

SCIENTIFIC INTELLIGENCE.

GEOLOGY.

The Quaternary Ice Age; by W. B. WRIGHT. Pp. xxv, 478; 155 figs., 2nd edition, New York and London, 1937 (Macmillan and Co., 25s).—In this volume Mr. Wright has revised and brought more nearly up to date the work he published first in 1914. It still stands as the fullest discussion of the Pleistocene ice age in the English language. The improvements consist chiefly of the introduction of many new references to the literature, including the placing of a bibliography at the end of each chapter, and of new unit-discussions. Outstanding among the latter are treatments of the phenomena of deglaciation, and of the complicated relation between glaciation and the level of the sea. In addition there is a fuller discussion of the Pleistocene stratigraphic sequence in Britain, including the stream gravels of southern England, and the problem of the interglacials is much more fully considered; its treatment was defective in the earlier edition.

The chapter on Quaternary mammals (exclusive of man) remains essentially unchanged, but the terminology of the human cultures has been modernized. As in the earlier edition, however, only the genus *Homo* is considered; hominid fossils of pre-Neanderthal date are not treated.

Mr. Wright is, of course, more at home in the European Pleistocene than in the American. The latter is much the less fully set forth, and appears not to have been modernized to the same extent as the discussion of features across the Atlantic. Thus the Cordilleran "ice sheet" is still stated to have been a center of ice dispersion, the outer limit of the Wisconsin drift is still referred to as "the great Kettle Moraine of the United States," and the Iowan drift is retained as a major stratigraphic unit in the Mississippi basin section.

No doubt few discussions of the causes of the exceptional Quaternary climates can avoid being tainted to some degree with the predilections of their authors; and for this reason one ought not to judge Mr. Wright too severely for the somewhat less than equal treatment that he accords to the hypotheses thus far advanced to explain this absolutely unsolved problem. In connection with the hypothesis of variable solar radiation he mentions Dubois and Simpson but not Huntington, nor does he consider the important implications of Simpson's form of this hypothesis. He discusses the elevation (topographic) hypothesis summarily, and in this connection makes no mention of the important contributions made by Brooks. He devotes major consideration to the "astronomic theory" as set forth by Croll and later by Köppen and by Soergel,

and accepts (rather naïvely, it may seem to some readers) the notion of great displacement of the Earth's axis relative to the continental masses, in the geologic past.

In spite of these criticisms, the book is a distinct improvement over its earlier form, and will doubtless continue to serve as a very useful reference work on the Pleistocene glaciation.

RICHARD FOSTER FLINT.

A Descriptive Petrography of the Igneous Rocks. Vol. IV. Pt. I: The Feldspathoid Rocks. Pt. II: The Peridotites and Perknites; by ALBERT JOHANNSEN. Pp. xvii, 523; 181 illustrations. Chicago, 1938 (The Chicago University Press, \$4.50).—The present volume is the final and concluding installment of Professor Johannsen's great treatise on Petrography, the first volume of which appeared in 1931. A distinguishing feature of this work, as is well known, is the emphasis on quantitative data, and in the four volumes are assembled practically all the rock analyses from the world's literature in which chemical analysis and mineral composition have been determined on the same specimen. For this great service Professor Johannsen has placed petrologists under a heavy debt of gratitude.

An extraordinary number of newly coined rock names appear in the present volume, many of them coined by Professor Johannsen to designate rocks that fit into previously unnamed compartments of his classification. In the foreword to the present volume Professor Johannsen has found it necessary to explain again, that he has included the names of all rocks whose positions could be determined, regardless of whether a name duplicates an older one or whether or not it is desirable. This procedure is inevitable in a work that professes to be complete as a reference source. The cumulative effect of the enormous array of rock names thus brought together—euphonious, cacophonous, and otherwise, drawn from every language civilized and uncivilized, is nothing short of appalling. The names are devoid of system, connotation, or mnemonic association. Some authorities, it is true, have pointed out that the number of rock names is much fewer than the number of names in other sciences, for example, botany, but this defense or palliation of the present method is hardly convincing. A better way to solve some of the difficulties of the problem of nomenclature would seem to be, as has often been suggested before, somewhat along the lines adopted by chemistry, by building a logical system in which varieties are indicated by appropriate adjectival qualifiers. The realization of this hope appears remote at present. Meanwhile, we rejoice that Professor Johannsen has brought to a successful conclusion so immense a piece of work as the Petrography.

ADOLPH KNOPF.