

CATALOGUE
OF THE
FOSSIL MAMMALIA

IN THE
BRITISH MUSEUM,
^{u,}
(NATURAL HISTORY) *Dept. of Geolo*
CROMWELL ROAD, S.W.

PART III.

CONTAINING

THE ORDER UNGULATA, SUBORDERS PERISSODACTYLA,
TOXODONTIA, CONDYLARTHRA, AND AMBLYPODA.

BY

RICHARD LYDEKKER, B.A., F.G.S., ETC.

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1886.

M. 2704. A right upper cheek-tooth, with the upper end cut and polished; from the Red Crag of Bawdsey, Suffolk. Described and figured by Owen in the Quart. Journ. Geol. Soc. vol. xii. p. 233, fig. 12, where it is provisionally referred to *E. plicidens*. The form of the anterior "pillar" is like that of *E. caballus* and unlike that of *E. stenorhis*; it is not impossible that the specimen belongs to the former species.

Presented by Sir C. Lyell, Bart.

B. *From the Siwaliks of the Irawadi Valley¹, Burma: this and the next specimens may belong to Hipparion.*

7523. The symphysis of the mandible, with the crowns of the teeth broken off. Figured by Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxxii. fig. 12.

Mantell Collection. Purchased, 1836.

C. *From the Upper Pliocene (?) of Hündes in Western Tibet², and brought by traders over the Niti Pass.*

M. 2695. The proximal extremity of the left radius. Figured by Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxxiv. fig. 16.

Cautley Collection. Presented, 1842.

M. 2696. The left magnum. Figured by Falconer and Cautley, *op. cit.* pl. lxxxiv. fig. 18.

Cautley Collection. Presented, 1842.

M. 2697. The left astragalus. Figured by Falconer and Cautley, *op. cit.* pl. lxxxiv. fig. 17.

Cautley Collection. Presented, 1842.

Family RHINOCEROTIDÆ.

Including *Hyracodontidæ*.

The upper premolars are nearly or quite as complex as the true molars; the lower cheek-teeth are more or less completely crescentoid; the height of the cheek-teeth varies considerably, the crowns being

¹ In Mantell's Catalogue (M.S.) this specimen is said to be from the Himalaya, but it is figured by Falconer and Cautley as from Burma.

² See Lydekker, Rec. Geol. Surv. Ind. vol. xiv. pp. 178-184 (1881). These beds are here provisionally classed as Pleistocene, but the writer now thinks they are more probably of Upper Pliocene age.

tallest in *Elasmotherium*. One or more dermal horns may be attached to the fronto-nasal region. The digits on the pes are apparently always three, but they may be either three or four in the manus.

Genus **RHINOCEROS**, Linn.¹

Including² :—*Aceratherium*, Kaup³.

Atelodus, Pomel⁴.

Ceratorhinus, Gray⁵.

Diceratherium, Marsh⁶.

Zalabis, Cope⁷.

Aphelops, Cope⁸.

Peraceras, Cope⁹.

Cænopus, Cope¹⁰.

Following Flower's¹¹ arrangement of the living Rhinoceroses in a single genus, there seems no good reason for excluding the hornless forms¹², in some of which the number of digits in the manus is four, and in others three; canines and incisors, as in the horned forms, vary in number¹³.

Dentition :—I. $\frac{(0-2)}{(0-1)}$, C. $\frac{0}{(0-1)}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$. In the adult the first premolar may be absent in both jaws; pm. 1 is sometimes a true *dent de remplacement*¹⁴. The upper cheek-teeth¹⁵ have two transverse

¹ Syst. Nat. ed. 12, vol. i. p. 104 (1766).

² For the numerous genera adopted by Cope, see Proc. Amer. Phil. Soc. vol. xix. p. 393 (1881).

³ Isis, 1832, p. 904.

⁴ Ann. Soc. Lit. Auvergne, vol. xxvi. p. 114 (1853).

⁵ Proc. Zool. Soc. 1867, p. 1006.

⁶ Amer. Journ. ser. 3, vol. ix. p. 242 (1875).

⁷ Amer. Nat. vol. xiii. p. 771 b (1879). (Founded on an error.)

⁸ Ann. Rep. Chief of Engineers, vol. ii. p. 991 (1875). Also occurs in privately published Palæont. Bull. No. 14, p. 1 (1873).

⁹ Amer. Nat. vol. xiv. p. 540 (1880).

¹⁰ Amer. Nat. vol. xiv. p. 611 (1880).

¹¹ Cat. Vert. Anim. Mus. R. Coll. Surgeons, part ii., Mammalia, pp. 415-432 (1884).

¹² The female of *R. sondaicus* (the so-called *R. inermis* of Lesson) appears to be hornless in some instances. The genus *Aceratherium* was retained for the fossil forms by the writer in the 'Palæontologia Indica,' ser. 10, vol. iii., and in his 'Catalogue of Siwalik Vertebrata in Indian Museum,' part i. (1885), *Calcutta*.

¹³ The outermost lower cutting-tooth is here reckoned as a canine.

¹⁴ See a paper by the present writer in the Journ. As. Soc. Beng. vol. xlix. pt. 2, p. 135, pl. vii. (1880).

¹⁵ For the explanation of the terms employed in describing the upper cheek-teeth of this family, see woodcut on page 116, and 'Palæontologia Indica,' ser. 10, vol. ii. p. 8.

crests, and an outer wall with open valleys; they may or may not have a "combing-plate" and a buttress at the antero-external angle; their crowns vary in height, but are never very tall. The hinder premolars are as complex as the true molars; the lower cheek-teeth are distinctly crescentoid, and there is no third lobe to $\overline{m. 3}$.

A. *Atelodine group*.

Two fronto-nasal horns are present; all the cutting-teeth, with the occasional exception of the lower incisor, are absent in the adult, and the upper true molars not unfrequently lack a buttress. The manus has three digits. The group is more specialized than any of the others.

Rhinoceros antiquitatis, Blumenbach¹.

Syn. *Rhinoceros tichorhinus*, Fischer².

Rhinoceros pallasii, Desmarest³.

Rhinoceros jourdani, Lortet and Chantre⁴.

The nasal septum is fully ossified and of great stoutness; the upper true molars have no buttress, but all the upper cheek-teeth have a large "combing-plate" and three fossettes on the worn crowns, of which the plane of wear is nearly horizontal; there is usually no distinct cingulum on their anterior surfaces, and the enamel is very rugose. The crowns of the lower cheek-teeth are worn nearly horizontally.

Hab. Europe and Northern Asia (Pleistocene).

49661. Cast of the skull of an immature individual. The original is from Kronberg, Bavaria. *Purchased, 1878.*

M. 2763. Cranium, wanting the palate; from the Pleistocene of Siberia. *No history.*

M. 2764. Cranium, wanting the palate; from the Pleistocene of (Fig.) Siberia. This specimen is figured in Owen's 'British Fossil Mammals and Birds,' p. 325, fig. 120.

No history.

¹ Handbuch der Naturgeschichte, 1st French ed. vol. ii. p. 408 (1803).

² Zoog. Syst. 1813, *teste* Flower.

³ Mammalogie, p. 402 (1822).

⁴ Arch. Mus. Lyon. vol. i. p. 80 (1872).

M. 2765. The cranium, wanting all the teeth except the left *m.* 2, which is much worn; from the Pleistocene of Siberia.

No history.

46085. The cranium of an immature individual, showing the last five cheek-teeth of the right side; dredged off the Dogger Bank. This specimen has sustained a fracture during the lifetime of its owner across the frontal region, by which its anterior region is bent considerably to one side.

Owles Collection. Purchased, 1874.

28561. The much damaged hinder portion of the cranium; from a cavern in Sundwig, Westphalia. *Purchased, 1853.*

120-123 (O. C.) Part of the left fronto-nasal region of the cranium (*Fig.*) together with three associated upper true molars; from the Pleistocene of Chartham, near Canterbury, Kent. These specimens were obtained by Mr. J. Somner in 1668, and were described as the remains of a sea-monster in a pamphlet entitled 'News from Chartham in Kent, &c.'

Fig. 12.



Rhinoceros antiquitatis.—The second right upper true molar; from the Pleistocene of Chartham, Kent. †.

London, 1669¹. The portion of the cranium (No. 120) is described and figured in Owen's 'British Fossil Mammals and Birds,' p. 325, fig. 121; and one of the molars (No. 122) on p. 329, fig. 122 of the same work; the latter figure is reproduced in woodcut (fig. 12). *No history.*

M. 2766. The greater part of the nasals; from the Pleistocene of Siberia. This specimen has evidently been cut away from the cranium. *No history.*

14600. The middle portion of the nasals; from Kent's Cavern, (*Fig.*) Torquay, Devonshire. This specimen, which has been gnawed by Hyænas, is figured in McEnery's 'Cavern Researches,' pl. L.

McEnery Collection. Purchased, 1842.

38721-4. Five associated upper cheek-teeth, comprising *m. 2* and *m. 3* of both sides and the right *pm. 3*; from the Pleistocene of Peckham, Surrey. Noticed by Boyd-Dawkins in the Quart. Journ. Geol. Soc. vol. xxiii. p. 226 (1867).

Purchased, 1864.

47111. The last five upper cheek-teeth of both sides, in a half-worn condition; from the Pleistocene near Peterborough, Northampton. *Sharp Collection. Purchased, 1876.*

33188. The third left upper true molar; from the Pleistocene of Wellingborough, Northampton.

Presented by Sir R. Owen, K.C.B., 1857.

M. 2767. Portions of two upper cheek-teeth; from the Pleistocene of Chatham, Kent. *No history.*

45289. Portion of an upper cheek-tooth; from the Pleistocene of Ilford, Essex. *Brady Collection. Purchased, 1878.*

M. 61. Portion of a left upper cheek-tooth; from the Pleistocene of Applegate Hill, Bickly, Knighton-on-Teme, Worcestershire. *Purchased, 1880.*

M. 246. The third right upper true molar (imperfect); from the Pleistocene of Maidstone, Kent.

Enniskillen Collection. Purchased, 1882.

¹ There is a copy in the King's Library, British Museum; and it is reprinted in the Phil. Trans. for 1701, pp. 882-893, with two figures of molars.

- 16 (O. C.). The fourth right upper premolar; from Kirkdale Cave, (Fig.) Yorkshire. Figured in Owen's 'British Fossil Mammals and Birds,' p. 335, fig. 125.
Presented by W. Salmond, Esq. Before 1836.
- 16147, 16802, 16803. A large series of upper cheek-teeth; from Kent's Cavern. *McEnery Collection. Purchased, 1842.*
- 18289, 18982. A large series of upper cheek-teeth; from Kent's Cavern. *Presented by Rev. Upton Richards, 1845.*
- 16147 a, 16803 a. A series of upper milk-molars; from Kent's Cavern. *McEnery Collection. Purchased, 1842.*
- 18982 a. A number of upper milk-molars; from Kent's Cavern. *Presented by Rev. Upton Richards, 1845.*
28566. The third left upper premolar; from a cavern in Sundwig. *Purchased, 1853.*
32360. The fourth left upper premolar; from a cavern in Sundwig. *Purchased, 1853.*
21019. The fourth right upper premolar; from a cavern in Sundwig. *Purchased, 1853.*
- 10 (O. C.). The second right upper true molar; from the Pleistocene of Sandhofen on the Rhine. *Sömmering Collection. Purchased, 1827.*
- 115 (O. C.). The second right upper true molar; from the Pleistocene of Eichstadt. *Sömmering Collection. Purchased, 1827.*
- 7, 8 (O. C.). Two specimens of the second right upper true molar; from the Pleistocene of Cannstadt, near Stuttgart, Württemberg. One of these specimens shows a strong anterior cingulum, and thereby approaches *R. platyrhinus*. *Sömmering Collection. Purchased, 1827.*
- 9 (O. C.). The third left upper true molar; from the Pleistocene of Cannstadt. *Sömmering Collection. Purchased, 1827.*
44756. The third left upper true molar; from the Pleistocene of Rugby, Warwickshire. *Presented by B. Bright, Esq., 1873.*

- 28562.** The nearly complete mandible, showing all the teeth except $\overline{\text{pm. 1}}$; from a cavern in Sundwig. *Purchased, 1853.*
- M. 2772.** The greater part of the left ramus of the mandible of an immature individual, showing all the teeth except $\overline{\text{pm. 1}}$, of which there is no alveolus; from the Pleistocene of Westeregeln, near Magdeburg, Saxony.
Presented by John Brown, Esq., 1852.
- 33935.** Part of the symphysis and left ramus of the mandible of a young individual, showing one milk-molar *in situ* and a true molar *in alveolo*; from the Pleistocene of East Wickham, Kent. *Presented by H. Edgell, Esq., 1859.*
- 6 (O. C.).** The second right lower true molar; found during the digging of the Regent's Canal, in the Pleistocene gravel of London. Described and figured in Owen's 'British Fossil Mammals and Birds,' p. 337, fig. 127. *No history.*
- 43653.** A right lower true molar; from the Pleistocene fissures of Oreston, near Plymouth, Devonshire. *Purchased, 1872.*
- 28988.** A left lower true molar; from the bed of the Thames at Battersea. *Purchased, 1853.*
- 16006.** A slightly worn third left lower true molar; from the Pleistocene of Sutton, near Peterborough, Northamptonshire. *Purchased, 1842.*
- 46087.** Three lower true molars provisionally referred to this species; dredged off the Dogger Bank.
Owles Collection. Purchased, 1874.
- 126 (O. C.).** A left lower true molar; from Kirkdale Cave.
Presented by W. Salmond, Esq. Before 1836.
- 16151, 16737, 16745, 16749, 16804.** A large series of lower cheek-teeth; from Kent's Cavern.
McEnery Collection. Purchased, 1842.
- 18288, 18788, 18982 b.** A large series of lower cheek-teeth; from Kent's Cavern. *Presented by Rev. Upton Richards, 1845.*
- 28566.** Three lower cheek-teeth; from a cavern in Sundwig.
Purchased, 1853.
- 44076.** The nearly complete right scapula; from the Pleistocene of Clapton, Middlesex.
Presented by W. M. Cooke, Esq., M.D., 1873.

- M. 2768.** The posterior part of the glenoidal half of the right scapula ; from Kent's Cavern.
McEnery Collection. Purchased, 1842.
- 28565.** The imperfect glenoidal halves of the right and left scapulæ ; from a cavern in Sundwig. *Purchased, 1853.*
- 46089.** The left humerus, imperfect proximally ; dredged off the Dogger Bank. *Owles Collection. Purchased, 1874.*
- 16850.** The distal two thirds of the left humerus ; from Kent's Cavern. *McEnery Collection. Purchased, 1842.*
- 18982.** The imperfect distal two thirds of the left humerus ; from Kent's Cavern. *Presented by Rev. Upton Richards, 1845.*
- 16850 b.** The middle portion of the left humerus ; from Kent's Cavern. *McEnery Collection. Purchased, 1842.*
- 16850 c.** The middle portion of the left humerus ; from Kent's Cavern. *McEnery Collection. Purchased, 1842.*
- 18304.** The shaft of the left humerus of a very young individual ; from Kent's Cavern.
Presented by Rev. Upton Richards, 1845.
- M. 402.** The shaft of the left humerus of an immature individual, provisionally referred to this species ; from the Pleistocene of Maidstone, Kent.
Egerton Collection. Purchased, 1882.
- 42044-5.** Two specimens of the imperfect distal half of the right humerus ; from the Pleistocene of Doward Wood, Herefordshire. *Presented by Hon. K. Howard, 1870.*
- 28563.** The right radius and ulna ; from a cavern in Sundwig.
Purchased, 1853.
- 18982.** The proximal half of the right radius ; from Kent's Cavern.
McEnery Collection. Purchased, 1842.
- 36772.** Part of the proximal half of a right ulna, provisionally referred to this species ; from the Pleistocene of Peckham.
Purchased, 1862.
- 44742.** The proximal two thirds of the left radius ; from the Pleistocene of Bath-Easton, Somersetshire.
Presented by B. Bright, Esq., 1873.

46090. A left radius, provisionally referred to this species ; dredged off the Dogger Bank.
Owles Collection. Purchased, 1874.
46091. A right radius, provisionally referred to this species ; dredged off the Dogger Bank.
Owles Collection. Purchased, 1874.
16835. The left third metacarpal ; from Kent's Cavern.
McEnergy Collection. Purchased, 1842.
28567. The right third metacarpal ; from a cavern in Sundwig.
Purchased, 1853.
46093. The greater part of the left innominate ; dredged off the Dogger Bank.
Owles Collection. Purchased, 1874.
44077. The left femur ; from the Pleistocene of Clapton. Associated with No. 44076.
Presented by W. M. Cooke, Esq., M.D., 1873.
46092. The shaft of the left femur ; dredged off the Eastern coast of England.
Owles Collection. Purchased, 1874.
36773. The middle portion of a left femur, associated with No. 36772, and provisionally referred to this species ; from the Pleistocene of Peckham.
Purchased, 1862.
44080. The right patella ; from the Pleistocene of Clapton.
Presented by W. M. Cooke, Esq., M.D., 1873.
16849. The left patella ; from Kent's Cavern.
McEnergy Collection. Purchased, 1842.
44079. A fibula ; from the Pleistocene of Clapton.
Presented by W. M. Cooke, Esq., M.D., 1873.
44078. The left tibia ; from the Pleistocene of Clapton.
Presented by W. M. Cooke, Esq., M.D., 1873.
28564. Two imperfect specimens of the left tibia ; from the caverns of Sundwig.
Purchased, 1853.
16103. The distal half of the left tibia ; from the Pleistocene of Cold Higham.
Purchased.
- M. 2769. The distal two thirds of the left tibia ; from Kent's Cavern.
McEnergy Collection. Purchased, 1842.
- M. 2770. The distal two thirds of the right tibia ; from Kent's Cavern.
McEnergy Collection. Purchased, 1842.

