One of the most useful new features in the volume is the prominence given to the use of flame photometry and fluorimetry. As stated in the preface, the improvements in burners and the application of photomultiplier tubes have greatly increased the sensitivity of the flame photometer, and improved tubes that of the fluorimeter. It would have been helpful if the general principles of the improved methods both for flame photometry and fluorimetry could have been described as a separate chapter, but presumably these will follow in a supplement to Volume 1. Without such help it may be puzzling to understand why on page 471 an oxy-acetylene burner is recommended for the determination of the alkali metals, but a propane-air burner on page 475. Much depends on the concentration of interfering elements and on the choice of internal standards. While such standards are desirable, their use may be attended by difficulties, since the optimum burner temperature for development of the colour of the test element may be far removed from that of the standard. What is required is not merely high sensitivity, but also uniform light emission with varying temperature. As a useful alternative to flame photometry for the determination of lithium, the application of fluorimetry is described, the sensitivity being such as to make as little as 0·005 mgm. determinable in the presence of limited amounts of sodium and potassium.

The amount of new material described in Volume 2A is astonishing, bearing in mind the short interval of time which has elapsed since the publication of Volume 2, and the original treatise of four volumes cannot be considered complete without Volume 2A. The references have been carefully chosen from an extremely wide selection of the world's scientific journals, and unlike some U.S.A. publications have no bias in favour of American work. J. KING

STATISTICAL METHODS

Principles of Statistical Techniques

A First Course, from the Beginnings, for Schools and Universities. By P. G. Moore. Pp. viii+239. (Cambridge : At the University Press, 1958.) 22*s*. 6*d*. net.

IN the Preface to this excellent text-book the author claims that it is ". . . an attempt to put across the main principles of statistical methods . . .". This claim is abundantly justified. The book is readable from start to finish, and only in Chapters 10 and 11 (dealing with tests of significance) will more than normal concentration be needed, even if the reader is approaching the subject for the first time. The book will be a valuable addition to every grammar-school library. Many sixth form pupils, especially those reading geography or economics, will derive great benefit from a careful study of it ; in the field of general studies, however, it will appeal to a much wider audience so that merely a single reading will help towards a clear understanding of the part which observation and sampling now play in pure research and in industrial investigations.

The author's style is attractive and the reader is led easily through chapters on the collection, tabulation and representation of data, frequency distribution and dispersion, to a careful study of the power (and the weaknesses) of sampling. The application of the binomial series and time series, together with a rather more technical consideration of significance, bring the student to a treatment of regression. The printing, tabulation and graphs have the excellence normally associated with the Cambridge University Press and there are few misprints. Important among these is the misuse of $\sqrt{npq}$ for $\sqrt{(npq)}$ in a number of places, and the same error is found (p. 160) in the formula

$$s = \sqrt{\frac{1}{n}\Sigma(x-\bar{x})^2}$$

At the end of each chapter there is a good set of exercises, but the value of these is greatly reduced by the absence of answers. It is to be hoped that the author will remedy this by a pamphlet until another edition is available. With this one serious reservation the book may be recommended warmly to anyone who needs to know, either for practical purposes or as a matter of general interest, how the analysis of observations can be accomplished. W. J. LANGFORD

PERCEPTION AND LEARNING

Dynamics of Behavior

By Prof. Robert S. Woodworth. Pp. x+403. (London : Methuen and Co., Ltd., 1958.) 36*s*. net.

PROF. WOODWORTH began his scientific career some sixty years ago with an admirable little book on movement, written in French. He afterwards worked with Sherrington on pseudo-affective reflexes and seemed well set to develop American psychology along experimental and physiological lines. Yet leadership in research somehow eluded him. The initiative passed to others, in particular Lashley, and it was left to Prof. Woodworth to provide the text-books on which successive generations of psychology students in the United States have been nourished. Plain fare, perhaps, but wholesome.

The present volume has its origin in the author's "Dynamic Psychology", first published in 1918. But it is far less a revision of the earlier book than the substance of a lecture course based upon it and progressively developed by Prof. Woodworth over the past forty years. The content ranges from reflexes to reasoning, the greater part being concerned with perception, motivation and learning conceived in terms of biological adaptation. Although the eclectic point of view will be familiar to readers of Prof. Woodworth's earlier texts, the present volume has the advantage of bringing together a great deal of experimental material, much of it recent, relevant to the general analysis of behaviour. It also provides a useful guide to the many, and often conflicting, theories of learning which have been evolved by American psychologists during the past thirty years. This is the kind of thing which he can do very well.

Prof. Woodworth demonstrates that his capacity to expound contemporary points of view in psychology has been in no way dimmed by advancing age. At the same time, his account of modern work perhaps suffers from the lack of any well-defined point of view of his own. Had the author held fast to his Sherringtonian origins and attempted to develop a theory of behaviour along evolutionary and physiological lines, it is possible that some real clarification might have been achieved. As it is, we have to make do with a somewhat ill-assorted conglomeration of facts and theories, imperfectly related one to the other, and the whole scarcely warranting treatment as a scientific discipline. Although it may be objected that this picture truly reflects the existing state of psychology, it might seem a pity to enshrine it in a formal text.