

advanced students in general, his "Flore-Manuel" a contribution to education and science which, most assuredly, will do much to stimulate an interest in botany, not only in his native Province, but outside as well. The reviewer hopes to see the Manual translated into English.—M. O. MALTE.

PARASAUROLOPHUS TUBICEN N.SP. AUS DER KREIDE IN NEW MEXICO (*P. tubicen* n.sp. from the Cretaceous of New Mexico). By C. Wiman. *Nova Acta Regiæ Societatis Scientiarum Upsaliensis, Ser. IV, Vol. 7, No. 5, 11 pp. 3 pls., Uppsala, Sweden, 1931.*

Professor Wiman, of the Royal University, Uppsala, has made several important contributions recently to our knowledge of Cretaceous dinosaurs, especially those of China and New Mexico. The present paper is of special interest to students of Canadian dinosaurs, for the genus *Parasaurolophus* has been known hitherto only by a nearly complete skeleton from the Belly River formation of Alberta, preserved in the Royal Ontario Museum at Toronto. *Parasaurolophus walkeri*, the Canadian species, is a duck-billed dinosaur, belonging, in spite of its name, to the helmet crested group, the Lambeosaurinæ. It is particularly distinguished by a long, curved, backwardly directed crest, a bizarre extension of the premaxillary and nasal bones.

Wiman's new species was collected by Mr. Charles H. Sternberg from the Ojo Alamo formation of San Juan county, New Mexico. This subdivision of the Upper Cretaceous, on the evidence of invertebrate fossils, is of about the same age as the dinosaur-bearing Edmonton formation of Alberta, *i.e.*, younger than the Belly River beds. In view of this marked extension of the geological and geographic range of the genus it is unfortunate that the new species is represented only by fragments of the skull and the posterior portion of the characteristic crest. The natural association of the material apparently is not in question.

The species *tubicen* is differentiated from *P. walkeri* by a somewhat greater size, a differently shaped termination to the crest, and a dissimilar jugal (cheek) bone. Wiman concurs with Gilmore and Abel in the view of relationships expressed above, *i.e.*, that the genus is lambeosaurine.

The detailed description of the skull fragments, which make up a large part of the left side, as well as the occipital region, need not be reviewed here. It may be noticed, however, that the crest has the two lateral grooves seen in *P. walkeri*, but is more tapering at the posterior termination.

Like most of his European colleagues, Professor Wiman is not content to close his paper with the mere description of the remains, but devotes several concluding pages to the biological significance of the extraordinary crest of *Parasaurolophus*. He apparently views with favour Baron Nopcsa's conclusions that such outgrowths are secondary sexual characters. This hypothesis is not yet acceptable to most North American students, because of the fantastic conclusions that are associated with it. Abel's views, that the crest served both as a weapon and as a means of enlarging the olfactory areas of the nasal passages, are regarded with doubt by Wiman, especially the second hypothesis. By comparison with vocal structures in swans and cranes, and by analogy with certain musical instruments of Sweden, our author finally concludes that the crests of the lambeosaurs were resonating organs. "It seems quite likely to me," he says, "that the male *Parasaurolophus* summoned his harem together by means of his amplified voice."

Wiman recognizes certain evolutionary trends in the development of these reptilian "trumpets". He sees the earlier stages in *Kritosaurus*, with elevated nose bones, and *Cheneosaurus*, with an incipient crest. From here development was divergent, and three lines resulted, one culminating in *Corythosaurus* and *Hypacrosaurus*, another in *Lambeosaurus*, and the third in *Parasaurolophus*.

To the North American critic Wiman's biological conclusions seem jeopardized by their foundation on a doubtful hypothesis, that of Nopcsa, and the geneologies appear to neglect too much the skeleton as a whole, as well as the stratigraphic relationships. Nevertheless, we are indebted to the author not only for the anatomical data that he supplies, but also for his very interesting contribution to the palæobiology of these curious reptiles. Vertebrate palæontologists on this side of the Atlantic make all too few attempts to revitalize the objects of their studies.—L. S. RUSSELL.