32249. The right tibia, wanting the proximal extremity ; from the Pleistocene of Erith, Kent. *Purchased, 1856.*
27987. The proximal extremity of a right tibia, provisionally referred to this species ; from the Pleistocene of Clacton, Essex. *Presented by John Brown, Esq., 1852.*
16850. The left calcaneum ; from Kent's Cavern. *McEnery Collection. Purchased, 1842.*
- 18982 a. The right astragalus ; from Kent's Cavern. *McEnery Collection. Purchased, 1842.*
- 28 (O. C.). The left astragalus ; from Kirkdale Cave. *Presented by W. Salmond, Esq. Before 1836.*
43654. The left cuboid ; from the Pleistocene fissures of Oreston. *Purchased, 1872.*
46088. An imperfect axis vertebra ; dredged off the Dogger Bank. This specimen differs from the axis (No. 22025) referred to *R. leptorhinus*. *Owles Collection. Purchased, 1874.*
46122. Part of a cervical vertebra, provisionally referred to this species ; dredged off the Dogger Bank. *Owles Collection. Purchased, 1874.*
33194. A sacrum, provisionally referred to this species ; from Easton Cliff, Suffolk. *Purchased.*
- M. 283. Several imperfect associated bones ; from the Pleistocene of Lawford, near Rugby, Warwickshire. *Egerton Collection. Purchased, 1882.*
- M. 445. Numerous associated bones, mostly imperfect ; from the Pleistocene of Lawford. *Enniskillen Collection. Purchased, 1882.*

Rhinoceros platyrhinus, Falconer and Cautley¹.

The narial septum is unossified : the upper cheek-teeth present a great resemblance to those of *R. antiquitatis*, having a "combing-plate," a third fossette on their worn crowns, no buttress at their antero-external angle, and the plane of wear horizontal, with a moderately rugose enamel. They differ, however, from typical specimens by the presence of a strong anterior cingulum to the true

¹ Fauna Antiqua Sivalensis, pt. 7, pl. lxxii. (1847).

molars. The mandible provisionally assigned to the species was probably without cutting-teeth, although the occurrence of such teeth might be expected in this Pliocene form. The species is not improbably an ancestral form both of *R. antiquitatis* (with which it was apparently connected by an unnamed species from Maragha in North-western Persia¹), and of the African *R. simus*. An upper molar from Algeria figured by Thomas² probably indicates another member of the same group.

Hab. India. All the specimens are from the Pliocene of the Siwalik Hills.

36661. The nearly complete cranium, showing the six cheek-teeth, (*Fig.*) in a comparatively early stage of wear. This specimen is described and figured (from a cast) by the present writer in the 'Palæontologia Indica,' ser. 10, vol. ii. p. 49, pls. viii., and ix. fig. 2; it was collected by Sir W. E. Baker.

Presented by the Secretary of State for India, 1860.

33662. The anterior portion of the cranium, in a much-rolled condition, and with the crowns of the teeth hammered off. (*Fig.*) Figured by Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxii. fig. 1. This and the following specimens are the types. *Cautley Collection. Presented, 1842.*

M. 2731. Hinder part of the cranium, with a fragment of the right (*Fig.*) ramus of the mandible attached. Figured by Falconer and Cautley, *op. cit.* pl. lxxii. fig. 2.

Cautley Collection. Presented, 1842.

39641. The second right upper true molar, in a broken condition. (*Fig.*) Figured by Falconer and Cautley, *op. cit.* pls. lxxii. fig. 6, and lxxv. fig. 11. *Cautley Collection. Presented, 1842.*

39640. The third right upper true molar. Figured by Falconer and (*Fig.*) Cautley, *op. cit.* pl. lxxii. fig. 7, and lxxv. fig. 12.

Cautley Collection. Presented, 1842.

17996. Anterior portion of a mandible, provisionally referred to this (*Fig.*) species, showing the last three premolars and the first two true molars. Figured by Falconer and Cautley, *op. cit.* pl. lxxiv. fig. 6, under the name of *R. sivalensis*. The reasons for provisionally assigning this specimen to the present species are given by the present writer in the

¹ See a paper by the writer on the Fossil Mammalia of Maragha in the Quart. Journ. Geol. Soc. vol. xlii. (1886).

² Mém. Soc. Géol. France, sér. 3, vol. iii. art. 2, pl. x. (iv.) fig. 3 (1884).

'Palæontologia Indica,' ser. 10, vol. ii. pp. 37-39; if this reference be correct, the specimen indicates a much smaller individual than those noticed above. The mandible agrees with the cranium in the narrowness of the interval between the two lines of teeth. The symphysis is broken, but there are no traces of the alveoli of canines; the form of the symphysis and its relation to the premolars are more like those obtaining in *R. simus* and *R. bicornis* than in any other existing species.

Cautley Collection. Presented, 1842.

Rhinoceros leptorhinus (Owen¹).

Syn. (?) *Atelodus aymardi*, Pomel² (*teste* Boyd-Dawkins).

Rhinoceros hemitæchus, Falconer³.

Rhinoceros mesotropus, Aymard⁴ (*in parte*) (*teste* Falconer).

(?) *Rhinoceros lunelensis*, Gervais⁵.

Cuvier's name of *R. leptorhinus* being inadmissible for the next species, and *R. (A.) aymardi* and *R. mesotropus* being uncertain, while *R. hemitæchus* is of later date, Owen's name is adopted for the present species⁶.

The occiput is narrowest superiorly, and extends but little backwards: the narial septum, at least in some instances, is fully ossified. In the upper true molars there is a buttress but generally no "combing-plate," so that there are usually but two fossettes on the worn crowns; sometimes, however, a "combing-plate" is present, and there are then three fossettes; in the upper premolars a "combing-plate" is less unfrequent; there is a concavity at the base of the outer surface

¹ British Fossil Mammals and Birds, p. 356 (1846).

² Catalogue Méthodique, p. 80 (1853).

³ Quart. Journ. Geol. Soc. vol. xvi. p. 488 (1860).

⁴ In Pictet's 'Paléontologie,' 2nd ed. vol. i. p. 298 (1853). The *R. velaunus*, Aymard, identified by Gervais (Zool. et Pal. Françaises, 2nd ed. p. 90) with this form, is of Lower Miocene age, *vide* Filhol, Ann. Sci. Géol. vol. xii. art. 3, p. 75.

⁵ Zool. et Pal. Françaises, 1st ed. vol. i. p. 48 (1848-52). In the second edition Gervais identified this form with *R. tichorhinus*.

⁶ Owen (British Fossil Mammals and Birds, p. 356) identified Jäger's *R. kirchbergensis* and *R. mercki* with his *R. leptorhinus*; and Falconer in one part of his memoir on *R. hemitæchus* (Palæontological Memoirs, vol. ii. p. 321) had some doubts whether this might not be partially correct: in other passages, however (*loc. cit.* pp. 309, 398), he identifies the German form with *R. megarhinus*; the latter view is adopted by Boyd-Dawkins in the Quart. Journ. Geol. Soc. vol. xxiii. p. 214 (1867). In the 'Palæontologia Indica,' ser. 10, vol. ii. p. 6 the present writer followed Owen's identification, which is also followed by Brandt.

of the upper true molars. The enamel is moderately rugose, and the crowns of the upper cheek-teeth are worn into hollows; there are usually three costæ on the outer surfaces of the upper hinder pre-molars. The lower cheek-teeth are characterized by the obliquity of their plane of wear, the moderate rugosity of the enamel, and the flattening of the outer surface of the first crescent. The limb-bones are of a more slender type than those of *R. antiquitatis*.

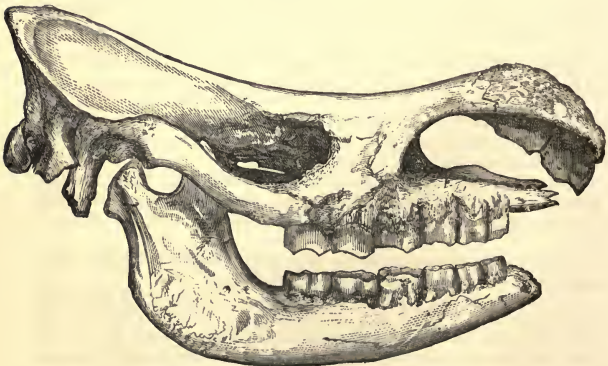
Hab. Europe. Pleistocene; according to Boyd-Dawkins¹ it does not occur in the Forest-bed of the Eastern coast of England.

27836. The cranium, wanting the whole of the palato-maxillary region; from the Pleistocene of Clacton, Essex. This specimen is Owen's type, and is described and figured by him in the 'British Fossil Mammals and Birds,' p. 356, fig. 131, p. 367, fig. 138, p. 368, fig. 139, and p. 369, fig. 140; it is also figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xv., under the name of *R. hemitæchus*.

Presented by John Brown, Esq., 1852.

45205. The cranium; from the Pleistocene of Ilford, Essex. This (*Fig.*) specimen (fig. 13) is figured in the Geol. Mag. dec. 2,

Fig. 13.



Rhinoceros leptorhinus.—Skull; from the Pleistocene Brick-earth of the Thames Valley at Ilford, Essex. About $\frac{1}{3}$.

¹ Quart. Journ. Geol. Soc. vol. xxxvi. p. 396 (1880).

vol. i. pl. xv. When found the narial septum was complete; the whole of the cheek-dentition, with the exception of pm. 1, is exhibited on both sides, and is in a half-worn condition. *Brady Collection. Purchased, 1878.*

45206. The cranium, wanting the premaxillæ and the whole of the palatal region; from the Pleistocene of Ilford. The anterior and posterior moieties of the narial septum are preserved. *Brady Collection. Purchased, 1878.*

20013. The hinder half of the cranium; from the Pleistocene of Northampton. This specimen is described and figured in 'Falconer's Palæontological Memoirs,' vol. ii. p. 351, pls. xxiii. fig. 1, and xxiv. fig. 1, under the name of *R. hemitæchus*. *Purchased, 1846.*

48953. The hinder half of the cranium; from Minchin Cave, Gower, Glamorganshire. This specimen is described and figured in 'Falconer's Palæontological Memoirs,' vol. ii. p. 351, pls. xxiii. fig. 2, and xxiv. figs. 2, 3, under the name of *R. hemitæchus*. *Presented by Gen. E. R. Wood, 1868.*

40946. Part of the right maxilla, showing the last five cheek-teeth (m. 1 imperfect); from Minchin Cave. Described and figured in 'Falconer's Palæontological Memoirs,' vol. ii. p. 323, pl. xvi. fig. 1, as *R. hemitæchus*. The third costa in pm. 4 is well exhibited. *Presented by Gen. E. R. Wood, 1868.*

40938. The last four upper cheek-teeth of the right side, in a much-worn condition; from Minchin Cave. Figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xvi. fig. 2, as *R. hemitæchus*. *Presented by Gen. E. R. Wood, 1868.*

40930. The last six upper cheek-teeth, in a well-worn condition; from Minchin Cave. *Presented by Gen. E. R. Wood, 1868.*

37404. The associated upper cheek-teeth of both sides, wanting m. 1 on the right and pm. 1 on both sides; from the Pleistocene of Lexden, near Colchester, Essex. The third costa is shown in pm. 3 and pm. 4, and there is a large tubercle at the entrance of the median valley of m, as in No. 40930. Noticed by Boyd-Dawkins in the Quart. Journ. Geol. Soc. vol. xxiii. p. 219.

Brown Collection. Presented by Sir R. Owen, K.C.B., 1859.

40940. The second left upper true molar; from Minchin Cave. (Fig.) Figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xvi. fig. 3, as *R. hemitechus*.
Presented by Gen. E. R. Wood, 1868.
40941. The third left upper true molar; from Minchin Cave. (Fig.) Figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xvii. figs. 3, 4, 5, as *R. hemitechus*.
Presented by Gen. E. R. Wood, 1868.
- 124 (O. C.). A much-worn first right upper true molar; from Kirkdale Cave, Yorkshire.
Presented by W. Salmond, Esq. Before 1836.
27838. The second right upper true molar; from the Pleistocene of Clacton. Described and figured in Owen's 'British Fossil Mammals and Birds,' p. 373, fig. 143.
Presented by John Brown, Esq., 1852.
27839. The second left upper true molar; from the Pleistocene of Clacton.
Presented by John Brown, Esq., 1852.
27840. Fragment of the left maxilla, containing the imperfect m. 3; from the Pleistocene of Clacton. Noticed in Owen's 'British Fossil Mammals and Birds,' p. 372.
Presented by John Brown, Esq., 1852.
45207. The third right upper true molar; from the Pleistocene of Ilford.
Brady Collection. Purchased, 1878.
45209. The second left upper true molar, in a half-worn condition; from the Pleistocene of Ilford.
Brady Collection. Purchased, 1878.
45212. The second right upper true molar, in an almost unworn condition; from the Pleistocene of Ilford. There is a "combing-plate" low down in the median valley.
Brady Collection. Purchased, 1878.
40482. The third left upper true molar, in a half-worn condition; from the Pleistocene of Ilford.
Purchased, 1876.
- 18792, 18793, 18795. Three well-worn first or second upper true molars; from the Pleistocene of Grays, Essex. Two of these specimens possess a "combing-plate," and (consequently) a third fossette.
Purchased, 1845.

18796. The well-worn fourth left upper premolar; from the Pleistocene of Grays. *Purchased, 1845.*
20810. The well-worn fourth right upper premolar; from the Pleistocene of Grays. *Purchased, 1847.*
- 18755 c. The fourth left upper premolar; from the Pleistocene of Grays. *Purchased, 1845.*
- 18795 a. The second right upper true molar; from the Pleistocene of the Thames Valley. *Purchased, 1845.*
36770. The little-worn first or second right upper true molar; from (Fig.) the Pleistocene of Peckham, Surrey. Figured by Boyd-Dawkins in the Quart. Journ. Geol. Soc. vol. xxiii. pl. x. fig. 5 (1867). *Purchased, 1862.*
36771. The fourth right upper premolar, in an unworn condition; from the Pleistocene of Peckham. *Purchased, 1862.*
47647. The fourth right upper premolar; from a cavern in Windmill (Fig.) Hill, Gibraltar. Figured by Busk in the Trans. Zool. Soc. vol. x. pl. x. figs. 1-3, under the name of *R. hemitæchus*. The third costa is very strongly developed. *Brome Collection. Presented, 1876.*
- 47647 a. The second or third right upper true molar, in a middle (Fig.) stage of wear. Figured by Busk, *op. cit.* pl. x. figs. 4, 5, 7, as *R. hemitæchus*. *Brome Collection. Presented, 1876.*
- 47647 b. An imperfect first or second left upper true molar; from (Fig.) a cavern in Windmill Hill. Figured by Busk, *op. cit.* pl. x. fig. 6, as *R. hemitæchus*. *Brome Collection. Presented, 1876.*
45211. The inner half of a right upper premolar; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
- 18755 p. The first right upper milk-molar; from the Pleistocene of Grays. This specimen agrees with the one figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxv. fig. 3, under the name of *R. hemitæchus*. *Purchased, 1845.*
40806. Cast of part of a left maxilla, showing the first three milk-molars, provisionally referred to this species. The original is from the cavern of Lunel-Viel (Hérault), France, and is the type of Gervais's *R. lunelensis*. The teeth very closely resemble those of a specimen of the present species figured

in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxi. fig. 3, under the name of *R. hemitechus*.

Presented by C. Falconer, Esq., 1867.

