and the introductory historical chapter mentions the importance of co-operation between geologist and engineer in the study of sub-surface waters. Chapter ii states the general principles controlling the occurrence and behaviour of ground-water, with terms defined, and is intended to provide a summary suitable for the lawyer preparing litigation on the subject ; numerous page-references are given in the index under the general heading 'Litigation'. Chapters follow with a detailed discussion of rainfall, porosity, soils, flow of ground-water, and the water-table, the last containing a 24-page appendix on prospecting for water by geophysical methods, contributed by C. A. Heiland.

Selected references to literature (mainly American) are given at the end of each chapter. Water in fractures, artesian supplies, wells, oil-field fluids, and springs form the subjects of further sections. The last two chapters deal respectively with quantitative methods of measurement (with extracts from publications by O. E. Meinzer) and the distribution of underground water in the United States and the Hawaiian Islands. The book is illustrated by 189 good text-figures ; most of the water-table contour maps in Chapter ix lack a statement of scale, which would have been helpful in estimating water-table gradients. There is a useful glossary of more than a hundred terms and a generous index.

MATHEMATICS

An Introduction to Modern Statistical Methods
By Paul R. Rider. Pp. ix + 220. (New York : John Wiley and Sons, Inc. ; London : Chapman and Hall, Ltd., 1939.) 13s. 6d. net.

THIS text-book on statistical methods is intended for the student who is interested in applications, but who at the same time, while not aiming at a complete knowledge of the underlying mathematical theory, would like to get a grasp of the main principles and formulæ. It is thus introductory both to theory and application, and although the discussion sometimes seems more fragmentary than one would wish, the author has welded the two aspects together into a fairly unified course.

The statistical concepts of frequency distributions, averages and moments, regression, and correlation, are first explained, before sampling and significance problems are dealt with. After a chapter on the binomial and normal distributions, the author then discusses the use of "Student's" and the χ^2 distributions, before concluding with the general principles of analysis of variance and experimental design. Statistical tables required for significance tests are included at the end of the book, and appended to each chapter is a useful collection of examples. It should be noted that in his discussion of the χ^2 test of goodness of fit (p. 108), the author omits to warn the reader of the necessity for *efficient* estimation of unknown parameters ; in fact, the whole problem of estimation, even for an introductory text-book of this kind, seems scarcely adequately discussed. M. S. B.

An Introduction to the Theory of Functions of a Real Variable
By S. Verblunsky. Pp. xi + 170. (Oxford : Clarendon Press ; London : Oxford University Press, 1939.) 12s. 6d. net.

TO the ordinary mathematical student, geometrical illustrations in a text-book on analysis are a relief and an inspiration ; to the purists the use of figures is a weakness. They demand that the theory shall be based on arithmetical considerations alone. Mr. Verblunsky's treatise completely satisfies this demand. For the student of analysis who is already acquainted with the subject, a careful reading of this book should be a useful discipline in careful and logical statement. For the usual type of honours student a course of this kind would, we fear, be disastrous.

The volume starts at the beginning of the subject— with the positive integers—and leads on by carefully graduated steps to the study of functions, sequences, derivatives, limits and integrals, closing with a chapter on infinite series. There are numerous illustrative examples, most of them fully worked out ; but no sets of examples for practice are provided.

Mr. Verblunsky's exposition is, in the main, clear, concise and accurate. We deprecate, however, his method of introducing irrational numbers. This he bases on the following "Postulate of the Continuum". If, for every n,

$$a_n \leqq a_{n+1} \leqq a_n + (\tfrac{1}{2})^n,$$

then there is just one number ξ such that, for every n,

$$a_n \leqq \xi \leqq a_n + (\tfrac{1}{2})^{n-1}.$$

This postulate is flung at the reader with practically no explanation or discussion. The effect on the beginner is bound to be bewildering. If the book is to be used as a text-book it will be necessary for the teacher to lead up to the postulate by some sort of explanatory introduction.

MEDICAL SCIENCE

Medical Entomology
With Special Reference to the Health and Well-being of Man and Animals. By Prof. William B. Herms. Third edition, based on the book known as "Medical and Veterinary Entomology". Pp. xx + 582. (New York : The Macmillan Company, 1939.) 24s. net.

WITH the present volume, and those by Matheson and by Riley and Johannsen, the student of medical entomology is very well catered for in North America. Prof. Herms has, in this book, brought out a complete revision of his "Medical and Veterinary Entomology", the second edition of which appeared in 1923. Since that time an enormous amount of information has accumulated. Its sifting and compression, necessitated in a book of this kind, is no light task, and Prof. Herms has accomplished the feat with notable success.

All the more important diseases and other affections of man, and of domestic animals, in which insects and arachnids are implicated as carriers or as