

Concluding Remarks.

The osteological characters defining the orders of hoofed quadrupeds, called *Proboscidea*, *Perissodactyla* and *Artiodactyla*, are associated with modifications of the soft parts of such importance, as not only to establish the accuracy of the principles of that ternary division of the great Natural group of *Ungulata**, but to indicate that the known modifications of the skeleton of the extinct *Toxodons* and *Nesodons* of South America, in the degree in which they differ from the osteology of the already defined orders of *Ungulata*, must have been associated with concomitant modifications of other parts of their structure, which would justify, and indeed compel, the consistent classifier to place them in a distinct division of the *Ungulata*, of equal value, if not with the *Perissodactyla* and *Artiodactyla*, at least with the *Proboscidea*. Like the *Proboscidea*, this group, which I propose to call *Toxodontia*, is more nearly allied to the Perisso- than to the Artio-dactyle orders.

This is shown by the large and complex third and fourth premolars (p_3 and p_4), by their close similarity with the true molars, by the unsymmetrical oblique foldings and islands of the enamel, and by the great length of the crowns of the molars, to which the Horse alone offers any near approach amongst existing Ungulates. By the form and proportions of the eminentia articularis, of the glenoid cavity, and of the post-glenoid process,—and by those, also, of the lacrymal bone, of the zygomatic arch, and of the orbit,—the *Toxodontia* are most closely matched by the Tapir and Rhinoceros in the Perissodactyle order.

The dental and osteological characters detailed in the text, whilst they illustrate the closer mutual affinities between the *Nesodons* and *Toxodons*, establish their claim to be regarded as types of a distinct order of *Ungulata*; and they also tend to dissipate much of the obscurity supposed to involve the true nature of the genus *Toxodon*, and to reconcile the conflicting opinions as to its proper place in the Mammalian Class.

The fossils above described were discovered on the coast of Patagonia to the south of Port St. Julian, and my friend Mr. CHARLES DARWIN, F.R.S., has kindly communicated to me the following opinion as to the formation in which they were imbedded:—"These beds resemble mineralogically the upper ancient tertiary formation of Patagonia, but EHRENBERG found the included microscopical organisms wholly different from those of the ancient tertiary formation, being of freshwater and brackish origin (p. 117 of my Geological Observations on South America). Hence these beds are of unknown age, probably younger than the old tertiary and older than the superficial beds in which *Macrauchenia* was found."

* Memoir on the Anthracotherioid Animals, in 'Quarterly Journal of the Geological Society,' Nov. 1847, and 'Osteological Catalogue of the Museum of the Royal College of Surgeons,' 4to, p. 629.