- M. 2518.** Numerous upper cheek-teeth; from the Pleistocene of Barrington, Cambridgeshire. *Purchased, 1885.*
- 45214.** The nearly complete mandible, showing the normal six cheek-teeth of either side, except the left $\overline{\text{pm. 2}}$; from the Pleistocene of Ilford. There are two mentary foramina. This specimen is figured in the woodcut on page 102. *Brady Collection. Purchased, 1878.*
- 45215.** Considerable portion of the mandible, showing the symphysis, the normal three premolars, and the left $\overline{\text{m. 3}}$; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
- 45216.** Fragment of the right ramus of the mandible with $\overline{\text{m. 3}}$; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
- 45288.** The symphysis and the greater part of the right ramus of a mandible, provisionally referred to the present species; from the Pleistocene of Ilford. The teeth are all wanting; and the specimen was referred by Falconer in MS. to *R. antiquitatis*, but it is more probable that it belongs to the present species. *Brady Collection. Purchased, 1878.*
- 40942.** Part of the left ramus of the mandible, containing the last five cheek-teeth; from Minchin Cave. Figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xx., under the name of *R. hemitechus*. *Presented by Gen. E. R. Wood, 1868.*
- 40943.** Part of the right ramus of the mandible, showing $\overline{\text{pm. 3}}$, $\overline{\text{pm. 4}}$, $\overline{\text{m. 1}}$, and $\overline{\text{m. 2}}$; from Minchin Cave. *Presented by Gen. E. R. Wood, 1868.*
- 40944.** The hinder part of the left ramus of the mandible, showing the three true molars; from a cave at Gower. *Presented by Gen. E. R. Wood, 1868.*
- 40945.** Part of the symphysis and the right ramus of the mandible, with the normal three premolars; from a cave at Gower. *Presented by Gen. E. R. Wood, 1868.*

37405. The last five lower cheek-teeth of the right side ; from the Pleistocene of Lexden.
Brown Collection. Presented by Sir R. Owen, K.C.B., 1859.
37406. Part of the left ramus of the mandible, containing $\overline{\text{pm. 3}}$, $\overline{\text{pm. 4}}$, $\overline{\text{m. 2}}$, and $\overline{\text{m. 3}}$; from the Pleistocene of Lexden.
Brown Collection. Presented by Sir R. Owen, K.C.B., 1859.
- M. 2771. Part of the right ramus of the mandible, showing the three true molars ; from the Pleistocene of Ilford.
Purchased.
27849. The symphysial half of a mandible of a young individual, without the teeth; from the Pleistocene of Grays, Essex.
Presented by John Brown, Esq., 1852.
27841. Part of the symphysis and the left ramus of the mandible, (*Fig.*) showing the three premolars; from the Pleistocene of Clacton. Described and figured in Owen's 'British Fossil Mammals and Birds,' p. 363, fig. 135.
Presented by John Brown, Esq., 1852.
27843. Part of the symphysis and left ramus of the mandible, showing $\overline{\text{pm. 4}}$; from the Pleistocene of Clacton.
Presented by John Brown, Esq., 1852.
27837. Part of the symphysis and the right ramus of a mandible, (*Fig.*) provisionally referred to this species; from the Pleistocene of Clacton. This specimen, which shows $\overline{\text{m. 2}}$ and $\overline{\text{m. 3}}$ and the alveoli of the anterior teeth, is figured in Owen's 'British Fossil Mammals and Birds,' p. 361, fig. 133; it is of large size, but agrees with the present species in the extension of the symphysis as far back as $\overline{\text{pm. 3}}$.
Presented by John Brown, Esq., 1852.
27842. Part of the left ramus of a mandible, provisionally referred to this species, containing $\overline{\text{pm. 4}}$, $\overline{\text{m. 1}}$, and $\overline{\text{m. 2}}$; from the Pleistocene of Walton. Figured in Owen's 'British Fossil Mammals and Birds,' p. 362, fig. 134.
Presented by John Brown, Esq., 1852.
- 45221, 45224. Two lower cheek-teeth; from the Pleistocene of Ilford.
Brady Collection. Purchased, 1878.
- M. 2519. Numerous lower cheek-teeth; from the Pleistocene of Barrington, Cambridgeshire.
Purchased, 1885.

The following specimens belong either to this or the next species ; those from Gibraltar certainly belong to R. leptorhinus, while those from Ilford probably belong to the same, as R. megarhinus is rare in those deposits.

20817. Part of the glenoidal half of the right scapula ; from the Pleistocene of Ilford. *Purchased, 1847.*
47657. The proximal epiphysis of the left humerus ; from a cavern (Fig.) in Windmill Hill, Gibraltar. Figured by Busk in the *Trans. Zool. Soc. vol. x. pl. xi. fig. 1*, under the name of *R. hemitæchus*. *Brome Collection. Presented, 1876.*
23111. The left humerus ; from the Pleistocene of Ilford. *Purchased, 1848.*
27847. The left humerus, wanting the distal extremity ; from the Pleistocene of Clacton. *Presented by John Brown, Esq., 1852.*
20276. The left humerus, wanting the proximal extremity ; from the Pleistocene of Ilford. *Purchased, 1847.*
45247. The shaft of the left humerus of an adolescent animal ; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
21673. The distal extremity of the left humerus ; from the Pleistocene of Grays. *Purchased, 1847.*
16853. The right humerus, wanting the proximal, and a part of the distal extremity ; from the Pleistocene of Ilford. *Presented by W. Thompson, Esq.*
21275. The shaft of the right humerus ; from the Pleistocene of Ilford. *Purchased, 1847.*
45248. The distal half of the right humerus ; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
24968. The distal two thirds of the right humerus ; from the Pleistocene of Ilford. *Purchased, 1847.*
21277. The distal third of the right humerus ; from the Pleistocene of Ilford. *Purchased, 1847.*
40954. The right radius and ulna ; from Minchin Cave. *Presented by Gen. E. R. Wood, 1868.*

20811. The right radius, imperfect distally; from the Pleistocene of Grays. *Purchased, 1847.*
45254. The right radius; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
45253. The left radius; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
45255. The left radius; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
47657. The left radius; from the Genista Cave, Gibraltar. Figured (*Fig.*) by Busk in the *Trans. Zool. Soc.* vol. x. pl. xiv. figs. 1, 2, under the name of *R. hemitæchus*. *Brome Collection. Presented, 1876.*
21300. The left radius, wanting the distal epiphysis; from the Pleistocene of Grays. *Purchased, 1847.*
21679. The left radius; from the Pleistocene of Grays. This specimen is of large size, and may very probably belong to *R. megarhinus*. *Purchased, 1847.*
- 23755 e, 23756. The left radius and ulna (imperfect); from the Pleistocene of Slade Green, near Erith, Kent. *Purchased, 1848.*
- 23755 e-1. The proximal two thirds of the left ulna; from the Pleistocene of Slade Green. *Purchased, 1848.*
49453. The proximal two thirds of the left ulna; from the Pleistocene of the Eastern coast of England. *Purchased, 1878.*
- 23755 e-2. The right ulna, wanting the proximal extremity; from Slade Green. *Purchased, 1848.*
27869. The greater part of the right ulna of a small individual; from the Pleistocene of Walton. *Presented by John Brown, Esq., 1852.*
47659. The right lunar; from the Genista Cave, Gibraltar. Figured (*Fig.*) by Busk in the *Trans. Zool. Soc.* vol. x. pl. xv. figs. 4-8, as *R. hemitæchus*. *Brome Collection. Presented, 1876.*
- 22038 b. The right lunar; from the Pleistocene of Grays. *Purchased, 1848.*
45259. The left lunar; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*

- 45260-1. Two specimens of the left magnum ; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
- 21318 c. The left cuneiform ; from the Pleistocene of Grays. *Purchased, 1847.*
23149. The left cuneiform, of smaller size ; from the Pleistocene of Grays. *Purchased, 1848.*
- 22024 a. The right third metacarpal, of large size ; from the Pleistocene of Grays. *Purchased, 1848.*
22024. The left third metacarpal, of equal size ; from the Pleistocene of Grays. It is probable that this and the last specimen belong to *R. megarhinus*. *Purchased, 1848.*
45265. The left third metacarpal ; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
27846. The left third metacarpal ; from the Pleistocene of Clacton. *Presented by John Brown, Esq., 1852.*
- 18803 a. The first phalangeal of a third digit ; from the Pleistocene of the Thames Valley. *Purchased, 1845.*
21318. The second phalangeal of a third digit ; from the Pleistocene of Grays. *Purchased, 1847.*
19842. The first phalangeal of a lateral digit ; from the Pleistocene of Essex. *Purchased, 1845.*
47663. The second phalangeal of a lateral digit ; from a cave in (Fig.) Windmill Hill, Gibraltar. Figured by Busk in the *Trans. Zool. Soc.* vol. x. pl. xv. fig. 9, under the name of *R. hemitachus*. *Brome Collection. Presented, 1876.*
28028. The terminal phalangeal of a third digit ; from the Pleistocene of Grays. Described and figured in Owen's 'British Fossil Mammals and Birds,' p. 348, fig. 129. *Presented by John Brown, Esq., 1852.*
45280. The terminal phalangeal of a lateral digit ; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
18819. The terminal phalangeal of a lateral digit ; from the Pleistocene of the Thames Valley. *Purchased, 1845.*
45266. The left femur ; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*

47642. The distal epiphyses of the left femur ; from the Genista (Fig.) Cave, Gibraltar. Figured by Busk in the Trans. Zool. Soc. vol. x. pl. ix. fig. 2, and referred to *Equus caballus*.
Brome Collection. Presented, 1876.
47654. The proximal portion of the right femur ; from a cavern in (Fig.) Windmill Hill, Gibraltar. Figured by Busk in the Trans. Zool. Soc. vol. x. pls. xii., xiii., under the name of *R. hemitæchus*.
Brome Collection. Presented, 1876.
21285. The distal half of the right femur ; from the Pleistocene of Ilford.
Purchased, 1847.
45276. The distal portion of the right femur ; from the Pleistocene of Ilford.
Brady Collection. Purchased, 1878.
45268. The right tibia ; from the Pleistocene of Ilford.
Brady Collection. Purchased, 1878.
- 21284 a. The right tibia and distal end of fibula ; from the Pleistocene of Ilford.
Purchased, 1847.
- 21284 b. The imperfect right tibia ; from the Pleistocene of Ilford.
Purchased, 1847.
- 21284 c. The right tibia ; from the Pleistocene of Ilford.
Purchased, 1847.
38570. The right tibia ; from the Pleistocene of Ilford.
Purchased, 1864.
47656. The right tibia ; from a cavern in Windmill Hill, Gibraltar. (Fig.) Figured by Busk in the Trans. Zool. Soc. vol. x. pl. xiv. fig. 4, under the name of *R. hemitæchus*.
Brome Collection. Presented, 1876.
45269. The left tibia ; from the Pleistocene of Ilford.
Brady Collection. Purchased, 1878.
27976. The left tibia ; from the Pleistocene of Ilford.
Presented by John Brown, Esq., 1852.
45270. The distal end of the left tibia ; from the Pleistocene of Ilford.
Brady Collection. Purchased, 1878.
18801. The right calcaneum ; from the Pleistocene of the Thames Valley.
Purchased, 1845.
21279. The right calcaneum ; from the Pleistocene of Grays.
Purchased, 1847.

- M. 1590.** The right calcaneum; from the Pleistocene of Weimar.
This specimen almost certainly belongs to *R. megarhinus*,
as it was associated with the upper molar of that species,
No. M. 1585. *Presented by C. Westendarp, Esq., 1884.*
- 45272.** The left calcaneum; from the Pleistocene of Ilford.
Brady Collection. Purchased, 1878.
- 22019.** The left calcaneum; from the Pleistocene of Ilford.
Purchased, 1848.
- 20814.** The left calcaneum; from the Pleistocene of Grays.
Purchased, 1847.
- 21617.** The right astragalus; from the Pleistocene of Grays.
Purchased, 1847.
- 21278 c.** The right astragalus; from the Pleistocene of Ilford.
Purchased, 1847.
- 47661.** The right astragalus; from the Genista Cave, Gibraltar.
(*Fig.*) Figured by Busk in the *Trans. Zool. Soc.* vol. x. pl. xv.
figs. 1-3, under the name of *R. hemitæchus*.
Brome Collection. Purchased, 1876.
- 21278 d.** The left astragalus; from the Pleistocene of Ilford.
Purchased, 1847.
- 21278 a.** The left astragalus; from the Pleistocene of Ilford.
Purchased, 1847.
- 20815.** The left astragalus; from the Pleistocene of Ilford.
Purchased, 1847.
- 22019 a.** The left astragalus; from the Pleistocene of Ilford.
Purchased, 1848.
- 21294.** The left navicular, of small size; from the Pleistocene of
Grays. *Purchased, 1847.*
- 23713 e.** The left navicular, of large size; from the Pleistocene of
Slade Green. *Purchased, 1849.*
- 21318 a, b.** The right and left cuboid; from the Pleistocene of
Grays. *Purchased, 1847.*
- 18802 a.** The right ectocuneiform; from the Pleistocene of the
Thames Valley. *Purchased, 1845.*
- 20277.** The left entocuneiform; from the Pleistocene of Grays.
Purchased, 1847.
- 23761 g-1.** The right second metatarsal, of large size; from the
Pleistocene of Grays. *Purchased, 1849.*

- 20816 b. The left second metatarsal; from the Pleistocene of Grays. *Purchased, 1847.*
- 23761 g. The right third metatarsal; from the Pleistocene of Grays. This and the next specimen are of very large size. *Purchased, 1849.*
19842. The right third metatarsal; from the Pleistocene of Clacton. *Presented by John Brown, Esq., 1852.*
20245. The right third metatarsal; from the Pleistocene of Ilford. *Purchased, 1847.*
- 21294 x. The right third metatarsal; from the Pleistocene of Grays. *Purchased, 1847.*
45276. The left third metatarsal; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*
47662. The third and the proximal portion of the fourth metatarsal (*Fig.*) of the right side; from the Genista Cave, Gibraltar. Figured by Busk in the *Trans. Zool. Soc.* vol. x. pl. xvi. *Brome Collection. Presented, 1876.*
- 47766 a. The proximal half of the third and the complete fourth (*Fig.*) metatarsal of the right side; from a cavern in Windmill Hill, Gibraltar. The former is figured by Busk in the *Trans. Zool. Soc.* vol. x. pl. xvii. figs. 1-4, as *R. hemitechus*. *Brome Collection. Presented, 1876.*
- 23761 g-2. The fourth right metatarsal, of large size; from the Pleistocene of Grays. *Purchased, 1849.*
- 19834 a. The fourth right metatarsal, of smaller size; from the Pleistocene of Grays. *Purchased, 1845.*
47650. Two portions of the atlas vertebra; from the Genista Cave, (*Fig.*) Gibraltar. Figured by Busk in the *Trans. Zool. Soc.* vol. x. pl. xviii. figs. 1, 2, under the name of *R. hemitechus*. *Brome Collection. Presented, 1876.*
42076. The imperfect atlas vertebra; from the Pleistocene of Ilford. *Purchased, 1864.*
- M. 2520. Two specimens of the atlas vertebra; from the Pleistocene of Barrington. *Purchased, 1885.*
22025. The axis vertebra; from the Pleistocene of the Thames Valley (? Grays). *Purchased, 1847.*

21662. The axis vertebra (imperfect); from the Pleistocene of Ilford. *Purchased*, 1847.
39259. The centrum of the axis vertebra; from the Pleistocene of Grays. *Presented by E. Charlesworth, Esq.*, 1865.
27972. The centrum and part of the arch of the axis vertebra; from the Pleistocene of Clacton. *Presented by John Brown, Esq.*, 1852.
- 21275 e. A middle cervical vertebra; from the Pleistocene of Ilford. *Purchased*, 1847.
- 23143 b. A middle cervical vertebra; from the Pleistocene of Ilford. *Purchased*, 1849.
45239. A middle cervical vertebra; from the Pleistocene of Ilford. *Brady Collection. Purchased*, 1878.
- 23143 a. The sixth cervical vertebra; from the Pleistocene of Ilford. *Purchased*, 1849.
21664. The seventh cervical vertebra (imperfect); from the Pleistocene of Grays. *Purchased*, 1847.
45240. The centrum of the seventh cervical vertebra; from the Pleistocene of Ilford. *Brady Collection. Purchased*, 1878.
45241. The centrum of the first dorsal vertebra, associated with the preceding specimen; from the Pleistocene of Ilford. *Brady Collection. Purchased*, 1878.
- 20272 a. A dorsal vertebra, with the neural spine imperfect; from the Pleistocene of Grays. *Purchased*, 1847.

Rhinoceros megarhinus, Christol¹.

Syn. (?) *Rhinoceros leptorhinus*, Cuvier² (*in parte*).

Rhinoceros monspessulanus, Blainville³.

Rhinoceros mercki, Jäger⁴.

Rhinoceros kirchbergensis, Jäger⁵.

As it has been conclusively shown by Boyd-Dawkins in the

¹ Ann. Sci. Nat. sér. 2, vol. iv. p. 76 (1835).

² Ossemens Fossiles, 2nd ed. vol. ii. p. 93 (1822).

³ 'Ostéographie,' genus *Rhinoceros*, p. 143 (1846).

⁴ In Kaup's 'Akten der Urwelt,' p. 6 (1841), to replace *R. kirchbergensis*, but withdrawn in the 'Beiträge,' 1st ed. pt. i. p. vii (1854), as being identical with *R. leptorhinus*, Cuvier.

⁵ Foss. Säugeth. Würt. p. 179 (1835-39).

Quart. Journ. Geol. Soc. vol. xxiii. p. 216, that there is no possibility of determining to what species the type specimens of Cuvier's *R. leptorhinus* really belong, Christol's name is adopted for the present species.

There is no ossification in the narial septum. The upper cheek-teeth very closely resemble those of *R. leptorhinus*, but are generally of larger size, and have a smoother enamel, with rather taller crowns. The upper true molars (fig. 9) have a rather more decided buttress, with a longer anterior cingulum; and there are only two "costæ" on the premolars. The lower cheek-teeth have the outer surface of the first crescent more rounded. Lower incisors are frequently present.

Hab. Europe (Pleistocene and Pliocene).

40834. Cast of a somewhat crushed cranium, showing the normal six cheek-teeth of either side, in a half-worn condition. The original was obtained from the Upper Pliocene of Lane-Lestang, near Moras (Drôme), France; and is preserved in the Natural History Museum at Lyons. The left dentition is figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxxi. fig. 2; a smaller view of the palatal aspect of the cranium being given in fig. 3 of the same plate; it is figured on a larger scale by Lortet and Chantre, in the Arch. Mus. Lyon. vol. ii. pl. xvii. (1878).

Presented by C. Falconer, Esq., 1867.

22020. The six right upper cheek-teeth; from the Pleistocene of (Fig.) Grays, Essex. These specimens are described and figured by Boyd-Dawkins in the Nat. Hist. Rev. for 1865, p. 409, fig. 9, and noticed in 'Falconer's Palæontological Memoirs,' vol. ii. p. 336. *Purchased, 1847.*

22021. The associated left pm. 4, m. 2, and m. 3, probably belonging to the same individual as the preceding; from the Pleistocene of Grays. *Purchased, 1847.*

18794, 19841, 19841 a, 22022. Four specimens of the second upper true molar, three belonging to the left and one to the right side; from the Pleistocene of Grays.

