A Study of the Normal Tibia by Ales Hrdlicka

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epitome of the subject. This appeared, in 1895, under the title of *Grundzüge der Palæontologie*. Dr. Eastman, of Harvard, at one time a student under von Zittel, at Munich, undertook the preparation of an English edition of this excellent work; but he soon modified his original plan of a literal translation, and was led, with the author's consent, to enlarge the scope of the work and to remodel a large part of it. In this labour he has been assisted by a staff of specialists. But it has not been possible for the editor to secure uniformity in the work of his contributors; some being content to adhere to the original, whilst others have taken great liberties with the text, and have introduced radical departures from the primitive plan. Hence, some chapters of the translation follow closely the German, whereas others have been completely recast; thus, the section on the Cephalopoda has been rewritten by Professor Hyatt, and though his views and those of von Zittel are sometimes at variance the German professor has graciously bowed to the American authority.

The present volume, extending to 706 pages, deals only with the Invertebrata, and the student of anthropology will anxiously await the appearance of the second volume, which will be devoted to the Vertebrata. Meanwhile, he may read with advantage the admirable introductory chapter dealing with the scope of Palæontology and its relations, on the one hand to Geology and on the other to Biology. Professor von Zittel's work is admitted to be our best guide to a knowledge of the varied forms of life which existed on our planet in the past.

F. W. R.

THE CEPHALIC INDEX. By Dr. Franz Boas. (Reprinted from the *American Anthropologist*, N.S., I. July, 1899, pp. 448-461.) (Presented by the Author.)

In this paper the author discusses the biological significance of the cephalic index; he finds it greatly influenced by causes other than the length and breadth of the head. Thus it appears that the length of the head is more influenced by stature than the breadth of the head. "Correlation between breadth of face and horizontal diameters of the head shows the transversal diameters to be very closely correlated, while the length of the head is more closely correlated with height of face." The influence of cranial capacity on the form of the skull is next considered, and the author concludes that Virchow's law of compensation applies equally to normal as well as to pathological skulls. The correlation between the length and breadth of the skull is not an expression of a biological relation between the two measurements, but an effect of the changes which both undergo when the capacity of the skull increases or decreases. "It follows from these considerations that while the cephalic index is a convenient practical expression of the form of the head, it does not express any important anatomic relation. On the other hand, the relation between capacity and head diameters is found to be of fundamental importance, and among these the relation between transversal diameters and capacity is most significant. Since in measurements on the living we are unable to measure the capacity of the head, it is necessary to find a substitute. It would seem that circumferences are the most available means for judging cranial size. Therefore such circumferences should be included in all anthropometrical schedules designed to investigate racial characters.

A. T.

A STUDY OF THE NORMAL TIBIA. By Ales Hrdlička. Reprinted from the *Proceedings of the Association of American Anatomists*. XI Session. New York City. Dec. 1898. 6 pp. (Presented by the Author.)

The material at the disposal of the author comprised 2,000 bones of whites, 80 of negroes and 520 of North and Central American Indians. The principal differences

observed were those affecting the form of the shaft, these the author tabulates under six varieties, and promises further information regarding the significance of the various shapes, though he admits that the enquiry is beset with difficulties, for he found equal variety in the form of the bone in women and young adults, and met with quite as many different types on weak as in strongly developed bones. Advanced platycnemy was very rare in both the whites and negroes, but frequent in the Indians, whilst a pronounced backward inclination of the head is common in Mexican Indians.

A. T.

DESCRIPTION OF AN ANCIENT AMERICAN SKELETON FROM THE VALLEY OF MEXICO; with special reference to Supernumerary and Bicipital Ribs in Man. By Ales Hrdlička. (Reprinted from *Bull. Am. Mus. N.H.* xii. 81-107. New York. May, 1899.) (Presented by the Author.)

The skeleton which Dr. Hrdlička describes was discovered about three metres from the surface in an adobe deposit at St. Simon Tonaquac, a small suburb of the city of Mexico. The principal points of interest in connection with it were the occurrence of a pair of supernumerary ribs, the very high relative lengths of the bones of his forearm and leg, and the peculiarity of the lower jaw. The cranial capacity was small, the humeri were pierced at the olecranon fossæ, and the head and articular facets of the tibiæ were much recurved. After discussing the significance of these structural features, the author admits that in the present state of our knowledge it is impossible to say whether the skeleton be that of a Toltec or an Aztec.

A. T.

A BIBLIOGRAPHY OF PHYSICAL ANTHROPOLOGY.

Jahresberichte der Anatomie und Entwicklungsgeschichte. By Professor Dr. Emil Schmidt. *Physische Anthropologie.* 1898. XII. pp. 567-646. (Presented by the Author.)

All who work at the subject of physical anthropology owe a debt of gratitude to Professor Schmidt, for here not only do we find a marvellously complete reference to the articles, to the number of 542, which have appeared during the year, but we are also furnished with a series of abstracts which practically embody all the recent advances made in this subject.

A. T.

KATHETOMETRY. *Weitere Kathetometrische Studien.* Von Professor Dr. Moriz Benedikt. *Archiv. f. Anat. u. Phys. (Anat. Abth.* 1899) 353-388. (Presented by the Author.)

This paper embodies the results obtained by the author through the use of a modification of the stereograph. The subjects particularly dealt with refer to the growth and form of the tibia and femur, with especial reference to the movements of the knee and hip joints.

A. T.

ON SOME FLINT IMPLEMENTS, FOUND IN THE GLACIAL DEPOSITS OF CHESHIRE AND NORTH WALES. By Joseph Lomas, F.G.S. 8vo, pp. 14, with one photographic plate. Liverpool. Thos. Brakell, Ltd., 1899. (Presented by the Author.)

This paper was read before the Historic Society of Lancashire and Cheshire, and the Liverpool Geological and Biological Societies, on December 9th, 1898. It contains an account of chipped flints found (1) at Spital Sandpit Cheshire, (2) at Prenton, near Birkenhead, (3) at Moel Tryfaen, N. Wales; and two opinions of their origin. Sir John Evans is reported as saying—"No. 7 may be artificial. Of the others, Nos. 2 and 3 look the most possible; but the signs are not such as can confidently be