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REVIEWS

THE FOSSIL EVIDENCE FOR HUMAN EVOLUTION; GEOLOGY OF THE HIMALAYAS; GEOLOGY OF GRANITE; CARBONATITES

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THE FOSSIL EVIDENCE FOR HUMAN EVOLUTION, by W. E. LeGros Clark. Second Edition, published by the University of Chicago Press, Chicago and London, 1964, xii + 201 pp., 26 figs., \$6.00

In this new edition of the standard work on hominid paleontology and evolution, the author includes all relevant new information which has been discovered since the book first appeared (1955). Of particular interest are the critical commentaries on L. S. B. Leakey's recent discoveries in Olduvai Gorge in Tanganyika. It is shown that not only are generic distinctions such as "*Zinjanthropus*" doubtful, but that most of the australopithecine specimens (if not all) are conspecific with Dart's original species, *Australopithecus africanus*, established in 1925 for the Taung skull.

The book is scholarly, definitive, and among paleoanthropologists the accepted guide for the taxonomy of fossil hominids. Professor Le Gros Clark (professor emeritus, anatomy, Oxford University) reviews the important discoveries of fossil man, evaluates the available evidence, and examines the conclusions that have been drawn from that

evidence in demonstrating evolution within the Hominidae. He is clear, concise, and skilled in defining basic concepts as he introduces and employs them. The familiar species, *Pithecantropus erectus* ("Java Man"), in accord with recent studies is revised and shifted to the genus *Homo*.

This volume is an important, up-to-date contribution to human paleontology and should be a part of the library of any geologist or anthropologist who is concerned with the evolution of Man.

GEOLOGY OF THE HIMALAYAS, by Augusto Gansser. Published by Interscience Publishers (John Wiley & Sons Ltd), London, New York and Sydney, 1964, xvi + 289 pp., 149 figs., 95 photo plates, 4 large folding plates including tectonic and geologic maps and profiles in color, \$35.00

This volume is a part of the Interscience *Regional Geology Series*, designed to present surveys of large structural units, independent of national boundaries. The *Geology of the Himalayas* provides a comprehensive view of the greatly scattered literature on this fas-

cinating region in a satisfying and pleasing manner. It is fully illustrated with numerous structural sections and sketched views adding much to the usefulness of the text. The magnificent quality of the photo plates is rarely equalled.

Each province of the Himalayan region is described in detail. Much previously unpublished information is summarized including Professor Gansser's own extensive and recent work in three portions of the Himalayan chain. The section on Bhutan is of particular interest as this is the first significant geological report to be published on Bhutan.

Among the greatest assets of this book are the tectonic and geological maps (in color) which for this vast area are the first such maps to appear in thirty years. These are a major contribution.

The pages are large (8 x 11½ inches) and the general format is attractive. The number of misspelled words and other typographical errors likely resulted from the haste necessary to produce the volume prior to the International Geological Congress held in New Delhi in December of 1964.

GEOLOGY OF GRANITE, by Eugène Raguin; translated by E. H. Kranck and P. R. Eakins with Jean M. Eakins. Published by Interscience Publishers (John Wiley & Sons Ltd), London, New York and Sydney, 1965, xxi + 314 pp., 51 figs., glossary, \$11.00

This is the first book to deal with granite in general geological terms, rather than its petrography or its origin or some other single facet of this fundamental rock. This English translation is from the second French edition of the work (first published, 1957).

Professor Raguin begins with the definition, composition, and occurrences of granite with detailed discussion of circumscribed massifs, anatectic granites, and assimilation by granite. He proceeds to the granite aureole, border zones, and products of metamorphism; followed by geometric structure of massifs, petrofabric analysis, magmatic differentiation, dykes and veins, and weathering and crushing (mylonitization) of granites.

Perhaps the most significant chapters are those dealing with the relationships of gran-

ites to geological processes: granitization and metamorphism, granite and orogeny, granite and volcanism, and granitic metallogenesis. The concluding sections treat: radioactivity of granite, granite in the Earth's crust and the general problem of the formation and emplacement of granite.

The demonstrably endogenic origin of granite is recognized. That granitized masses can arise from sedimentary and metamorphic rocks or from granitic or basic rocks of an earlier cycle is shown and the intricate nature of anatectic granites and their concomitant suites of migmatites is explored.

CARBONATITES, edited by O. F. Tuttle and J. Gittins. Published by Interscience Publishers (John Wiley & Sons Ltd), New York, London and Sydney, 1967, xix + 591 pp., \$22.50

The petrogenesis of carbonatites has been the subject of considerable controversy for some four decades, especially concerning the physical conditions of carbonate emplacement and the origin or source of the carbonate. Were these heterogeneous masses of layered and banded carbonate rocks emplaced as magmatic melts or by hydrothermal solutions, by solid flow or by gaseous transfer of material? Were they formed from primary magma containing carbon dioxide or was the carbonate composition assimilated from sedimentary limestone?

This book serves to synthesize the current knowledge of the petrogenesis and mode of emplacement of carbonatites. The twenty-two contributing authors describe field and laboratory studies of the major carbonatite complexes, fenitization (metasomatic alteration of granitic rocks to an alkali-syenitic composition or other metasomatically formed compositions found in the immediate environs of carbonatite complexes), modern experimental studies, and the economic aspects of carbonatites and associated or adjacent rocks (phosphorus, manganese, strontium, niobium, barium, rare earths, vanadium, copper, zinc, molybdenum, lead, thorium, uranium; and, as by-products, iron, lime and vermiculite). The volume is concluded with extensive summaries and bibliography of all known carbonatites arranged geographically. This is the first comprehensive treatment of carbonatites which has been published.