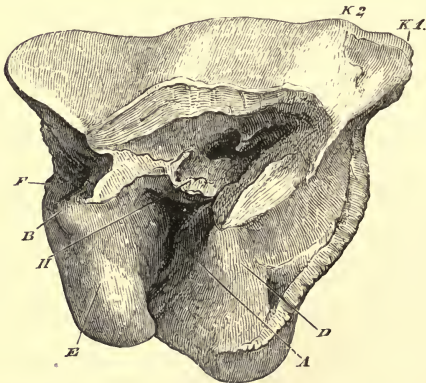
Purchased, 1845-47.

18755, 18797, 19841 b, 20249. Four specimens of the fourth upper premolar, three belonging to the right and one to the left side; from the Pleistocene of Grays.

Purchased, 1845-47.

- 18755 g, 18796, 20810. Three specimens of the third upper premolar, two belonging to the right and one to the left side. *Purchased, 1845-47.*
- 18797 a. The unworn third left upper premolar; from the Pleistocene of Grays. *Purchased, 1845.*
- 18755 e, f. A right and left second upper premolar; from the Pleistocene of Grays. *Purchased, 1845.*
19834. The second right upper true molar; from the Pleistocene of Grays. This specimen is described and figured by Boyd-Dawkins in the Nat. Hist. Rev. for 1865, pp. 409, 410, fig. 10, the figure being reproduced in the accompanying woodcut (fig. 14). *Purchased, 1845.*

Fig. 14.



Rhinoceros megarhinus.—Second right upper true molar, slightly worn. *A*, median valley; *D*, anterior, and *E*, posterior collis; *F*, posterior valley; *H*, crotchet; *K*¹, *K*², first and second costæ. †. (From the Nat. Hist Review.)

- 45281, 45283. A right and a left upper true molar; from the Pleistocene of Ilford, Essex. *Brady Collection. Purchased, 1878.*
- 45282, 45284. A right and a left fourth upper premolar; from the Pleistocene of Ilford. *Brady Collection. Purchased, 1878.*

36992. Cast of the third right upper true molar. The originals of this and the next specimen were obtained from the Pleistocene of Kirchberg, Württemberg, and are the types of Jäger's *R. kirchbergensis* (= *R. mercki*); they are figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxxii. figs. 1 and 2, where they are referred to the present species.

Presented by C. Falconer, Esq., 1867.

36993. Cast of the second left upper true molar; of which the original is from the Pleistocene of Kirchberg. The history of this specimen is given with the last.

Presented by C. Falconer, Esq., 1867.

40811. A much-worn third right upper true molar, provisionally referred to the present species; from the Pleistocene (?) of Ponte Molle, Rome.

Presented by C. Falconer, Esq., 1867.

M. 1585. The second right upper true molar; from the Pleistocene of Weimar.

Presented by C. Westendarp, Esq., 1884.

M. 1585 a. The second left upper true molar; from the Pleistocene of Weimar.

Presented by C. Westendarp, Esq., 1884.

18791. The associated last three upper milk-molars of the left side; (*Fig.*) from the Pleistocene of Grays. Figured and described by Boyd-Dawkins in the Nat. Hist. Rev. for 1865, p. 405, figs. 3, 5.

Purchased, 1845.

18755 a, b, h, 18793, 18798. Five upper milk-molars, provisionally referred to this species; from the Pleistocene of Grays.

Purchased, 1845.

18755 k. The fourth right upper milk-molar; from the Pleistocene (*Fig.*) of Grays. Figured by Boyd-Dawkins in the Nat. Hist. Rev. for 1865, fig. 1.

Purchased, 1845.

18755 n. The first left upper milk-molar, in an almost unworn (*Fig.*) condition; from the Pleistocene of Grays. Figured by Boyd-Dawkins in the Nat. Hist. Rev. for 1865, fig. 2.

Purchased, 1845.

27866. The third left upper true molar; from the Pleistocene of Walton-on-the-Naze, Essex.

Presented by John Brown, Esq., 1852.

40805. Cast of the symphysis and the horizontal portion of the left ramus of the mandible. The original is from the Lower

Pliocene of Montpellier (Hérault), France, and is preserved in the Museum at that town. It is noticed and figured in 'Falconer's Palæontological Memoirs,' vol. ii. p. 368, pl. xxx.; the symphysis being also figured by Gaudry in 'Les Enchaînements, &c.—Mammifères Tertiaires,' p. 32, fig. 48. The normal six cheek-teeth are present, while there is a small incisor on either side *in alveolo*. The symphysis does not extend so far back as in *R. leptorhinus* (No. 45215).

Presented by C. Falconer, Esq., 1867.

45285. The right and left rami of the mandible; from the Pleistocene of Ilford. The right ramus shows $\overline{\text{pm. 3}}$, $\overline{\text{pm. 4}}$, and the three true molars, the left has $\overline{\text{pm. 4}}$ and the three true molars. This specimen agrees precisely with the last.
Brady Collection. Purchased, 1878.
19840. Part of the right ramus of the mandible, containing the last five cheek-teeth; from the Pleistocene of Grays. Described and figured by Boyd-Dawkins in the Nat. Hist. Rev. for 1865, p. 412, figs. 14, 15.
Purchased, 1845.
- 19840 a. Part of the left ramus of the mandible, with the last four cheek-teeth; from the Pleistocene of Grays.
Purchased, 1845.
40812. The associated last five lower cheek-teeth of the left side; from the Pleistocene of Grays.
Presented by C. Falconer, Esq., 1867.
15937. Part of the right ramus of the mandible of a young *Rhinoceros*, perhaps belonging to the present species; from the Pleistocene (? Forest-bed) of Norfolk. This specimen shows $\overline{\text{mm. 2}}$, $\overline{\text{mm. 3}}$, and the alveoli of $\overline{\text{mm. 1}}$ and $\overline{\text{mm. 4}}$.
Green Collection. Purchased, 1843.
18790. Part of the symphysis and the left ramus of the mandible of a young individual, showing the last three milk-molars, and the alveoli of $\overline{\text{mm. 1}}$ and $\overline{\text{m. 1}}$; from the Pleistocene of Grays. Described and figured by Boyd-Dawkins in the Nat. Hist. Rev. for 1865, p. 407, figs. 7, 8.
Purchased, 1845.
21280. A very similar specimen to the last, showing $\overline{\text{mm. 2}}$ and $\overline{\text{mm. 3}}$, and the alveoli of $\overline{\text{mm. 1}}$ and $\overline{\text{mm. 4}}$; from the Pleistocene of Grays.
Purchased, 1847.

23133. Another very similar specimen, belonging to the right side, and showing the last three milk-molars, and the alveoli of $\overline{\text{mm. 1}}$ and $\overline{\text{mm. 4}}$; from the Pleistocene of Grays.
Purchased, 1849.
23112. Part of the right ramus of the mandible of a young individual provisionally referred to this species; from the Pleistocene of Grays. The last two milk-molars are *in situ*, and beneath and behind them are seen the alveoli of $\overline{\text{pm. 3}}$, $\overline{\text{pm. 4}}$, and $\overline{\text{m. 1}}$.
Purchased, 1849.
21281. Part of the right ramus of the mandible of a very young individual, showing $\overline{\text{mm. 2}}$ and the alveoli of $\overline{\text{mm. 1}}$ and $\overline{\text{mm. 3}}$; from the Pleistocene of Grays. *Purchased, 1847.*
18799. The second right lower true molar; from the Pleistocene of Grays.
Purchased, 1845.
- M. 1586. Two left lower molars; from the Pleistocene of Weimar.
Presented by C. Westendarp, Esq., 1884.
36994. Cast of the fourth right lower premolar. The original is from the Pleistocene of Kirchberg, and belongs to Jäger's *R. kirchbergensis*. *Presented by C. Falconer, Esq., 1867.*
- 18755 C. The second left lower premolar; from the Pleistocene of (Fig.) Grays. Figured by Boyd-Dawkins in the Nat. Hist. Rev. for 1865, fig. 4.
Purchased, 1845.
27902. The first left lower milk-molar; from the Pleistocene of (Fig.) Grays. Figured by Boyd-Dawkins, *op. cit.* fig. 6.
Purchased, 1849.

A number of detached lower cheek-teeth from the Pleistocene of the Thames Valley, marked Nos. 18755, 18799, 19834, 19841, 20249, 21283, 22023, belong either to this or the preceding species.

Rhinoceros etruscus, Falconer¹.

Syn. *Rhinoceros elatus*, Croizet (? MS.).

The ossification of the narial septum is incomplete. The upper cheek-teeth have shorter crowns than those of either of the three preceding European species, and a very stout cingulum on their anterior surfaces; their grinding surfaces are deeply excavated, and when worn

¹ Quart. Journ. Geol. Soc. vol. xv. p. 602 (1859).

present but two fossettes; the true molars have a well-developed buttress, and the premolars have a strong cingulum on the inner surface. As in the three preceding species, the first premolar in both jaws disappeared at a very early age. The lower cheek-teeth are likewise low-crowned, and the plane of dentition is oblique.

Hab. Europe (Pleistocene and Pliocene).

37340. Cast of the anterior two thirds of the cranium, showing the last three premolars and the first two true molars. The original is from the Upper Pliocene of the Val d'Arno, Italy, and is preserved in the Florentine Museum at Pisa. It is noticed and figured in 'Falconer's Palæontological Memoirs,' vol. ii. p. 359, pl. xxviii. fig. 1; and from this note it appears to have been much damaged since the cast was taken. *Purchased, 1863.*

112 (O. C.). Hinder portion of a cranium provisionally referred to this species; from the Pleistocene (?) of the Via Appia, Rome. *Gualteris Collection. Purchased. Before 1836.*

40955. Two fragments of the right maxilla, one showing pm. 2 and pm. 3, and the other the three true molars; from the Upper Pliocene of Malaga, Spain. This specimen is described by Falconer in the Quart. Journ. Geol. Soc. vol. xv. p. 602 (1859), and in his 'Palæontological Memoirs,' vol. ii. p. 361. *Presented by Prof. Ansted, 1868.*

37342. Cast of the anterior portion of the palate, showing the last two premolars and m. 1. The original is from the Upper Pliocene of the Val d'Arno. *Purchased, 1863.*

40803. Cast of the upper cheek-dentition of the right side. The cast is taken from a palate specimen (figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxix.) preserved in the University Museum at Bologna, and apparently obtained from the Upper Pliocene of the Val d'Arno. *Presented by C. Falconer, Esq., 1867.*

40815. Cast of the second left upper true molar. The original is from the Pleistocene near Rome. *Presented by C. Falconer, Esq., 1867.*

40816. Cast of a fragment of the left maxilla containing m. 1 and m. 2. The original is probably from the Upper Pliocene of the Val d'Arno. *Presented by C. Falconer, Esq., 1867.*

- 34733.** The third left upper true molar; from the Upper Pliocene (Fig.) of Peyrolles (Puy-de-Dôme), France. Figured by Boyd-Dawkins in the Quart. Journ. Geol. Soc. vol. xxiv. pl. viii. fig. 5 (1868). *Bravard Collection. Purchased, 1852.*
- 34734.** The third left upper premolar; from the Upper Pliocene of (Fig.) Peyrolles. Figured by Boyd-Dawkins, *op. cit.* pl. viii. fig. 2. *Bravard Collection. Purchased, 1852.*
- 28804.** The first left upper true molar; from the Upper Pliocene of (Fig.) the Val d'Arno. Figured by Boyd-Dawkins, *op. cit.* pl. viii. fig. 3. *Presented by J. B. Pentland, Esq., 1853.*
- 40810.** Casts of the right pm. 4 and m. 2 and the left m. 3. The originals are from the Upper Pliocene of the Val d'Arno, and are believed to be in the Florentine Museum at Pisa. The casts are figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxv. figs. 5-7. *Presented by C. Falconer, Esq., 1867.*
- 33323-4.** A left and a right second upper true molar; from the Forest-bed of the Norfolk coast. *Layton Collection. Purchased, 1858.*
- 43480.** Casts of the right pm. 2, pm. 3, m. 1, and m. 2. The originals are from the Forest-bed of Pakefield, Suffolk; and (together with pm. 4) are figured (reversed) by Boyd-Dawkins, *op. cit.* pl. vii. fig. 1. *Presented by Prof. Boyd-Dawkins, 1872.*
- 43480 a.** Cast of the third right upper true molar. The original is from the Forest-bed of Pakefield, and is figured by Boyd-Dawkins, *op. cit.* pl. viii. fig. 4. *Presented by Prof. Boyd-Dawkins, 1872.*
- 43482.** Cast of the third right upper true molar. The original is from the Forest-bed of Cromer, Norfolk. *Presented by Prof. Boyd-Dawkins, 1872.*
- 37341.** Cast of the complete mandible. The original is from the Upper Pliocene of the Val d'Arno, and is preserved in the Museum at Florence; it is figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxvii. figs. 2, 3. The extremely small size of the spatulate extremity of the symphysis is noticeable. *Purchased, 1863.*

- 37343.** Cast of part of the symphysis and the two rami of the mandible, showing the last five cheek-teeth on the left side. The original is from the Upper Pliocene of the Val d'Arno, and is preserved in the museum at Pisa.
Purchased, 1863.
- 40809.** Cast of the symphysis of the mandible. The original is from the Upper Pliocene of the Val d'Arno, and is in the Museum at Florence; it is described and figured in 'Falconer's Palæontological Memoirs,' vol. ii. p. 360, pl. xxviii. figs. 2-4.
Presented by C. Falconer, Esq., 1867.
- 28802.** Part of the left ramus of the mandible, containing the last (Fig.) four cheek-teeth; from the Upper Pliocene of the Val d'Arno. Figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxii. fig. 4.
Presented by J. B. Pentland, Esq., 1853.
- 28803.** Fragment of the left ramus of the mandible with two true molars; from the Upper Pliocene of the Val d'Arno.
Presented by J. B. Pentland, Esq., 1853.
- 33326.** Fragment of the left ramus of the mandible, containing (Fig.) $\overline{\text{pm. 4}}$, $\overline{\text{m. 1}}$, and $\overline{\text{m. 2}}$; dredged off Happisburgh, Norfolk. Figured in 'Falconer's Palæontological Memoirs,' vol. ii. pl. xxii. fig. 3. *Layton Collection. Purchased, 1858.*
- 43480.** Cast of the left lower cheek-dentition. The original of this specimen is from the Forest-bed of Pakefield, and is figured by Boyd-Dawkins in the Quart. Journ. Geol. Soc. vol. xxiv. pl. vii. fig. 3.
Presented by Prof. Boyd-Dawkins, 1872.
- 40862.** A left lower cheek-tooth; from the Forest-bed of Norfolk.
Presented by C. Falconer, Esq., 1867.
- 33325.** A right lower cheek-tooth, perhaps belonging to this species; dredged off Happisburgh.
Layton Collection. Purchased, 1858.
- 34732.** The greater part of the right scapula; from the Upper Pliocene of Etueaires, Puy-de-Dôme.
Bravard Collection. Purchased, 1855.
- 33470.** The distal third of a right humerus, provisionally referred to that species; dredged off Happisburgh.
Layton Collection. Purchased, 1858.

- 28803 a. The right femur ; from the Upper Pliocene of the Val d'Arno. *Presented by J. B. Pentland, Esq., 1853.*
28810. The right magnum ; from the Upper Pliocene of the Val d'Arno. *Presented by J. B. Pentland, Esq., 1853.*
- 33470 a. The distal extremity of a right tibia, provisionally referred to this species ; dredged off Happisburgh. *Layton Collection. Purchased, 1858.*
28805. The right tibia ; from the Upper Pliocene of the Val d'Arno. *Presented by J. B. Pentland, Esq., 1853.*
28806. The right astragalus ; from the Upper Pliocene of the Val d'Arno. *Presented by J. B. Pentland, Esq., 1853.*
28808. The left third metatarsal ; from the Upper Pliocene of the Val d'Arno. *Presented by J. B. Pentland, Esq., 1853.*
17696. A first phalangeal of a third digit ; from the Forest-bed of Bacton, Norfolk. *Green Collection. Purchased, 1843.*
7407. The first sacral vertebra ; from the Upper Pliocene of the Val d'Arno. *Mantell Collection. Purchased, 1836.*
40936. A middle cervical vertebra, provisionally referred to this species ; from the Forest-bed of Norfolk. *Presented by C. Falconer, Esq., 1867.*

Rhinoceros pachygnathus, Wagner¹.

The narial septum is not ossified, and the nasals are very short and broad ; the upper true molars have a buttress, and but two fossettes on their worn crowns. This species has been regarded as the ancestor of the African *R. simus*, but its molars are of a different type, and the cranium is shorter.

Hab. S. Europe.

49681. Proximal part of the left ulna ; from the Lower Pliocene of Pikermi, Attica. *Purchased, 1879.*
49682. The left scaphoid ; from Pikermi. *Purchased, 1879.*
49683. The left lunar ; from Pikermi. *Purchased, 1879.*
49684. The right unciform ; from Pikermi. *Purchased, 1879.*

¹ Abh. math.-phys. Cl. k.-bay. Ak. Wiss. vol. v. pt. 2, p. 349 (1848).

49680. The greater portion of the bones of the lower half of the left hind limb, comprising the tibia, calcaneum, astragalus, navicular, entocuneiform, cuboid, and the metatarsus; from Pikermi. *Purchased, 1879.*

B. *Ceratorhine Group.*

There are two horns; cutting-teeth are developed in both jaws, and the upper true molars have a buttress. There are three digits in the manus.

