

Man's Antiquity and Origin.

Fossil Men: Elements of Human Palæontology. By Prof. Marcellin Boule. Translated from the French, with an Introduction, by Jessie Elliot Ritchie and Dr. James Ritchie. Pp. xxvii+504. (Edinburgh: Oliver and Boyd; London: Gurney and Jackson, 1923.) 36s. net.

THE translators of Prof. M. Boule's standard treatise, "Les Hommes fossiles," have accomplished their task exceedingly well. They worked from the first edition, which has been already reviewed in our pages (*NATURE*, May 12, 1921, p. 322), and the translation was already standing in page proof when Prof. Boule brought out a second edition. By references inserted in the text, and by the addition of an appendix the translators have made all the additional matter of the second edition available for English readers.

A close study of "Fossil Men" in its English dress confirms the high opinion formed on reading it in the original. In his new edition Prof. Boule has taken the opportunity to alter or modify former expressions of opinion. In the earlier edition he did not hesitate to assign the lower jaw found at Piltdown to an extinct form of chimpanzee; he is now almost prepared to admit that it may be part of Piltdown man. Since the appearance of the first edition M. l'Abbé Breuil has been convinced that Mr. Reid Moir and Sir Ray Lankester are right in regarding certain flints found beneath Pliocene (Red Crag) deposits in Suffolk as being of human workmanship. This conversion has clearly had some influence on Prof. Boule, but he "cannot share the opinion of certain of my fellow-workers, more enthusiastic than critical, that they (these new observations) definitely settle the question."

Amongst other additions made to the second edition and included in this translation are (1) a description of the lower jaw of a child found in the famous Pleistocene deposits at Ehringsdorf near Weimar in 1916, and attributed by Prof. Boule to the period of Acheulean culture; (2) a child's skull from the Mousterian beds at La Quina, described in 1921 by Dr. Henri Martin; (3) the remarkable ivory statuette of a very fat lady, found last year in a cave in the south-west of France. Prof. Boule describes this latest discovery of palæolithic art as queen of the Aurignacian Venuses; (4) the Rhodesian skull is described, and its mixture of Neanderthal and Australian features duly noted. Indeed, from a reviewer's point of view it was fortunate that Dr. and Mrs. Ritchie had proceeded so far with their task before Prof. Boule's new edition appeared, for the appendix of additions makes an excellent summary of recent discoveries relating to the pre-history of man.

Our Bookshelf.

On the Application of the Quantum Theory to Atomic Structure. By Niels Bohr. Part 1: The Fundamental Postulates of the Quantum Theory. (Proceedings of the Cambridge Philosophical Society: Supplement.) Pp. 42. (Cambridge: At the University Press, 1924.) 3s. 6d. net.

ENGLISH readers will welcome this authoritative account by Prof. Bohr of the application of his theory to atomic structure. The essay has been translated from the *Zeitschrift für Physik* by L. F. Curtiss with the author's concurrence. It follows the third of the three essays contained in "The Theory of Spectra and Atomic Constitution," published in 1922, and forms the first of a new series expounding systematically the problems of atomic structure.

The three chapters deal with the fundamental postulates of the quantum theory. The first postulate is concerned with the so-called "stationary states" for an isolated atomic system. The fixation of these states for simply and multiply periodic systems is a problem of no little difficulty, which has gradually advanced by contributions from a great number of authors. In the presence of an external conservative field of force further difficulties are met with, but a simple analytical treatment is here given in which Prof. Bohr has had the co-operation of Dr. Kramers. When an atom is affected by radiation, or when we consider a collision between two atoms, it is necessary to introduce further conditions such as the adiabatic principle of Ehrenfest. The significance of this principle is extraordinarily great, since it leads to the elucidation and development of formal methods for fixing the stationary states. The "weights" to be attributed to these states in the calculation of the probability may be determined by a method also due to Ehrenfest.

Chap. ii. takes up the radiation problem, starting with a statement of Bohr's frequency relation, which is to be applied to every emission and every absorption of radiation. The fact that the laws of the classical theory are suitable for the description of the phenomena in a limited region is explained by the Correspondence Principle. This principle throws light on the fixation of the stationary states, and may afford a formal interpretation of the continuous spectrum.

In chap. iii. the formal nature of the theory is discussed and reference is made to Einstein's hypothesis of light-quanta and to Whittaker's quantum mechanism. The principles mentioned above are to be regarded purely as laws of the quantum theory, which give us a hope in the future of a consistent theory capable of reproducing the characteristic advantages of the newer conceptions and at the same time of being regarded as a rational generalisation of classical electrodynamics.

Zum sechsten Erdteil. Die zweite deutsche Südpolar Expedition. Von Dr. Wilhelm Filchner. Pp. xix+410. (Berlin: Verlag Ullstein, 1923.) n.p.

DR. FILCHNER'S account of the German Antarctic Expedition of 1910-12 has been long delayed, but its appearance is welcome, for it adds an important chapter to the story of the exploration of the Weddell Sea. The *Deutschland* essayed to follow up the work of the *Scotia*, and like the *Scotia* was well