AN INTRODUCTION TO THE LITERATURE OF VERTEBRATE ZOOLOGY. Based chiefly on the Titles in the Blacker Library of Zoology, The Emma Shearer Wood Library of Ornithology, The Bibliotheca Osleriana and Other Libraries of McGill University, Montreal. Compiled and edited by Casey A. Wood, M.D., LL.D. Oxford University Press. London, 1931. \$15.00.

The Frontispiece, a reproduction of a painting of the Dodo, probably from life, is a hint of the literary and artistic treasures to be found in the

great zoological library of which this is a catalogue.

The first part is an introduction to the literature of vertebrate zoology by Dr. Casey A. Wood, then follows a catalogue of the library. There is also a preface and various indexes. The introduction is wide in scope and an invaluable guide to the literature of zoology. Some of the chapter headings are:—"The Beginnings of Zoological Records", "Medieval Writers on Zoology", "The Literature of Comparative Zoology". Here and there through the chapters the collector gets the better of the commentor, but it is not until the last chapter, "Unique and Rare Printed Books, Manuscripts and Drawings in the Zoological Libraries of McGill University" that the bibliophile and author are one, in describing the astonishing collection of rare books, manuscripts and drawings brought together by the author and placed at the service of the student. The annotated catalogue forms the second and greater

part of the volume; included are items from the Osler Library of the History of Medicine, the Gest Library of Chinese Literature, and the General Library of McGill University. The principal items are from two sources, the Emma Shearer Wood Library of Ornithology and the Blacker Library of Zoology; both contributed and endowed by Canadians through the vision, enthusiasm and direction of the compiler, himself Canadian born. During and after the Great War it was possible to secure books and manuscripts that would not otherwise have been available for a Canadian library. Fortunately for Canada, Dr. Wood understood the importance of the time, and the future need in Canada for a library of zoological literature of outstanding importance. This has been accomplished and Dr. Casey A. Wood will always be remembered as the originator and builder of the library whose contents are catalogued in the present volume.—J.H.F.

EXCURSIONS OF The Ottawa Field-Naturalists' Club, 1932

Do not collect any specimens except for scientific purposes.

It is the aim of the Club to foster the study of all branches of natural history on these excursions. On every occasion, groups will be formed to study botany, birds, insect life, geology, minerals, pond life, general zoology, etc. At the commencement of the excursion, particular items of interest peculiar to the locality will be explained, so that members and visitors will have an opportunity of devoting special attention to particular subjects when desirous of doing so alternatively to general natural history. Leaders will be provided for as many groups as occasion demands.

MAY 7—McKay Lake and vicinity. Take Rockcliffe O.E.R. car, and meet at terminus at 3 p.m.

LEADERS—Dr. E. M. Kindle, Mr. Hoyes Lloyd and others.

MAY 14—Britannia-on-the-Bay. Meet at the O.E.R. terminus at Britannia at 3 p.m.

LEADERS—Mr. Herbert Groh, Miss M. E. Cowan and others.

MAY 21—Fairy Lake vicinity. Take Hull Electric Railway car at Chateau Laurier for Wrightville at 2.30 p.m.

LEADERS—Dr. Ralph De Lury, Mr. C. E. Johnson and others.

MAY 28—Val Tetreau. Take Hull Electric Railway car at Chateau Laurier at 2.30 p.m. for Val Tetreau, and meet at Monument, bottom of Main Street.

LEADERS—Dr. F. J. Alcock, Mr. G. A. Miller and others.

JUNE 4—National Museum of Canada. By invitation of the Director, Dr. W. H. Collins. Meet at entrance at 3 p.m.

JUNE 11—Dominion Experimental Farm. By invitation of the Director, Dr. E. S. Archibald. Meet by the Observatory, Carling Ave. entrance, at 3 p.m.

OTHER EXCURSIONS WILL BE ANNOUNCED LATER

F. J. FRASER, *Convener* :: :: :: :: :: Phone—Office, Q. 2742, Local 8



Fleming, James H. 1932. "An Introduction to the Literature of Vertebrate Zoology, by Casey A. Wood [Review]." *The Canadian field-naturalist* 46(4), 97–98. <https://doi.org/10.5962/p.339374>.

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