Rhinoceros schleiermacheri, Kaup¹.

Syn. *Rhinoceros sansaniensis*, Lartet².

Dihoplus schleiermacheri, Brandt³.

Dentition:—I. $\frac{2}{1}$, C. $\frac{0}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$. The upper cheek-teeth are exceedingly like those of *R. incisivus*, but are usually larger; the third true molar is distinguished by the presence of a tubercle, instead of a minute talon, on the posterior surface, while the premolars are distinguished by the absence of an inner cingulum. In the Eppelsheim cranium pm. 4 has three costæ. The colles of the premolar are usually united for at least half their height, so that there is a deep descent into the median valley. The lower canines are smaller than in *R. incisivus*, and the mandibular symphysis relatively wider and flatter. It is very difficult to distinguish isolated first and second upper true molars of the two species, although those of the present species have no external cingulum. The present form is rather larger than *R. sumatrensis*, from which it is readily distinguished by the structure of the teeth, and the form of the 'nasals and premaxillæ. It apparently ranges from the Middle Miocene of Sansan to the Lower Pliocene of Pikermi. The Sansan race is of smaller size than that of Eppelsheim.

Hab. Europe.

- M. 2781. Cast of the cranium and mandible. The original is from the Upper Miocene of Eppelsheim, Hessen Darmstadt, and is preserved in the Museum at Darmstadt; it is figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. x. fig. 1, and in the 'Beiträge,' pt. 1, pl. x. fig. 1. The dentition is figured in pl. xi. fig. 5 of the former work. *Purchased.*
49660. Cast of a laterally crushed cranium. The original is from the Upper Miocene of Eppelsheim. *Purchased, 1878.*

¹ *Isis*, 1832, p. 902.

² In Laurillard's *Dict. Univ. d'Hist. Nat.* vol. xi. p. 101 (1849).

³ *Mém. Ac. Imp. St. Pétersbourg*, sér. 7, vol. xxvi. art. 5, p. 49 (1878).

27460. Fragment of the left maxilla, containing m. 2 and m. 3; from the Middle Miocene of Sansan (Gers), France. This specimen is rather smaller than the corresponding part of the preceding crania, but m. 3 has the characteristic posterior tubercle. *Hastings Collection. Purchased, 1855.*
- 110 b (O. C.). Cast of the right maxilla of a young individual, showing the last three milk-molars. The original is from Eppelsheim, and is figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. xi. fig. 7. *Purchased.*
- M. 238. The first right upper premolar; from Eppelsheim. *Enniskillen Collection. Purchased, 1882.*
- M. 2773. Cast of the first right upper premolar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xii. fig. 1. *Egerton Collection. Purchased, 1882.*
- M. 470. The well-worn fourth right upper premolar; from Eppelsheim. This specimen agrees with the corresponding tooth of the cranium in the presence of three costæ and the absence of an inner cingulum. *Enniskillen Collection. Purchased, 1882.*
21484. The slightly worn fourth right upper premolar; from Eppelsheim. This specimen exhibits the three costæ. *Purchased from Dr. Kaup, 1847.*
21017. The first right upper true molar; from Eppelsheim. *Purchased from Dr. Kaup, 1847.*
- M. 2774. Cast of the first left upper true molar. The original is from Eppelsheim, and is figured (reversed) by Kaup, *op. cit.* pl. xii. fig. 5. *Egerton Collection. Purchased, 1882.*
1249. The second right upper true molar; from Eppelsheim. *Purchased from Dr. Kaup.*
27463. The second left upper true molar; from Eppelsheim. *Hastings Collection. Purchased, 1855.*
- M. 2775. Cast of the second right upper true molar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xii. fig. 6. *Egerton Collection. Purchased, 1882.*
42718. The well-worn second right upper true molar; from Sansan. *Presented by the Trustees of the Christie Museum, 1871.*

- M. 237, 470 a. Two specimens of the third upper true molar ; from Eppelsheim. *Enniskillen Collection. Purchased, 1882.*
27465. The third right upper true molar ; from Eppelsheim. *Hastings Collection. Purchased, 1855.*
- 21017 a. The third right upper true molar ; from Eppelsheim. *Purchased from Dr. Kaup, 1847.*
- M. 2776. Cast of the third left upper true molar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xi. fig. 6. *Egerton Collection. Purchased, 1882.*
- M. 2777. Cast of the third left upper true molar. The original is from Eppelsheim. *Egerton Collection. Purchased, 1882.*
- M. 2778. Cast of the fourth left upper milk-molar. The original is from Eppelsheim, and is figured (reversed) by Kaup, *op. cit.* pl. xii. fig. 3. *Egerton Collection. Purchased, 1882.*
- M. 2779. Casts of three upper incisors. The originals are from Eppelsheim, and are figured by Kaup, *op. cit.* pl. xi. figs. 1-3. *Egerton Collection. Purchased, 1882.*
- M. 2782. Cast of the symphysis and left ramus of the mandible. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xi. fig. 8. *Purchased.*
39922. Part of the left ramus of a small mandible, with the last five cheek-teeth, provisionally referred to this species ; from the Middle Miocene of Steinheim, Bavaria. *Purchased, 1866.*

The following specimens of the mandible belong either to this species or R. incisivus, since when the symphysis is wanting it appears impossible to distinguish between the mandibles of the two species.

19433. Part of the left ramus of the mandible, showing the last six cheek-teeth ; from Eppelsheim. *Purchased from Dr. Kaup, 1845.*
21021. Part of the left ramus of the mandible, showing $\overline{\text{pm. 2}}$, $\overline{\text{pm. 3}}$, $\overline{\text{m. 1}}$, and $\overline{\text{m. 2}}$; from Eppelsheim. *Purchased from Dr. Kaup, 1847.*
21022. Part of the left ramus of the mandible, with the last six cheek-teeth ; from Eppelsheim. *Purchased from Dr. Kaup, 1847.*

21490. The nearly complete right ramus of the mandible of an immature individual; from Eppelsheim.
Purchased from Dr. Kaup, 1847.
27462. The mandible, wanting the greater part of the symphysis; from Eppelsheim. *Hastings Collection. Purchased, 1855.*
- 27462 a. Fragment of the left ramus of the mandible, with three cheek-teeth; from Eppelsheim.
Hastings Collection. Purchased, 1855.
- M. 234. Part of the right ramus of the mandible, with the last three premolars and $\overline{m. 1}$; from Eppelsheim.
Enniskillen Collection. Purchased, 1882.
21020. Part of the left ramus of the mandible of an immature individual, showing the alveolus of $\overline{pm. 1}$ and all the other cheek-teeth, $\overline{m. 3}$ being *in alveolo*; from Eppelsheim.
Purchased from Dr. Kaup, 1847.
- 113 (O. C.). Part of the left ramus of the mandible, showing $\overline{pm. 4}$ and the three true molars; from Eppelsheim. *Purchased.*
19434. Part of the left ramus of the mandible, with the three true molars; from Eppelsheim.
Purchased from Dr. Kaup, 1845.
1254. Part of the right ramus of the mandible, showing $\overline{pm. 3}$, $\overline{pm. 4}$, $\overline{m. 1}$; from Eppelsheim. *Purchased from Dr. Kaup.*
21262. Part of the left ramus of the mandible of a young individual, with $\overline{mm. 4}$; from Eppelsheim.
Purchased from Dr. Kaup, 1847.
- 110 e (O. C.). Cast of part of the symphysis and the left ramus of the mandible of a young individual, showing $\overline{mm. 1}$, $\overline{mm. 2}$, and part of $\overline{mm. 3}$. The original is from Eppelsheim, and is figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. xi. fig. 10. *Purchased.*
1253. A lower canine; from Eppelsheim.
Purchased from Dr. Kaup.
- 21490, 24016. Two lower canines; from Eppelsheim.
Purchased from Dr. Kaup.
- M. 2780. Cast of a lower canine. The original is from Eppelsheim, and is figured (reversed) by Kaup, *op. cit.* pl. xi. fig. 9.
Egerton Collection. Purchased, 1882.

The following specimens, of which the originals are from Hessen-Darmstadt, are referred by Kaup to the present species. They were all obtained by purchase.

- M. 2783.** Cast of the right humerus. Figured by Kaup, *op. cit.* pl. xiii. fig. 4.
1281. Cast of the left scaphoid. Figured, *op. cit.* pl. xiii. fig. 9.
- M. 2787.** Cast of the unciform. Figured, *op. cit.* pl. xiii. fig. 8.
1282. Cast of the left third metacarpal. Figured, *op. cit.* pl. xiii. fig. 13.
19446. A similar left third metacarpal, wanting the distal epiphysis.
1283. Cast of the left femur, wanting the head. Figured, *op. cit.* pl. xiii. fig. 5.
- M. 2784.** Cast of the left tibia. Figured, *op. cit.* pl. xiii. fig. 6.
- M. 2785.** Cast of the left calcaneum. Figured, *op. cit.* pl. xiii. fig. 10.
- 110 (O. C.). Cast of the left calcaneum.
- M. 2786.** Cast of the right astragalus. Figured, *op. cit.* pl. xiii. fig. 11.
- 110 a (O. C.). Cast of the right navicular. Figured, *op. cit.* pl. xiii. fig. 7.
1284. Cast of the atlas vertebra. Figured, *op. cit.* pl. xiii. fig. 1.
1285. Cast of the axis vertebra. Figured, *op. cit.* pl. xiii. fig. 2.

The following specimens from Sansan may belong either to this species or R. incisivus; they are too small for R. goldfussi, and the astragalus is different in shape. Purchased.

- 27455*. The glenoidal extremity of the right scapula.
27455. The left humerus.
27456. A rather longer left humerus.
27459. The left radius.
29641. The right third metacarpal.
29642. The proximal half of the right third metacarpal.

27457. The distal extremity of the left femur.
 29644. The left patella.
 27458. The left tibia.
 21875. The left calcaneum.
 29645. The right astragalus.
 21874. A smaller left astragalus, probably associated with No. 21875.
 29646. The right third metatarsal.

C. *Rhinocerotine Group.*

There is but one nasal horn, and cutting-teeth are present in both jaws; a buttress may or may not be present in the upper true molars. There are three digits in the manus.

Rhinoceros sondaicus, Cuvier¹.

Syn. *Rhinoceros javanicus*, F. Cuvier².

Dentition:—I. $\frac{1}{1}$, C. $\frac{0}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$. The upper true molars very closely resemble those of *R. sumatrensis*; but the "posterior valley" is relatively shallower, and the length of the anterior usually exceeds that of the external surface. The buttress is strongly developed, and there is no "combing-plate."

Hab. Bengal, Burma, Malay Peninsula, Java, Sumatra, and Borneo. It has been recorded from Pleistocene or Prehistoric deposits in the latter island by Busk in the Proc. Zool. Soc. 1869, p. 409³.

M. 1968. Two first or second upper true molars of opposite sides and three lower cheek-teeth, provisionally referred to this species; from a depth of sixty feet in a cavern deposit at Saráwak, Borneo. The upper teeth present all the characters of those of *R. sondaicus*.

Presented by P. L. Sclater, Esq., 1884.

M. 1969–70. Several bones (comprising part of a scapula, radius, the complete left third metatarsal, a broken lateral metapodial, and two fragments of a cervical vertebra) associated with the preceding specimens.

Presented by P. L. Sclater, Esq., 1884.

¹ In Desmarest's 'Mammalogie,' p. 399 (1822).

² Hist. Nat. des Mammifères, vol. iii. liv. 45, p. 2 (1824).

³ See Flower, Cat. Vert. Anim. Mus. Roy. Coll. Surg. pt. ii. Mammalia, p. 420, no. 2140 (1884).

Rhinoceros sivalensis, Falconer and Cautley¹.

Syn. *Rhinoceros sinensis*, Owen².

Zalabis sivalensis, Cope³.

Dentition :—I. $\frac{1}{(0-1)}$, C. $\frac{0}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$. This species is apparently allied to *R. sondaicus* (of which it is probably the ancestor), but is usually of larger size. There are two fossettes on the worn crowns of the true molars; there is no distinct "antecrochet," but a well-developed "buttress." Koken⁴ unites one of the type specimens of *R. sinensis* with this species, but provisionally retains the other as distinct. The writer is inclined to think that both may be included.

Hab. India and China.

39626. The middle portion of the cranium, showing the last five cheek-teeth, in a well-worn and somewhat imperfect condition; from the Pliocene of the Siwalik Hills. The right dentition is figured by Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxv. fig. 5, and in 'Falconer's Palæontological Memoirs,' vol. i. pl. xiv. fig. 2. This and the following specimens are the types.

Presented by Dr. Hugh Falconer.

39647. The anterior portion of the cranium, showing the whole or portions of each of the seven cheek-teeth; from the Siwalik Hills. Figured in Royle's 'Botany &c. of the Himalaya Mountains,' pl. vi. fig. 5, and in the 'Fauna Antiqua Sivalensis,' pl. lxxiii. fig. 3, and pl. lxxiv. fig. 5. The first and second true molars are in good preservation, and agree with the less worn specimen figured by the present writer in the 'Palæontologia Indica,' ser. 10, vol. i. pl. v. fig. 5, and vol. iii. pl. i. fig. 7: the right m. 3 has been found and put in position since the specimen was figured.

Cautley Collection. Presented, 1842.

39625. The cranium, wanting the left zygomatic arch and the extremities of the premaxillæ and nasals, but exhibiting the last six cheek-teeth, in a half-worn and much-broken condition; from the Siwalik Hills. Figured in the 'Fauna

¹ Fauna Antiqua Sivalensis, pt. 7, pl. lxxiii. (1847).

² Quart. Journ. Geol. Soc. vol. xxvi. p. 424 (1870).

³ Amer. Nat. vol. xiii. p. 771 b (1879).

⁴ Pal. Abhand. vol. iii. pt. 2, pp. 24, 30 (1885).

. Antiqua Sivalensis,' pl. lxxiii. fig. 2, and in 'Falconer's Palæontological Memoirs,' vol. i. pl. xiv. fig. 1.

Presented by Dr. Hugh Falconer.

39674. The first left upper true molar, in an early condition of wear; from the Siwalik Hills. The buttress is broken away.

Cautley Collection. Presented, 1842.

41935. The third left upper true molar, wanting the outer half; (*Fig.*) from a cave near Chung-king-foo, Sechuan, China. This specimen is described and figured by Owen in the Quart. Journ. Geol. Soc. vol. xxvi. p. 424, pl. xxix. figs. 1, 2 (1870), under the name of *R. sinensis* (of which it is the type); it is also figured by Koken (as *R. sivalensis*) in the Pal. Abhand. vol. iii. pt. 2, pl. vi. fig. 4, together with a perfect specimen. Except in being somewhat smaller, it presents no characters by which it can be distinguished from m. 3 of No. 39647. This smaller size renders it very difficult to distinguish this tooth from m. 3 of *R. sondaicus*; but the form of pm. 4, and the other mammals with which the Chinese specimens are associated, indicate that their affinity is with the Siwalik form. A specimen figured by the present writer in the 'Palæontologia Indica,' ser. 10, vol. ii. pl. v. fig. 4, agrees more nearly in size with the present example.

Purchased from R. Swinhoe, Esq., 1870.

41936. The hinder half of the much-worn m. 1; from the same locality. Noticed by Owen, *op. cit.* p. 425. This specimen agrees precisely in form with m. 1 of No. 39626.

Purchased from R. Swinhoe, Esq., 1870.

41936 a. The outer lamina of a fourth left upper premolar; from (*Fig.*) the same locality. Figured by Owen, *op. cit.* pl. xxix. fig. 3, as *R. sinensis*. A similar tooth is figured by Koken, *op. cit.* pl. vi. fig. 1, under the same name; but apparently presents no characters by which it can be distinguished from an upper premolar of *R. sivalensis* figured by the present writer in the 'Palæontologia Indica,' ser. 10, vol. ii. pl. v. fig. 6. The hinder costa is much more developed than in *R. sondaicus*. *Purchased from R. Swinhoe, Esq., 1870.*

41941-4. Five lower cheek-teeth; from the same locality. Noticed by Owen, *op. cit.*

Purchased from R. Swinhoe, Esq., 1870.

- 39646.** The symphysis of the mandible, showing the left canine, (Fig.) the alveolus of the right, and the broken bases of the incisors; from the Siwalik Hills. This specimen is figured by Falconer and Cautley, *op. cit.* pl. lxxiv. fig. 4, under the name of *R. palæindicus*, but is referred to this species by the present writer in the 'Palæontologia Indica,' ser. 10, vol. ii. p. 38¹. A very similar specimen, which does not show incisive alveoli, is figured in pl. vi. fig. 3 of that volume. *Cautley Collection. Presented, 1842.*

Rhinoceros palæindicus, Falconer and Cautley².

Dentition:—I. $\frac{1}{1}$, C. $\frac{0}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$.

This species is readily distinguished from the last by the absence of a "buttress" to the upper true molars, and their horizontal wear, as well as by the usual presence of three fossettes on the worn crowns of the latter. The upper true molars are somewhat simpler than those of *R. unicornis*, of which the present species may be the ancestor.

Hab. India.

- 16444.** The cranium, wanting the extremities of the premaxillæ (Fig.) and nasals, and showing the last six cheek-teeth, in a much-worn and somewhat battered condition; from the Pliocene of the Siwalik Hills, India. Figured by Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxiii. fig. 1. This and the following specimens are the types; the three fossettes are shown in several of the teeth.

Cautley Collection. Presented, 1842.

