

depth to supply the colour. A ground-water source is also stated, and thought probable. The strong tendency of manganese elsewhere to form dendritic crusts, should be considered in this connexion. Another mode of surface action, which is not noticed, is the hardening of limestone superficially, while it crumbles away inside, thus forming a hollow box. Similar internal crumbling—or possibly sea action—is seen in the sentry-box caves formed in the red granite of Sinai. The natron lakes, soda supplies, and soil analyses are also fully dealt with.

There are several other subjects noticed in the 219 pages, and it is clear that there are many matters which need more study, as on scarcely any point is there finally conclusive information. In spite of a bibliography of 912 works, Egypt is still an open field for investigation in many lines, and Dr. Hume obviously would welcome scientific work auxiliary to his department. The facilities of this volume are admirable; the bibliography of 68 pages has a subject index of 10 pages; and the whole 314 pages have a remarkably full index of 94 pages. A geological map on 1:2,000,000 is supplied at the end, and there are half-a-dozen detail maps beside the wealth of photographs. The work bears imprints of 1922, but was delayed in issue until 1925. We hope that we may soon see the next volume, and that the Nile borders may be described as well as the desert.

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### Our Bookshelf.

- (1) *The Fundamentals of Statistics*. By Prof. L. L. Thurstone. (Experimental Education Series.) Pp. xvi + 237. (New York: The Macmillan Company, 1925.) 8s. 6d. net.
- (2) *Statistical Methods for Research Workers*. By R. A. Fisher. (Biological Monographs and Manuals.) Pp. x + 239. (Edinburgh and London: Oliver and Boyd, 1925.) 15s. net.

MODERN statistical methods are now used in such widely different spheres of activity that it is natural that several books on the subject should be produced to meet the needs of the various persons concerned. It is of interest to notice that these books, being of the text-book variety, usually assume an air of certainty with regard to some things which are still almost within the region of controversy. This becomes the more obvious as the subject-matter becomes more advanced.

(1) Turning to the two books before us, we find that Prof. Thurstone has set himself the task of providing an elementary book on statistics for students of psychology who have little mathematical knowledge. The book is about as elementary as it can be, and it assumes that the reader is so poorly equipped as to need to have the graphical expression of a straight line and the most elementary aspect of the binomial series explained. It will, however, enable these non-mathematical students to follow, in a reasonable way, results obtained by others and expressed in terms that would

be meaningless without some help such as this book gives. A good many elementary books of this kind have been published in recent years in the United States, and this is one of the best of them.

(2) Mr. Fisher's book is written for a more advanced type of reader, and it has much to commend it. It treats of the interesting and important subject of small samples in statistical work; it has originality; its author is full of ideas, and its appearance is all that can be desired. But, unfortunately, the book suffers from an introductory chapter which seems unnecessarily hard to follow, and from the difficulty of the subject, which has, we fear, often prevented Mr. Fisher from writing down to his reader. The book is intended for biological research workers, and it is apparently assumed either that they already know sufficient of the theory to accept, without proof, the methods given, or that they will adopt those methods on Mr. Fisher's authority. A statistical "research worker" may be willing to dispense with rigid mathematical proofs when it can be seen from several arithmetical examples that a method carries its own justification, but in the present work the absence of proof goes rather far, and we fear that readers with little knowledge of the most recent statistical work will find the book as a whole difficult to follow, while those unfamiliar with the terms used in biological research work will have trouble with some of the examples.

In many places throughout the book a reader may hesitate, wish perhaps that he could share Mr. Fisher's confident assurance, and then find himself wondering whether deep down under much of the theory about which Mr. Fisher is so sure, there may not lurk the assumption that we can approximate to the whole population from a sample in a way that resembles the theory of "inverse probability" which he "wholly rejects."

It seems to us probable that the book will be read as much by statisticians who wish to study Mr. Fisher's methods and views as by those research workers who merely went to apply the methods he describes. Such readers will find so much that is interesting, suggestive, and useful that they will forgive the weaknesses we have tried to indicate.

*The Theory of Electric Cables and Networks*. By Dr. Alexander Russell. Third edition. Pp. xii + 356. (London: Constable and Co., Ltd., 1925.) 24s. net.

WITH the rapid growth of electrical distribution, and the increasing size of networks, the most economical design of the distributing system is becoming more important every year. The third edition of Dr. Russell's well-known book will therefore be welcomed by all engineers who are concerned with cable manufacture or with the business of electric distribution. This edition does not differ very much from the second edition, which was published in 1919, nor is it necessary that it should, for the book deals mainly with fundamental principles.

The tables of standard sizes of wires and cables and of the electrical and thermal constants of materials are of great value, and the discussion in the second chapter of the mechanical and electrical properties of copper is one of the most complete that is to be found in any standard text-book. Equally thorough is the study of insulativity and insulating materials. The treatment