

SCIENCE

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FRIDAY, DECEMBER 21, 1900.

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THE MAMMALIAN FAUNA OF THE SANTA CRUZ BEDS OF PATAGONIA.*

THE magnificent collections of vertebrate fossils brought back from Patagonia by Messrs. Hatcher and Peterson are still very largely in the rough state. The work of cleaning and preparing the specimens is proceeding steadily and satisfactorily, but is necessarily slow, and the preparation of a single skeleton may require the labor of many weeks. Enough has been already accomplished, however, to exhibit the character of this very remarkable fauna in its main outlines and to permit a general statement of its most salient features. Long and patient study will still be necessary before the full significance of this peculiar assemblage of mammals can be made apparent.

The geological age of the Santa Cruz beds has long been a matter of dispute, because the lack of fossils common to that formation and the standard horizons of the northern hemisphere has prevented any direct comparison. Ameghino, to whose indomitable energy so much of our knowledge of Patagonian fossils is due, has always maintained the lower Eocene age of the Santa Cruz beds. On the other hand, European and American paleontologists have been convinced, from the grade of evolution attained by the Santa Cruz mammals,

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

* Abstract of a paper read before the Princeton Biological Club, November 16, 1900.

and to secure more perfect constructions and more permanently valuable operation of his machinery, is lamented in some of the discussions and with good reason; yet it is obvious that this lack is entirely natural; but it is equally obvious that when the technically educated and professionally trained men of the coming generation, now just issuing from the technical and professional schools, to take the lead in the work of the industries of all departments, shall have reached their period of maturity and of maximum usefulness, this difficulty is likely largely to disappear. In fact, the technical papers of the time are coming to more and more illustrate the literary, as well as professional powers of this class.

The illustrations are all well-made, some half-tone, others engraved, many diagrammatic, and constitute a most important feature of the volume. The book-making is excellent and the whole may be taken as among the best, if not itself the very best, of illustrations of the character of the work of the contemporary man of science in these departments of application. The mechanic and engineer of to-day is the maker of the modern material world and it gives the average citizen of every civilized country a feeling of satisfaction and of safety to find that he is at once 'practical' and scientific, experienced and learned, competent to unite the best of scientific knowledge with the richest of technical experience in the design, the construction and the operation of the machinery of the world and in thus building the foundations of our civilization broad and deep and solid. This volume has large significance from the point of view of the economist, the educator, the philosopher and the statesman, as well as from that of the technician and the engineer.

Its editor, the secretary, deserves cordial congratulations.

R. H. THURSTON.

BOOKS RECEIVED.

Elementary Anatomy, Physiology and Hygiene. WINFIELD S. HALL. New York, Cincinnati and Chicago, American Book Company. 1900. Pp. 273. 75 cents.

Life and Letters of Thomas Henry Huxley. LEONARD HUXLEY. New York, D. Appleton & Company.

1900. Vol. I. Pp. xi + 539. Vol. II. Pp. vii + 541.

The Limitation of Learning and other Science Papers. ALBERT SCHNEIDER. Chicago, Chicago Medical Book Company. 1900. Pp. 100.

Text-book of the Embryology of Invertebrates. E. KORSCHULT and K. HEIDER. New York, The Macmillan Company. London, Swan Sonnenschein and Company. 1900. Vol. IV. Pp. xi + 594. 18s.

One Thousand Problems in Physics. WILLIAM H. SNYDER and IRVING O. PALMER. Boston, Ginn & Company. 1900. Pp. v + 142.

An Elementary Treatise on Qualitative Chemical Analysis. J. F. SELLERS. BOSTON, Ginn & Company. 1900. Pp. ix + 160.

The Progress of Invention in the Nineteenth Century. EDWARD W. BRYN. New York, Munn & Company. 1900. Pp. viii + 476. \$3.00.

Die Erdströme im deutschen Reichstelegraphengebiet und ihr Zusammenhang mit den Erdmagnetischen Erscheinungen. B. WEINSTEIN. Braunschweig, Friedrich Vieweg und Sohn. 1900. Pp. vi + 78 and 19 plates.

Theoretische Betrachtungen über die Ergebnisse der wissenschaftlichen Luftfahrten. WILHELM VON BEZOLD. Braunschweig, Friedrich Vieweg und Sohn. 1900. Pp. 31.

Über Museen des Ostens der Vereinigten Staaten von Nord Amerika. A. B. MEYER. Berlin, R. Friedländer und Sohn. 1900. Pp. viii + 72.

The Biography of a Baby. MILLICENT WASHBURN SHINN. Boston and New York, Houghton, Mifflin & Co. 1900. Pp. 246. \$1.50.

A Reader in Physical Geography. RICHARD ELWOOD DODGE. New York, London and Bombay. Longmans, Green & Company. 1900. Pp. ix + 231.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON.

THE 329th meeting was held on Saturday evening, December 1st.

L. Stejneger presented a paper 'On Post-Pliocene Migrations of Siberian Animals into Europe,' saying that three invasions of Siberian higher vertebrates into western Europe are distinguishable since Pleistocene times. The first one took place before the maximum glaciation of the ice age, at a time when Ireland and Norway were both connected with Great Britain,