- M. 2727.** The cranium, incomplete anteriorly, but showing the (Fig.) last four cheek-teeth; from the Siwalik Hills. Figured in the 'Fauna Antiqua Sivalensis,' pl. lxxiv. fig. 2. Three fossettes occur in m. 1.

Presented by Gen. Sir W. E. Baker, K.C.B., 1848.

- M. 2728.** Middle portion of a cranium apparently belonging to a smaller individual of this species; from the Siwalik Hills. On the right side the three true molars are shown, and in the absence of a "buttress" agree with those of the present species. *Cautley Collection. Presented, 1842.*

¹ The cast, from which the description was taken, did not show the existence of the incisors.

² Fauna Antiqua Sivalensis, pt. 7, pl. lxxiii. (1847).

M. 2729. The cranium, wanting the nasals, premaxillæ, and most of the teeth ; from the Siwalik Hills.

Cautley Collection. Presented, 1842.

39643. Fragment of a right maxillary region, with portions of the seven cheek-teeth, in a much-worn and battered condition, apparently belonging to this species ; from the Siwalik Hills. Figured in the 'Fauna Antiqua Sivalensis,' pls. lxxii. fig. 3, and lxxv. fig. 9, under the name of *R. platyrhinus*. *Cautley Collection. Presented, 1842.*

36740. The cranium of a young individual, wanting the nasals and the extremity of the premaxillæ, and showing the four milk-molars and m. 1 *in alveolo* ; from the Siwalik Hills. Figured in the 'Fauna Antiqua Sivalensis,' pl. lxxiv. fig. 1 : the dentition being figured (from a cast) by the present writer in the 'Palæontologia Indica,' ser. 10, vol. ii. pl. vii.

Presented by the Secretary of State for India, 1860.

39648. The second right upper true molar ; from the Siwalik Hills. (Fig.) This specimen (woodcut, fig. 15) is figured in the 'Fauna Antiqua Sivalensis,' pl. lxxv. fig. 4 (as a premolar), and

Fig. 15.



Rhinoceros palæindicus.—The second right upper true molar (reversed) ; from the Siwalik Hills. †. (From the 'Palæontologia Indica.')

- by the present writer in the 'Palæontologia Indica,' ser. 10, vol. iii. p. 4. It exhibits very clearly the absence of a buttress. *Cautley Collection. Presented, 1842.*
- M. 2730.** A much-worn first left upper true molar; from the Siwalik Hills. *Cautley Collection. Presented, 1842.*
- 39669.** The third right upper true molar; from the Siwalik Hills. *Cautley Collection. Presented, 1842.*
- 39670.** Fragment of the right maxilla of a young individual, showing the first three milk-molars, which agree precisely with those of No. 36740; from the Siwalik Hills. *Cautley Collection. Presented, 1842.*
- M. 2815.** Cast of the right maxilla of a young individual, showing the first three milk-molars. The original is from the Siwalik Hills, and is preserved in the Dublin Museum of Science and Art; it is figured by Baker and Durand in the Journ. As. Soc. Beng. vol. v. pl. xix. fig. 2, and by the present writer in the Trans. R. Dublin Soc. ser. 2, vol. iii. pl. iii. fig. 1 (1884). *Presented by Dr. Hugh Falconer.*
- 39673.** The third right upper milk-molar; from the Siwalik Hills. *Cautley Collection. Presented, 1842.*
- 39671, 39672, M. 2461.** Three fragments of the maxillæ of young individuals, provisionally referred to this species, each showing mm. 2 and mm. 3; from the Siwalik Hills. No. 39671 is figured (from a cast) by the present writer in the Palæontologia Indica,' ser. 10, vol. ii. pl. vii. fig. 4, under the name of *R. platyrhinus*; but it does not appear that it can be distinguished from the preceding specimens. *Cautley Collection. Presented, 1842.*
- 39620.** The anterior portion of a mandible, provisionally referred to this species; from the Siwalik Hills. This specimen is figured by Falconer and Cautley, *op. cit.* pl. lxxii. fig. 4, under the name of *R. platyrhinus*. It shows several of the cheek-teeth and the broken bases of the canines and incisors. *Presented by Gen. Sir W. E. Baker, K.C.B., 1848.*
- 39642.** The symphysis and part of the right ramus of a similar (Fig.) mandible of an immature individual; from the Siwalik

Hills. Figured by Falconer and Cautley, *op. cit.* pl. lxxv. fig. 10, and in 'Falconer's Palæontological Memoirs,' vol. i. pl. xiv. fig. 4, as *R. platyrhinus*: it shows the incisors, canines, $\overline{\text{pm. 1}}$, $\overline{\text{pm. 2}}$, $\overline{\text{pm. 3}}$, $\overline{\text{mm. 4}}$, and $\overline{\text{m. 1}}$.

Cautley Collection. Presented, 1842.

39644. Hinder part of the left ramus of a mandible perhaps belonging to this species; from the Siwalik Hills. Figured by Falconer and Cautley, *op. cit.* pl. lxxiv. fig. 3.

Cautley Collection. Presented, 1842.

The following specimens are not specifically determined; they were all obtained from the Siwalik Hills, and, unless otherwise stated, belong to the Cautley Collection. Presented, 1842.

39621. Fragment of a mandibular ramus, with one much-worn molar.

M. 2732. Part of the right ramus of the mandible, with the last four teeth.

M. 2733. Part of the right ramus of the mandible, with the three true molars (broken).

39645. Part of the right ramus of the mandible of a young individual, with the four milk-molars. Figured by Falconer and Cautley, *op. cit.* pl. lxxv. fig. 3, as *R. paleindicus*.

39689. The left ramus of a rather younger, but very similar mandible, with the corresponding teeth.

Presented by Gen. Sir W. E. Baker, K.C.B., 1848.

39690. Part of the left ramus of a very similar mandible, with the last three milk-molars (imperfect).

Presented by Gen. Sir W. E. Baker, K.C.B., 1848.

M. 2460. Fragment of the right ramus of the mandible of a young individual, with $\overline{\text{mm. 2}}$ and $\overline{\text{mm. 3}}$.

39683. Two fragments of young mandibles, each with two teeth.

40832. The glenoidal half of the left scapula of a large form.

Presented by C. Falconer, Esq., 1867.

39606. The associated right humerus, radius, and ulna. Figured (*Fig.*) by Baker and Durand in the Journ. As. Soc. Beng. vol. v. pl. xvii. figs. 1, 2, and by Falconer and Cautley, *op. cit.* pl. lxxvii. fig. 1.

Presented by Gen. Sir W. E. Baker, K.C.B., 1848.

- 17108.** The proximal portion of the left humerus. Figured by
(Fig.) Falconer and Cautley, *op. cit.* pl. lxxvii. fig. 3.
- 39607.** The proximal portion of the right humerus. Figured,
(Fig.) *op. cit.* pl. lxxvii. fig. 2 (together with No. 39608).
Presented by Gen. Sir W. E. Baker, K.C.B., 1848.
- 39608.** The distal extremity of the right humerus. Figured, *op. cit.*
(Fig.) pl. lxxvii. fig. 2 (together with No. 39607).
Presented by Gen. Sir W. E. Baker, K.C.B., 1848.
- 39629.** The distal half of the right humerus. Figured, *op. cit.*
(Fig.) pl. lxxvii. fig. 4.
- 14748.** The distal half of the right humerus. Figured, *op. cit.*
(Fig.) pl. lxxvii. fig. 5.
- 39657.** The proximal extremity of the right radius and ulna.
(Fig.) Figured, *op. cit.* pl. lxxvii. fig. 6.
- 39658.** The left radius and proximal extremity of the ulna. Figured,
(Fig.) *op. cit.* pl. lxxvii. fig. 7.
- 39627.** The right ulna, wanting the proximal extremity. Figured,
(Fig.) *op. cit.* pl. lxxvii. fig. 9. *Presented by Dr. Hugh Falconer.*
- 39630.** The distal half of the right radius. Figured, *op. cit.*
(Fig.) pl. lxxvii. fig. 8.
- 15765-6.** Two specimens of the scaphoid. Figured, *op. cit.* pl. lxxix.
(Fig.) figs. 1, 2.
- 15767, 39660, 39661, 39662.** Four specimens of the cuneiform.
(Fig.) The three first specimens are figured, *op. cit.* pl. lxxix.
figs. 4-5.
- 17569, 39633, 39634.** Three specimens of the second metacarpal.
(Fig.) Figured, *op. cit.* pl. lxxix. figs. 7-9.
- 39655.** The right third metacarpal, imperfect distally. Figured,
(Fig.) *op. cit.* pl. lxxix. fig. 12.
- 39612, 39613.** The right and left third metacarpals. Figured,
(Fig.) *op. cit.* pl. lxxix. figs. 10, 11.
Presented by Gen. Sir W. E. Baker, K.C.B., 1848.
- 39632.** The left fourth metacarpal. Figured, *op. cit.* pl. lxxix.
(Fig.) fig. 13.

39614. The left fourth metacarpal.
Presented by Gen. Sir W. E. Baker, K.C.B., 1848.
17122. Middle portion of the left femur. Figured, *op. cit.* pl. lxxviii.
 (Fig.) fig. 2.
- 39663-4. Two specimens of the patella. Figured, *op. cit.* pl. lxxviii.
 (Fig.) figs. 6, 7.
- 15365 a. A patella, of very large size.
39609. The left tibia and fibula. Figured by Baker and Durand in
 (Fig.) the Journ. As. Soc. Beng. vol. v. pl. xviii., and by Falconer
 and Cautley, *op. cit.* pl. lxxviii. fig. 3.
Presented by Gen. Sir W. E. Baker, K.C.B., 1848.
39659. The left tibia of a smaller species. Figured by Falconer and
 (Fig.) Cautley, *op. cit.* pl. lxxviii. fig. 4.
39610. The right tibia, wanting the proximal extremity, of equal
 (Fig.) size. Figured, *op. cit.* pl. lxxviii. fig. 5.
Presented by Gen. Sir W. E. Baker, K.C.B., 1848.
39637. The right calcaneum. Figured, *op. cit.* pl. lxxviii. fig. 9.
 (Fig.)
- 39637 a. The right calcaneum.
39638. The left calcaneum. Figured, *op. cit.* pl. lxxviii. fig. 11.
 (Fig.)
39639. The left calcaneum. Figured, *op. cit.* pl. lxxviii. fig. 10.
 (Fig.)
39611. The left calcaneum, of very large size.
Presented by Gen. Sir W. E. Baker, K.C.B., 1848.
39665. The right astragalus.
39666. The right astragalus.
39640. The right astragalus. Figured, *op. cit.* pl. lxxviii. fig. 12.
 (Fig.)
39667. The left astragalus.
39668. The left astragalus.
40908. The right cuboid. *Presented by C. Falconer, Esq, 1867.*

39684. The right cuboid.
39662. The left cuboid. Figured, *op. cit.* pl. lxxix. fig. 22.
39631. The associated right astragalus, navicular, cuboid, three (*Fig.*) cuneiforms, and the portion of the second and third metatarsals. Figured, *op. cit.* pl. lxxviii. fig. 8.
39615. The left third and fourth metatarsals, of very large size.
Presented by Gen. Sir W. E. Baker, K.C.B., 1848.
18418. The right third metatarsal. Figured, *op. cit.* pl. lxxix. (*Fig.*) fig. 17.
39622. The left third metatarsal. Figured, *op. cit.* pl. lxxix. fig. 19. (*Fig.*) *Presented by Gen. Sir W. E. Baker, K.C.B., 1848.*
39636. The right second metatarsal. Figured, *op. cit.* pl. lxxix. (*Fig.*) fig. 16.
39623. The left fourth metatarsal. Figured, *op. cit.* pl. lxxix. (*Fig.*) fig. 18.
- 39681-2. Two specimens of the centrum of the axis vertebra, one much larger than the other.
- M. 2734. An early cervical vertebra.
- M. 2735. The seventh cervical vertebra.
- M. 2736. The third dorsal vertebra (imperfect).
- M. 2737. The third or fourth dorsal vertebra (imperfect).
- M. 2738. An early dorsal vertebra (imperfect).

Rhinoceros unicornis, Linn.¹

Syn. *Rhinoceros indicus*, Cuvier².

The upper true molars have very tall crowns, a "combing-plate," three fossettes on the well-worn crowns, and no "buttress." Teeth of this species have been described from the Pleistocene of the Narbada Valley, India, by the present writer in the 'Palæontologia Indica' (Mem. Geol. Surv. Ind.), ser. 10, vol. i. pp. viii-ix³.

¹ Syst. Nat. ed. 12, vol. i. p. 104 (1766).

² Ménag. d. Mus. d'Hist. Nat. (1801).

³ A scapula is noticed on the same page under the name of *R. namadicus*, but its right to specific distinction is perhaps doubtful.

Hab. (Recent) Nipal, Bhutan, and Assam; (Prehistoric(?)) Madras¹; and (Pleistocene) Narbada Valley.

39686. A left astragalus, provisionally referred to the species; from (*Fig.*) the Pleistocene of the Narbada Valley, India. Figured by Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxvi. fig. 18.

Presented by C. Fraser, Esq. Before 1843.

D. *Diceratherine Group*².

The nasals, although small, are strongly curved, and each carries a small process, which probably formed the point of attachment of a small lateral horn. Upper and lower incisors and lower canines are present. There are apparently three digits in the manus.

*Dentition*³:—I. $\frac{1}{1}$, C. $\frac{0}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$.

Rhinoceros minutus, Cuvier⁴.

Syn. (?) *Rhinoceros steinheimensis*, Jäger⁵.

Rhinoceros tapirinus, Pomel⁶ (? *in parte*).

Rhinoceros paradoxus, Pomel⁷ (? *in parte*).

Rhinoceros pleuroceros, Duvernoy⁸.

Aceratherium minutum, Kaup⁹.

Diceratherium pleuroceros, Cope¹⁰.

This species is of small size; the upper true molars have a well-developed "crochet" and "antecrochet," but no internal cingulum; the lower cheek-teeth have a distinct external cingulum.

Hab. Europe.

28845. Cast of the left half of the cranium, showing one incisor and six cheek-teeth. The original is from the Lower Miocene of Gannat (Allier), France, and is preserved in the Paris Museum of Natural History. It is described and figured

¹ See Journ. As. Soc. Beng. vol. xlix. pt. 2, p. 28 (1880).

² Genus *Diceratherium*, Marsh.

³ Cope, Proc. Amer. Phil. Soc. vol. xix. p. 393 (1881); in the Amer. Nat. vol. xiii. p. 771*b* (1879), it was given as I. $\frac{2}{1}$, C. $\frac{0}{1}$.

⁴ Ossemens Fossiles, 2nd ed. vol. ii. pt. i. p. 93 (1822).

⁵ Foss. Säugeth. Württ. p. 69 (1835-39). Identified with this species in Kaup's 'Beiträge,' pt. 1, p. 1.

⁶ Bull. Soc. Géol. France, sér. 2, vol. i. p. 591 (1844).

⁷ Catalogue Méthodique, p. 78 (1853).

⁸ Arch. d. Muséum, vol. vii. p. 42 (1854).

⁹ Beiträage, 1st ed. pt. 1, p. 1 (1854).

¹⁰ Amer. Nat. vol. xiii. p. 771*b* (1879).

by Duvernoy in the Arch. d. Muséum, vol. vii. p. 42, pl. i. fig. 2, and by Kaup in the 'Beiträge,' pt. 1, pl. viii.

Presented by the Paris Museum of Natural History, 1854.

- M. 2739.** Cast of the fourth right upper premolar. The original is from the Lower Miocene of the Mayence Basin, near Eppelsheim, Hessen-Darmstadt¹, and is figured (reversed) by Kaup in the Oss. Foss. d. Darmstadt, pt. 3, pl. xii. fig. 10. *Egerton Collection. Purchased, 1882.*
- M. 2740.** Cast of the first left upper true molar. The original is from the Lower Miocene near Eppelsheim, and is figured by Kaup, *op. cit.* pl. xii. fig. 9. *Egerton Collection. Purchased, 1882.*
- M. 2742.** Cast of the second left upper true molar. The original is from the Lower Miocene near Eppelsheim, and is figured by Kaup, *op. cit.* pl. xii. fig. 8. *Egerton Collection. Purchased, 1882.*
- 29656.** A much-worn second left upper true molar; from a Lower Miocene deposit. *Hastings Collection. Purchased, 1855.*
- 1257.** A well-worn third left upper true molar; from the Lower Miocene near Eppelsheim. *Purchased from Dr. Kaup.*
- 28846.** Cast of the greater portion of the mandible, showing six cheek-teeth on the left side, and the alveoli of the incisor and canine of both sides. The original is from the Lower Miocene of Gannat, and is preserved in the Paris Museum of Natural History. *Presented by the Paris Museum of Natural History, 1854.*
- 28847.** Cast of the hinder part of the left ramus of the mandible, with the three true molars. The original is from the Lower Miocene of Gannat, and is preserved in the Paris Museum of Natural History. It is figured by Duvernoy in the Arch. d. Muséum, vol. vii. pl. i. fig. 2, and by Kaup in the 'Beiträge,' pt. 1, pl. viii. *Presented by the Paris Museum of Natural History, 1854.*

¹ "A satisfactory geological limitation of the Eppelsheim deposit and its organic contents is attended with some difficulty. The loose incoherent sand of which it is composed is spread out horizontally like the Löss, and the margin thins out to spread over a portion of the Lower-Miocene Mayence Basin; so that where the beds are in contact the fossil remains of the two are liable to be confounded." ('Falconer's Palæontological Memoirs,' vol. ii. pp. 46, 47 [1868].)

