Stone-worker's Progress

A Study of Stone Implements in the Pitt Rivers Museum. (Pitt Rivers Museum/University of Oxford Occasional Papers on Technology, 6.) By Sir Francis H. S. Knowles, Bart. Pp. 120. (Oxford: Pitt Rivers Museum, 1953.) 15*s*.

SIR FRANCIS KNOWLES, who died last year, at one time taught physical anthropology at Oxford, and it was he who studied the Mousterian teeth from Jersey and the so-called Red Lady of Paviland. About 1919 he became interested in the techniques employed by man, both prehistoric and modern, when fashioning stone implements, and the present volume is the result of this investigation. Anyone who has tried to describe shortly and clearly the various means by which flint implements can be shaped will know only too well how difficult it is to convey in words the various processes. The so-called Clacton technique is the result of a swinging blow, but, except to a specialist, what does the expression "a swinging blow" convey ? Sir Francis, for example, finds himself driven to talk about "the impulsive-pressure-plus-percussion technique". Again, the "punch" technique, so important in late palæolithic times, cannot entirely be described in a few words. Nevertheless, there is no doubt that "Stone-Worker's Progress" is a valuable book for any student to possess, for it deals with modern stone implements where the processes can be actually observed as well as with the techniques used by prehistoric man which have to be deduced. Anyone interested will knapp flint himself, using the book as a guide. In this way he will understand the descriptions and learn the various possible techniques personally. The illustrations, alas, are very poor and not at all worthy of the Pitt Rivers Museum. The illustrating of flint implements is itself a specialized technique, and it is a great pity the figures were not redrawn by someone with experience in the matter. But, none the less, the volume is to be recommended to everyone who wants to know how man learnt to deal with the somewhat intractable material at his disposal. M. C. B.

Scientific Papers Presented to Max Born on his retirement from the Tait Chair of Natural Philosophy in the University of Edinburgh

Contributed by Sir Edward Appleton, David Bohm, Louis de Broglie, Richard Courant, Albert Einstein, Pascual Jordan, Th. V. Kármán and S. S. Penner, Alfred Landé, Erwin Schrödinger, Hermann Weyl. Pp. vi+94. (Edinburgh and London: Oliver and Boyd, Ltd., 1953.) 12*s*. 6*d*. net.

THIS collection of essays, presented to Prof. Max Born on his retirement from the Tait chair of natural philosophy in the University of Edinburgh, covers a wide range of subjects, from writers in widely separated parts of the world. One of Prof. Born's important early contributions to the development of the quantum theory was the introduction of the statistical interpretation of the wave function, and it is appropriate that this and related topics are the subjects of essays from several contributors—Einstein, de Broglie, Landé and Bohm—while Jordan writes on the idea of probability in genetics. Schrödinger discusses possible relations between quantum theory and general relativity, and von Kármán and Penner discuss a problem in theoretical chemical kinetics. Appleton provides the only essay on a branch of experimental physics, on geomagnetism and the ionosphere. Two essays, one by Courant on systems of partial differential equations and one by Weyl on an analytical topic, are primarily of a pure mathematical character. Most of the essays presume some previous knowledge of their subjects, and there may not be many readers to whom these subjects will all be equally familiar; but many will find something interesting and stimulating in one or more of them. An admirable photograph of Prof. Born forms the frontispiece to the volume. D. R. H.

Statistical Design and Analysis of Experiments for Development Research

By Donald Statler Villars. Pp. xvii+455. (Dubuque, Iowa: Wm. C. Brown Company, 1951.) 6.50 dollars.

THIS book is intended to summarize, "for the busy research worker or executive", the principles of experimental design. It cannot be said to succeed. The author has tried to cover too many topics in a limited space, and understanding is further hampered by the prose style, which becomes, at times, discouragingly obscure. Nevertheless, the book has its merits: it avoids the worst excesses of the 'cook-book', despite the adoption of "a journalistic order or presentation . . . so that one may immediately start applying variance analysis to his own data", and the frequent references should greatly assist the conscientious reader.

After an elementary introduction, four chapters are devoted to experimental design and the analyses of variance and covariance; these, with supplementary chapters on "the efficiency of experimentation", "miscellaneous refinements", and the mathematics of variance analysis, comprise the bulk of the work. The discussion of the analysis of variance is generally good. Interpretation by variance components is stressed, but not followed blindly, and the circumstances in which it is appropriate are carefully described. The chapters on design are much less satisfactory. Designs of the 'split-plot' type (here called "replication degeneracy designs") are extensively discussed, and frequent warnings are given against incorrect analysis of such experiments. The section on confounding, however, contains so many mis-statements that one is led to doubt the author's own grasp of the topic, and the brief discussion of the important topic of fractional replication misses the point entirely.

Two further chapters contain short accounts of quality control and sequential methods. Extensive tables are provided. M. R. SAMPFORD

Gestation Periods

A Table and Bibliography. Third Edition. (Technical Communication No. 5 of the Commonwealth Bureau of Animal Breeding and Genetics, Edinburgh.) Compiled by J. H. Kenneth, with Additions by G. R. Ritchie. Pp. 39. (Farnham Royal, Slough: Commonwealth Agricultural Bureaux, 1953.) 7*s*. 6*d*. or 1.10 dollars.

THE appearance of a third edition of "Gestation Periods: a Table and Bibliography" in the tenth year after the publication of the first shows how much it has been in demand by naturalists, biologists and others interested in mammalian reproduction. A large number of new entries is included in this edition, many of them referring to species that had not been recorded before. Further information will no doubt be added to this most useful work with the passage of time: it includes everything recorded about the subject up to the time of going to press.