interesting historical notes and a bibliography.

One important topic omitted from this book is information theory; this might be explained by Prof. Kac's concentration on problems closely connected with his own researches. It might also be argued that this theory is more related to communication engineering than to physics: but more fundamentally its bearing on the concept of entropy and on theories of measurement has yet to be fully clarified. On the subject-matter of Chapter 4, the mathematical connexion between the Feynman integral and analogous integrals in stochastic process theory is stated clearly enough, but on a deeper physical level the differences seem puzzling and remain rather a challenge. I was also somewhat surprised not to find a more explicit discussion of the important class of probability problems associated with such work as Onsager's on the two-dimensional Ising model, to which a very fleeting allusion is made in the bibliography (p. 261). However, even this last comment can scarcely be a criticism of the book under review, when it is recalled that the author's intention was to indicate the scope and value of probability theory, and part, but by no means all, of its rapidly increasing range in physics.

M. S. Bartlett

ADVANCES IN GEOPHYSICS

Advances in Geophysics

Edited by H. E. Landsberg and J. Van Mieghem. Vol. 4: Pp. x+456. 12 dollars; 86*s*. Vol. 5: Pp. x+325. 10 dollars; 80*s*. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1958.)

IN these volumes, as in past issues, geophysics is interpreted in the widest sense with perhaps a greater emphasis on pure geophysics than prospecting geophysics. If it is the editorial policy that the subjects selected for review reflect the state of research among the Earth sciences, it would appear that