M. 2742. Cast of the fourth right lower premolar. The original is from the Lower Miocene of Weinsheim, Hessen-Darmstadt; and is figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. xii. fig. 11.

Egerton Collection. Purchased, 1882.

E. *Aceratherine Group.*

In this group there is no nasal horn, and the nasals are straight and flat. In the typical *R. incisivus* and some other European species there are four digits to the manus, but in others, as well as in the North-American forms (which have been generically separated), they are reduced to three. The number of cutting-teeth¹ is various, and may, according to Cope, be represented by the formula $I. \frac{(0-2)}{1}, C. \frac{0}{1}$.

Fig. 16.



Rhinoceros megalodus (Cope²).—Skull; from the Miocene (Loup Fork Beds) of Colorado. $\frac{1}{2}$. (From the 'American Naturalist'.)

¹ For the dentition of the American forms see Cope, *Proc. Amer. Phil. Soc.* vol. xix. p. 393 (1881). In this memoir the formula of the so-called *Peraceras* is given as $I. \frac{0}{1}, C. \frac{0}{1}$; it was given in the *Amer. Nat.* vol. xiv. p. 540 (1880) as $I. \frac{0}{0}, C. \frac{0}{0}$, and is thus quoted in the 'Palæontologia Indica,' ser. 10, vol. ii. p. ix. (In note 1 the volume and sheet [xiv. 1880] are omitted.)

² *Syn. Aphelops megalodus*, Cope.

The skull of the American *R. megalodus* (Cope) is figured in the accompanying woodcut (fig. 16).

Rhinoceros croizeti (Filhol¹).

Syn. (?) *Aceratherium croizeti*, Pomel².

¹ Pomel's *A. croizeti* was described as being larger than *R. minutus*, whereas the specimens described by Filhol (*op. cit.*) indicate a form rather smaller³ than Duvernoy's and Kaup's specimens of the latter. As Pomel's description is too vague to be of any value it is better to take the mandible figured by Filhol as the type; the latter is from St. Gérard-le-Puy, but it is stated that specimens from Quercy cannot be specifically distinguished. The specimens in the Museum show that there was no "crochet" or inner cingulum in the upper true molars (fig. 17), nor any cingulum in the lower molars; $\overline{\text{pm. 1}}$ is persistent in the mandible figured by Filhol.

Hab. France.

Fig. 17.



Rhinoceros croizeti.—Upper true molars; from the Upper Eocene of Bach. †.

M. 1732. Fragment of the left maxilla, containing $\overline{\text{m. 1}}$ and $\overline{\text{m. 2}}$ (Fig.) (woodcut, fig. 17); from the Upper-Eocene phosphorites of Bach, near Lalbenque (Lot), France. The length of $\overline{\text{m. 1}}$ is 0,034 and its width anteriorly 0,031, the corresponding dimensions of $\overline{\text{m. 2}}$ being 0,037 and 0,034.

Purchased, 1884.

M. 1729. Part of the mandible, showing $\overline{\text{m. 2}}$ and $\overline{\text{m. 3}}$ on the left side; from the Upper Eocene of Eschamps, near Lalbenque.

¹ Ann. Sci. Géol. vol. xi. art. 1, p. 1 (1880; vol. dated 1881); *Aceratherium*.

² Catalogue Méthodique, p. 77 (1853).

³ Filhol says larger, but this is not borne out by his figures.

This specimen is slightly smaller than the one figured by Filhol, *op. cit.* pl. i., but is otherwise very similar; the length of $\overline{m. 3}$ is 0,030. *Purchased*, 1884.

- M. 1785. Two lower cheek-teeth; from Bach. *Purchased*, 1884.
- M. 1461. A third right lower true molar, provisionally referred to this species; from the Upper-Eocene phosphorites of Caylux (Tarn-et-Garonne), France. *Purchased*, 1884.
27766. Part of the right ramus of a mandible, provisionally referred to this species; from the Lower Miocene of Perrier (Puy-de-Dôme), France. This specimen shows the three true molars, the anterior crescent of $\overline{m. 1}$ being wanting. It is somewhat smaller than No. M. 1729, but agrees much more nearly with this than with *R. minutus*.
Croizet Collection. Purchased, 1848.
27667. An associated left astragalus and calcaneum, belonging either to this species or to *R. minutus*; from the Lower Miocene of Chaptuzat (Puy-de-Dôme).
Croizet Collection. Purchased, 1848.
- M. 1846. An imperfect middle cervical vertebra, provisionally referred to this species; from Caylux. *Purchased*, 1884.

Rhinoceros occidentalis, Leidy¹.

Syn. *Aceratherium occidentale*, Cope².

This is a comparatively small species, in which the upper true molars have a strong "antecrochet," but no "crochet," while the premolars have a well-developed cingulum, of which there is a trace in the true molars. A cranium is figured by Leidy in the Journ. Ac. Nat. Sci. Philad. ser. 2, vol. vii. pl. xxii. (1869).

Hab. North America.

29677. Part of the right maxilla, containing the last four cheek-teeth, in a broken condition; from the Miocene of Nebraska, U.S.A. The teeth are somewhat smaller than those of the cranium figured by Leidy, but otherwise agree.
Purchased, 1855.

¹ Proc. Ac. Nat. Sci. Philad. vol. v. p. 119 (1850; vol. dated 1852).

² Amer. Nat. vol. xiii. p. 771c (1879).

Rhinoceros cimogorrhensis, Lartet¹.*Rhinoceros simorreensis*, Lartet².

This species is of rather small size, with canines of moderate development, there is an inner cingulum to pm. 2 and pm. 3, a crochet and antecrochet are developed in the upper true molars, and pm. 1 is present. It is stated that a minute horn is present in some instances; the manus has but three digits.

Hab. France.

- 33525.** The nearly complete cranium; from the Middle Miocene of Villefranche d'Astarac (Gers), France. The whole of the dentition is shown, and there is no trace of any protuberance for a horn. Noticed in 'Falconer's Palæontological Memoirs,' vol. ii. p. 361. The length of the space occupied by the seven teeth is 0,193. *Purchased*, 1858.
- 33525 a.** The extremity of the nasals; from Villefranche d'Astarac. There is no trace of the attachment of any horn. *Purchased*, 1858.
- 33526.** The greater portion of the two mandibular rami, showing all the cheek-teeth except pm. 1; from Villefranche d'Astarac. *Purchased*, 1858.
- 29647.** A left lower cheek-tooth; from the Middle Miocene of Simorre (Gers). *Hastings Collection. Purchased*, 1855.

The following specimens from Simorre are provisionally referred to this species. Purchased, 1858.

- 33542.** An upper incisor.
- 33543.** A pisiform.
- 33531.** The right femur, imperfect proximally.
- 33532.** A patella.
- 33544.** The right calcaneum.
- 33545.** The right astragalus.
- 33549.** The left navicular.
- 33533-5.** Three metapodials.

¹ In Laurillard's 'Dict. Univ. d'Hist. Nat.' vol. xi. p. 101 (1849).

² Notice sur la Colline de Sansan, p. 29 (1853).

Rhinoceros incisivus (Kaup¹).

Syn. *Aceratherium incisivum*, Kaup².

Rhinoceros tetradactylus, Lartet³.

As it seems doubtful what the *Rhinoceros incisivus* of Cuvier⁴ (which according to Kaup⁵ was founded on specimens from the Lower Miocene of Weissenau, near Mayence) really is, it appears advisable to take Kaup's Eppelsheim specimens as the type of the species. Gervais⁶ identifies with this form the Middle Miocene *R. tetradactylus* of Lartet, but Gaudry⁷ considers it distinct, and says the nasals are rather larger; this, however, may be merely a racial character, and in the absence of any other distinctive differences Gervais's view is provisionally adopted. Gaudry⁸ provisionally refers to the Eppelsheim species some specimens from Pikermi, in which the canines are very large and closely approximated and the lower incisors absent. If this reference be correct the species ranged from the Middle Miocene to the Lower Pliocene⁹.

Dentition:—Usually I. $\frac{2}{1}$, C. $\frac{0}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$; in the Pikermi form provisionally referred to this species the lower incisors are wanting. The upper check-teeth closely resemble those of *R. schleiermacheri*, but there is a slight external cingulum to the true molars, while the premolars have a strongly marked inner cingulum, and there is a small talon on the posterior surface of m. 3; pm. 4 has but two costæ. The lower canines are larger and curve more sharply upwards. The manus has four digits.

Hab. Europe.

M. 2788. Cast of the cranium and mandible. The original is from the Upper Miocene of Eppelsheim, Hessen-Darmstadt, and is figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. x. fig. 2. *Purchased.*

¹ Isis, 1832, p. 898; *Aceratherium*.

² *Loc. cit.*

³ Notice sur la Colline de Sansan, p. 28 (1853). The name does not occur in 'Comptes Rendus,' vol. iv. p. 88 (1837).

⁴ Ossemens Fossiles, 2nd ed. vol. ii. pt. i. p. 93 (1822).

⁵ *Oss. Foss. d. Darmstadt*, pt. 3, p. 49 (1834); and 'Beiträge,' 1st ed. pt. i. p. 1 (1854).

⁶ *Zool. et Pal. Françaises*, 2nd ed. p. 101 (1848-52).

⁷ *Les Enchaînements, &c.*—*Mamm. Tert.* p. 47 (1878).

⁸ *Ibid.* p. 51, fig. 46.

⁹ Filhol (*Ann. Sci. Géol.* vol. viii. art. 1, p. 126) provisionally referred to *R. tetradactylus* certain specimens from the Quercy phosphorites; but it is more probable that they belong to *R. lemanensis* (*vide infra*, p. 152).

- M. 2744.** Cast of the palate, showing the cheek-dentition of both sides. The original is from Eppelsheim and is figured by Kaup in the 'Beiträge,' pt. i. pl. iv., and the dentition of the left side in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. xiv. fig. 5. *Purchased.*
- M. 233.** The left maxilla, showing the last six cheek-teeth; from Eppelsheim. The teeth show all the characteristic features of the species, but the cingulum of the premolars is not so strongly developed as in some specimens.
Enniskillen Collection. Purchased, 1882.
- M. 236.** Fragment of the right maxilla, containing pm. 4, m. 1, and m. 2; from Eppelsheim.
Enniskillen Collection. Purchased, 1882.
- 1258.** The second and third left upper premolars; from Eppelsheim. The cingulum is very distinct.
Purchased from Dr. Kaup.
- 27464.** Fragment of the left maxilla, containing the last three premolars; from Eppelsheim.
Hastings Collection. Purchased, 1855.
- M. 2745.** Cast of part of the right maxilla, containing the first three premolars. The original is from Eppelsheim, and is figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. xiv. fig. 6. *Egerton Collection. Purchased, 1882.*
- 21017 e.** Fragment of the left maxilla, containing pm. 2 and part of pm. 3; from Eppelsheim.
Purchased from Dr. Kaup, 1847.
- M. 251.** Fragment of the right maxilla, containing mm. 4, m. 1, and m. 2; from Eppelsheim.
Egerton Collection. Purchased, 1882.
- M. 240 a.** Two specimens of the second upper premolar; from Eppelsheim. *Enniskillen Collection. Purchased, 1882.*
- 21017.** Several specimens of the second upper premolar; from Eppelsheim. *Purchased from Dr. Kaup, 1847.*
- 1256.** The second left upper premolar; from Eppelsheim.
Purchased from Dr. Kaup.
- M. 2746.** Cast of the second left upper premolar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xiv. fig. 7. *Egerton Collection. Purchased, 1882.*

- 21017 a. Several specimens of the third upper premolar; from Eppelsheim. All these teeth show a strong cingulum and two "costæ." *Purchased from Dr. Kaup, 1847.*
- M. 2747. Cast of the third right upper premolar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xii. fig. 2, as *R. schleiermacheri*. In the presence of two "costæ" and a slight cingulum it agrees, however, with the present species. *Egerton Collection. Purchased, 1882.*
11837. Cast of the well-worn third right upper premolar. The original is from the Middle Miocene of Chevilly, near Orleans (Loiret), France. *Mantell Collection. Purchased, 1836.*
- 21017 b. Several specimens of the fourth upper premolar; from Eppelsheim. *Purchased from Dr. Kaup, 1847.*
- M. 2748. Cast of the fourth left upper premolar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xii. fig. 4, under the name of *R. schleiermacheri*; it agrees, however, in character with the preceding specimens, and differs from pm. 4 of the latter (No. 21484, page 125). *Purchased.*
36991. The inner half of the fourth right upper premolar; from Eppelsheim. *Purchased, 1861.*
- 19441, 21017 c. Two upper true molars; from Eppelsheim. *Purchased from Dr. Kaup, 1845-47.*
- M. 237. The first or second left upper true molar; from Eppelsheim. *Enniskillen Collection. Purchased, 1882.*
- M. 2749. Cast of the third left upper true molar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xiv. g. 8. *Egerton Collection. Purchased, 1882.*
- M. 2370. The third right upper true molar; from Eppelsheim. *Enniskillen Collection. Purchased, 1882.*
27466. The third left upper true molar; from Eppelsheim. *Hastings Collection. Purchased, 1855.*
- 21017 d. Two third left upper true molars; from Eppelsheim. *Purchased from Dr. Kaup, 1847.*
- M. 470. The third left upper true molar; from Eppelsheim. This and the two following specimens are of small size. *Enniskillen Collection. Purchased, 1882.*

19440. The third left upper true molar ; from Eppelsheim.
Purchased from Dr. Kaup, 1845.
11841. Cast of a third left upper true molar, provisionally referred to this species. The original is from Chevilly.
Mantell Collection. Purchased, 1836.
- M. 2750. Casts of three upper incisors. The originals are from Eppelsheim and Oppenheim, and are figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. xiv. figs. 1-3.
Egerton Collection. Purchased, 1882.
11840. Cast of an upper incisor. The original is from Eppelsheim.
Mantell Collection. Purchased, 1836.
- M. 2751. Cast of the symphysis and the left ramus of the mandible. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xiv. fig. 9.
Purchased.
- M. 2752. The symphysis, left and portion of the right ramus of the mandible; from Eppelsheim. On the right side $\overline{pm.1}$ is *in situ*.
Purchased.
- M. 375. The symphysis and the left ramus of a mandible, provisionally referred to this species; from Eppelsheim. The form of the symphysis agrees with that of the cast No. M. 2751, but the alveoli for the canines are much smaller.
Egerton Collection. Purchased, 1882.
- 111 f. (O. C.). Cast of a lower canine. The original is from Eppelsheim.
Purchased.
- M. 239. A lower canine; from Eppelsheim.
Enniskillen Collection. Purchased, 1882.
- M. 253. A lower canine; from Eppelsheim.
Egerton Collection. Purchased, 1882.
32517. Fragment of the right ramus of a mandible with two molars, provisionally assigned to this species; from the Middle Miocene of Sansan (Gers), France.
Tesson Collection. Purchased, 1857.
- The following specimens, of which the originals came from Hessen-Darmstadt, are referred by Kaup to this species. Purchased.*
- M. 2753. Cast of the right magnum. Figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. xv. fig. 6.

1286. Cast of the left second metacarpal. Figured, *op. cit.* pl. xv. fig. 5.
- M. 2754. Cast of the left fifth metacarpal. Figured, *op. cit.* pl. xv. fig. 4.
1287. Cast of the distal extremity of the right femur. Figured, *op. cit.* pl. xv. fig. 1.
1288. Cast of the right calcaneum. Figured, *op. cit.* pl. xv. fig. 11.
1289. Cast of the left calcaneum.
- M. 2755. Cast of the right astragalus. Figured, *op. cit.* pl. xv. fig. 10.
1290. Cast of a smaller right astragalus. Figured, *op. cit.* pl. xv. fig. 2.
1291. Cast of the navicular, cuboid, and second and third metatarsals of the left side. Figured, *op. cit.* pl. xv. fig. 9.
- M. 2756. Cast of the first phalangeal of a lateral digit. Figured, *op. cit.* pl. xv. fig. 8.
- M. 2757. Cast of the second phalangeal of a lateral digit. Figured, *op. cit.* pl. xv. fig. 9, *e.*
- M. 2758. Cast of the terminal phalangeal of a median digit. Figured, *op. cit.* pl. xv. fig. 7.

Several of the following specimens from the Red Crag have been described under the name of R. schleiermacheri, but the strongly developed cingulum and the presence of only two costæ in the upper premolars renders it more probable that at least several of them belong to the present species.

36561. The fourth right upper premolar; from Suffolk. Figured (*Fig.*) by Owen in the Quart. Journ. Geol. Soc. vol. xii. p. 231, fig. 1 (1856). *Purchased, 1853.*
- M. 2759. The inner half of a right upper premolar; from Felixstowe, Suffolk. Figured by Owen, *op. cit.* p. 231, fig. 2. *Presented by George Ransome, Esq. Before 1856.*
48934. The fourth upper premolar; from Suffolk. *Purchased, 1878*

- 28251, 42023. The inner halves of two right upper premolars ; from Suffolk. *Purchased, 1852 and 1870.*
- 28252, 48958. Two specimens of the outer lamina of right upper true molars ; from Suffolk. *Purchased, 1852 and 1878.*
- M. 2760. Three lower true molars ; from Suffolk. Figured by (Fig.) Owen, *op. cit.* p. 232, figs. 4-6. *Purchased. Before 1856.*
- 48959, 48960. Two right lower true molars ; from Suffolk. *Purchased, 1878.*
- 27856, 28245. Two right lower cheek-teeth ; from Felixstowe. *Purchased, 1852.*
35856. The second right lower true molar ; from Suffolk. *Presented by J. Berners, Esq., 1861.*
46570. Four lower cheek-teeth ; from Woodbridge, Suffolk. *Purchased, 1878.*
46494. The second left lower premolar ; from Felixstowe. *Purchased, 1878.*

Rhinoceros goldfussi, Kaup¹.

