

Later J. C. Forsyth Major,* Mme. Pavlow,† Nehring,‡ Kowalewski,§ and Woldrich|| touched more or less at length upon the relation of the skulls of the ass and horse. Still later some of the French investigators discussed these very different and partly contradictory criteria, thus Duges,¶ Monfalet,** and before all X. Lesbre,†† the veterinary anatomist of Lyons.

I will here state briefly those characteristics on which these authors lay the most stress:

According to Owen, in the upper series of grinders the degree of oblique attrition of premolar 2 causes its working surface to appear more produced and acute anteriorly than in less worn and more evenly worn specimens. Besides the general inferiority of size of teeth, molar 3 is relatively less than in *Equus caballus* and is not bilobed behind: the outer channels are more evenly curved or concave; and as the same character prevails in the inner enamel-wall of the lobes these are more regularly crescentic in shape. The longitudinal ridge is relatively narrower. A slight excess of fore-and-aft over transverse diameter of grinding surface is recognizable in the ass—such excess not being seen in the permanent grinders, premolar 3 to molar 2, of the horse.

Rütimeyer regards as a constant characteristic for the teeth of the ass, as compared with the horse, the relatively slight length of the foremost as well as of the hindmost molar in both the upper and lower jaws. Also he considers the premolars and molars in the ass to be shorter than in the horse; the foremost premolar tooth is strikingly short. Rütimeyer declares irrelevant the circumstance mentioned by Owen that molar 3 superior is less bilobed in its posterior circumference than in the horse. He ascribes to the ass, at least in the teeth of the upper jaw, more oblique enamel plications than occur in the horse, but he remarks that one can not disregard the fact that all these characteristics, in so far as they concern construction of the teeth, recur in very old horse teeth; therefore, in the earlier stages of abrasion, the teeth of the ass show the characteristics which correspond to the deeper parts of the tooth lying nearer to the root. In addition to this is the relatively small extent of the toothless part between premolars and canines, as well as the slight width of the incisor crown. Thus, in the ass the whole construction is more compact and crowded.

* J. C. Forsyth Major, Beiträge z. Geschichte d. fossilen Pferdes, insbesondere Italiens. Abhandl. Schweiz. paleontol. Gesellsch., VI and VII, 1880.

† Marie Pavlow, Étude sur l'histoire paléontologique des Ongulés. Bull. Soc. Imp. d. Naturalistes, Moscow, 1889.

‡ Alfred Nehring, Fossile Pferde aus deutschen Diluvialablagerungen, Landw. Jahrb. 1884, Bd. 13, pp. 149 *et seq.*

§ Waldemar Kowalewski, Monographie der Gattung Anthracotherium Cuv. u. Versuch einer natürlichen Klassifikation d. fossilen Huftiere. (Paleontographica, N. F. II, 3, XXII.) Sur l'Anchiterium Aurlanense Cuv. et sur l'histoire paléontologique des Chevaux. Mém. de l'Académie Imp. d. Sciences, St.-Petersbourg, VII Série, t. XX, p. 5, 1873.

|| J. N. Woldrich, Beiträge z. Fauna der Breccien und anderer diluv. Gebilde Oesterreichs. Jahrb. k. k. Geol. Reichsanstalt, Bd. XXXIII, Heft 4. Wien, 1882.

¶ A. Duges, Paralelo de los craneos de caballo i de asino. Guanojuato, 1898. Actes Soc. Scient. d. Chili, t. VIII, pp. 77, 78.

** D. Monfalet, Note complémentaire sur la communication de M. Duges. *Ibidem*, pp. 79, 80.

†† X. Lesbre, Observations sur la mâchoire et les dents des Solipèdes. Bull. Soc. d'Anthropologie de Lyon, t. XI, 1892, pp. 49 *et seq.*