Syn. *Rhinoceros brachypus*, Lartet².

Aceratherium goldfussi, Kaup³.

Aceratherium brachypus, Falconer⁴.

This is a large species, with well-developed canines. The upper true molars have a well-developed crenulated cingulum on the inner surface, and a less distinct one externally ; the "antecrochet" is strongly marked. There are three digits to the manus. The lower cheek-teeth have an incomplete external cingulum.

Hab. Europe.

33522. The upper cheek-teeth of the left side (wanting ___ 1), belonging to different individuals ; from the Middle Miocene of Villefranche d'Astarac (Gers), France. Noticed in 'Falconer's Palæontological Memoirs,' vol. ii. p. 361. *Purchased, 1858.*

¹ Oss. Foss. d. Darmstadt, pt. 3, p. 62 (1834).

² In Laurillard's 'Dict. Univ. d'Hist. Nat.' vol. xi. p. 101 (1849).

³ Beiträge, 1st ed. pt. i. p. 1 (1854).

⁴ Palæontological Memoirs, vol. ii. p. 361 (1863).

40743. The second right upper true molar; from the Middle Miocene of Sansan (Gers), France.
Presented by C. Falconer, Esq., 1867.
40744. The second left upper premolar; from Sansan.
Presented by C. Falconer, Esq., 1867.
27461. The third left upper true molar; probably from Sansan.
Hastings Collection. Purchased, 1855.
39921. A first and a second upper true molar, of opposite sides; from the Middle Miocene of Steinheim, Bavaria.
Purchased, 1866.
- 39921 a. The third right upper true molar; from Steinheim. This specimen agrees very closely with the one figured by Fraas in the 'Fauna von Steinheim,' pl. iii. fig. 8 (1870).
Purchased, 1866.
32526. The fourth right upper premolar; from the Middle Miocene of Touraine, France.
Tesson Collection. Purchased, 1857.
33524. An upper incisor; from Villefranche d'Astarac.
Purchased, 1858.
33523. The last five lower cheek-teeth of the right side; from Villefranche d'Astarac. These specimens belong to different individuals.
Purchased, 1858.
27454. A nearly complete mandible, in a crushed condition, provisionally referred to this species; from Sansan. The teeth agree very closely with those of No. 33523.
Hastings Collection. Purchased, 1855.
40745. A right lower true molar; from Sansan.
Presented by C. Falconer, Esq., 1867.
32528. The third left lower true molar; from Touraine.
Tesson Collection. Purchased, 1857.
- M. 2761. Cast of a left lower true molar. The original is from the Upper Miocene of Eppelsheim, Hessen-Darmstadt, and is figured by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 3, pl. xi. fig. 13. *Egerton Collection. Purchased, 1882.*
- M. 2762. Cast of a right lower true molar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. xi. fig. 14. *Egerton Collection. Purchased, 1882.*

The following specimens are provisionally referred to this species.

32525. Fragment of the shaft of a humerus ; from Touraine.
Tesson Collection. Purchased, 1857.
33527. The distal extremity of the left radius ; from Villefranche
d'Astarac. Purchased, 1858.
33537. The right cuneiform ; from Gers. Purchased, 1858.
33528. A patella ; from Villefranche d'Astarac. Purchased, 1858.
33530. The imperfect right calcaneum ; from Villefranche d'Astarac.
Purchased, 1858.
33529. The right astragalus ; from Villefranche d'Astarac. In its
transversely elongated form this specimen agrees with the
one figured by Kaup in the ' Beitrage,' pt. i. pl. ix.
Purchased, 1858.
33538. A navicular ; from Gers. Purchased, 1858.
33536. A metatarsal ; from Gers. Purchased, 1858.

Rhinoceros lemanensis (Pomel¹).

Syn. *Aceratherium lemanense*, Pomel².

This species is usually of rather larger size than *R. incisivus* ; and is distinguished by the slight development of the "crochet," which is entirely wanting in half-worn teeth ; there is a large "antecrochet." The upper premolars and the lower cheek-teeth have a strong cingulum ; and there is an incomplete one in the upper true molars. A large *Rhinoceros* from the Quercy phosphorites has been provisionally identified by Filhol (Ann. Sci. Geol. vol. viii. art. 1, p. 126) with *R. incisivus* (*tetradactylus*) ; but the specimens in the Museum from the same deposits cannot be distinguished from the present species—a circumstance much more in harmony with the respective geological age of the two species.

Hab. France.

29624. Cast of the left upper cheek-dentition, in a half-worn condition. The original is from the Lower Miocene of the Auvergne, France ; and is figured in De Blainville's 'Osteographie,' genus *Rhinoceros*, pl. xii., as *R. incisivus* d'Auvergne. The length of the series of seven cheek-teeth is 0,260.

Presented by the Paris Museum of Natural History, 1854

¹ Catalogue Methodique, p. 77 (1853), *Aceratherium*

² *Loc. cit.*

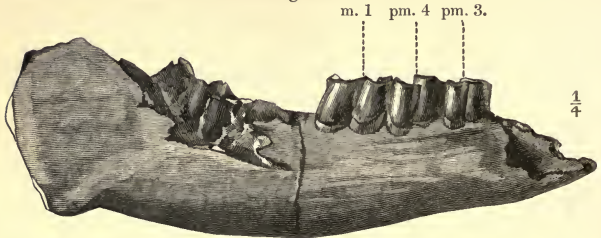
47447. Fragment of the left maxilla of a young individual, showing $\overline{\text{mm. 3}}$, $\overline{\text{mm. 4}}$, and $\overline{\text{m. 1}}$ (all imperfect); from the Lower Miocene of the Auvergne. There is small "crochet" in the unworn $\overline{\text{m. 1}}$. *Croizet Collection. Purchased, 1848.*
- M. 1455. Fragment of the right maxilla, containing $\overline{\text{m. 1}}$ and $\overline{\text{m. 2}}$; from the Upper Eocene phosphorites of Caylux (Tarn-et-Garonne), France. With the exception of being somewhat larger, these teeth agree precisely with those of No. 29624. *Purchased, 1884.*
34730. The hinder upper cheek-teeth of both sides of a small individual; from the Lower Miocene of Chaptuzat (Puy-de-Dôme), France. *Bravard Collection. Purchased, 1852.*
- M. 1456. The unworn third left upper true molar; from Caylux. *Purchased, 1884.*
- M. 1459. The first left upper premolar; from Caylux. This specimen agrees very closely with the corresponding tooth of No. 29624. *Purchased, 1884.*
- M. 1458. Three lower true molars; from Caylux. *Purchased, 1884.*
- M. 1457. Fragment of the left ramus of the mandible, containing $\overline{\text{pm. 4}}$; from Caylux. *Purchased, 1884.*
- M. 1460. The right lower canine; from Caylux. *Purchased, 1884.*
- M. 1730. Fragment of the right ramus of the mandible, containing $\overline{\text{m. 2}}$ and the first crescent of $\overline{\text{m. 3}}$; from Caylux. The cingulum is very strongly developed. *Purchased, 1884.*
34721. Part of the right ramus of the mandible, showing the last four cheek-teeth; from the Lower Miocene of Antoin (Puy-de-Dôme). The development of the cingulum is much less strong than in No. M. 1730. *Bravard Collection. Purchased, 1852.*
- 34721 a. A right lower true molar; from the Lower Miocene of Puy-de-Dôme. *Bravard Collection. Purchased, 1852.*
34741. A patella; from the Lower Miocene of Perignat (Puy-de-Dôme). *Bravard Collection. Purchased, 1852.*

Rhinoceros blanfordi, Lydekker¹.

Syn. *Aceratherium blanfordi*, Lydekker².

In this species the upper true molars have a "crochet," a very large "antecrochet," a slight "buttress," a tubercle at the entrance to the median valley, and an incomplete cingulum; in the premolars the cingulum is complete. An imperfect mandibular ramus is represented in the accompanying woodcut (fig. 18).

Fig. 18.



Rhinoceros blanfordi, Lyd.—The right ramus of the mandible of an immature individual; from the Lower Siwaliks of the Búgti Hills, N.W. frontier of India. Indian Museum, Calcutta. (From the 'Palæontologia Indica'.)

Hab. Persia³, N.W. India, Baluchistan, and China. It was first recorded from the latter country by Koken⁴, who designates the Chinese form as var. *hipparionum*.

28583. The first left upper true molar, in a well-worn condition from the Pliocene (?) of the south of China. This specimen agrees almost exactly with the slightly less worn m. 1 in the jaw figured by the present writer in the 'Palæontologia Indica,' ser. 10, vol. iii. pl. i. fig. 1; there are, however, three fossettes.

Presented by D. Hanbury, Esq., 1853.

28583 a. The inner half of the second right upper true molar; from China. This specimen agrees precisely with m. 2 in the figure quoted above.

Presented by D. Hanbury, Esq., 1853.

¹ Palæontologia Indica (Mem. Geol. Surv. Ind.), ser. 10, vol. iii. p. 2 (1884), *Aceratherium*.

² *Loc. cit.*

³ See a paper by the present writer on Persian Mammals (Quart. Journ. Geol. Soc. vol. xlii. 1886).

⁴ Pal. Abhand. vol. iii. pt. 2, p. 18 (1885).

28583 b. The inner half of a smaller first right upper true molar ; from China. This specimen agrees with m. 1 of a jaw figured by the present writer, *op. cit.* pl. ii. fig. 4.

Presented by D. Hanbury, Esq., 1853.

28583 c. A left lower cheek-tooth ; from China.

Presented by D. Hanbury, Esq., 1853.

Rhinoceros perimensis, Falconer and Cautley¹.

Syn. *Aceratherium perimensis*, Lydekker².

Rhinoceros iravadicus, Lydekker³.

Rhinoceros planidens, Lydekker⁴.

This species is of large size ; the cranium is taller and shorter than in *R. incisivus*, with short pointed nasals. In the upper cheek-teeth the true molars (fig. 19) have a strong "buttress," a large "crochet," small "antecrochet," and an incomplete inner cingulum ; in the premolars this cingulum is complete, and (as in the true molars) is frequently crenulated.

Hab. India (Perim Island, Punjab, and Siwalik Hills) and Burma.

M. 2725. Fragment of the right maxilla, containing pm. 2 and pm. 3, in a broken condition ; from the Pliocene Siwaliks of Perim Island, Gulf of Cambay, India. The teeth agree precisely with those of the specimen figured by the present writer in the 'Palæontologia Indica,' ser. 10, vol. ii. pl. ii. *Transferred from the Old Indian Museum, 1880.*

18788. Anterior half of the first left upper true molar ; from Perim Island. This tooth also agrees exactly with m. 1 of the figure cited. *Presented by Mrs. Leach, 1845.*

M. 2958. Cast of the second left upper true molar. The original (fig. 19) is from the Pliocene Siwaliks of Burma, and is preserved in the Indian Museum, Calcutta (No. C. 74⁵) ; it is figured by the present writer in the 'Palæontologia Indica,' ser. 10, vol. i. pl. v. fig. 1 (under the name of *R. iravadicus*), and vol. iii. pl. i. fig. 5.

Made in the Museum, 1886.

¹ Fauna Antiqua Sivalensis, pt. 7, pl. lxxv. (1847).

² Palæontologia Indica (Mem. Geol. Surv. Ind.), ser. 10, vol. i. p. 51 (1876).

³ *Ibid.* p. 36.

⁴ *Ibid.* p. 41.

⁵ See Lydekker, Cat. Siwalik Vert. Indian Museum, Calcutta, pt. i. p. 66 (1885).

Fig. 19.



Rhinoceros perimensis.—The second left upper true molar, in a half-worn condition; from the Pliocene Siwaliks of Burma. †.
Indian Museum, Calcutta.

- M. 258.** A much-damaged first or second right upper true molar; from Perim Island. *Purchased, 1882.*
- M. 2726.** The third right upper true molar; from Perim Island. Agrees very closely with m. 3, figured by the writer, *op. cit.* vol. ii. pl. iii. fig. 5.
Presented to the Old Indian Museum in 1847 by A. Bettington, Esq., and transferred in 1880.
- M. 258 a.** Fragment of the right maxilla of a young individual, containing mm. 3 and mm. 4; from Perim Island. The penultimate tooth agrees precisely with the one figured by the writer, *op. cit.* vol. ii. pl. iii. fig. 2. *Purchased, 1882.*
- 37256.** A fourth left upper milk-molar, provisionally referred to this species; from Perim Island. See 'Palæontologia Indica,' ser. 10, vol. ii. pl. iii. fig. 2.
Presented by C. Falconer, Esq., 1867.

37257. Part of the symphysis and the right ramus of the mandible, containing $\overline{pm.3}$, $\overline{pm.4}$, $\overline{m.1}$, and $\overline{m.2}$, all much waterworn. This specimen agrees with the one figured by the writer, *op. cit.* vol. ii. pl. iv. Presented by C. Falconer, Esq., 1867.
- M. 2724. Fragment of the right ramus of the mandible, containing $\overline{mm.4}$, $\overline{m.1}$, and $\overline{m.2}$, all broken; from Perim Island.
Transferred from the Old Indian Museum, 1880.
23150. The hinder part of the right ramus of the mandible, containing the three worn and broken true molars; from Perim Island. Presented by Walter Ewer, Esq.
- M. 2722. Fragment of the left ramus of the mandible, containing the base of $\overline{m.3}$; from Perim Island. No history.
- M. 2721. Hinder part of the left ramus of the mandible, containing (Fig.) the true molars, in a broken condition; from Perim Island. Figured by Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxvi. fig. 15. No history.
40693. Fragment of a mandible, with one broken premolar; from Perim Island. Purchased, 1867.
- M. 258 b. An imperfect right lower true molar; from Perim Island. Purchased, 1882.
- M. 258 c. The glenoidal extremity of the left scapula; from Perim Island. Purchased, 1882.
40833. The distal extremity of the left humerus; from Perim Island. Presented by C. Falconer, Esq., 1867.
40694. The proximal half of a radius; from Perim Island. Purchased, 1867.
- M. 2723. The acetabular portion of an innominate; from Perim Island. No history.
14755. The proximal extremity of the right femur; from Perim Island. Figured by Falconer and Cautley, *op. cit.* pl. lxxvi. fig. 16. Presented by Miss Pepper. Before 1846.

F. *Incertæ sedis.***Rhinoceros**, sp. a.*Hab.* India.

48932. An imperfect cranium, showing some of the milk- and some of the permanent cheek-teeth (all broken); from the

Pliocene of the Siwalik Hills, India. This specimen is noticed by the writer in the 'Palæontologia Indica' (Mem. Geol. Surv. Ind.), ser. 10, vol. iii. p. 4; it apparently belongs to the aceratherine section, and is certainly distinct from *R. perimensis*, and apparently from *R. blanfordi*.

Presented by C. Falconer, Esq., 1867.

Rhinoceros, sp. b.

Hab. Tibet. The following specimens were obtained from the Upper Pliocene(?) of Húndes, in Western Tibet¹, and were brought by traders over the Niti pass: they are not specifically determinable², and belong to the Cautley Collection. Presented, 1842.

39653 a. Fragment of the right zygoma.

39653. The glenoidal portion of the right scapula. Figured by (Fig.) Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxvi. fig. 6.

39649. Fragment of the left humerus. Figured, *op. cit.* fig. 1. (Fig.)

39650. The proximal half of the left radius. Figured, *op. cit.* fig. 3. (Fig.)

39652. The left scaphoid. Figured, *op. cit.* fig. 2. (Fig.)

39656-7. The imperfect distal extremity of the left femur, and the (Fig.) proximal end of the tibia. Figured, *op. cit.* figs. 10, 4.

39654-5. A first and second phalangeal of a middle digit. Figured, (Fig.) *op. cit.* figs. 7, 8.

Genus HYRACODON, Leidy³.

Dentition:—I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$.

On account of the presence of the full typical number of incisors, this genus is referred by Cope⁴ to a separate family—*Hyracodontidae*.

¹ See Lydekker, Rec. Geol. Surv. Ind. vol. xiv. pp. 178-184 (1881). These beds are provisionally classed in this notice as Pleistocene, but the writer now thinks they are more probably of Upper Pliocene age.

² It has been suggested in a paper by the present writer on Persian Mammals (Quart. Journ. Geol. Soc. vol. xlii. [1886]) that this form may be *R. blanfordi*.

³ Proc. Ac. Nat. Sci. Philad. vol. viii. p. 91 (1856; vol. dated 1857).

⁴ See Proc. Amer. Phil. Soc. vol. xix. pp. 379, 393 (1881).

There are apparently three digits to each foot, and there is no horn ; the teeth are like those of *Rhinoceros*.

Hyracodon nebrascensis, Leidy¹.

Syn. *Rhinoceros nebrascensis*, Leidy².

Aceratherium nebrascense, Leidy³.

This is the type species, and is about the size of *Tapirus indicus*.

Hab. North America.

29683. Fragment of the left maxilla, containing pm. 3, pm. 4, and portions of m. 1 and m. 2 ; from the Lower Miocene of the White River, Nebraska, U.S.A. *Purchased*, 1855.
44084. Fragment of the mandible with one imperfect cheek-tooth ; from Nebraska. *Purchased*, 1873.
29679. The distal extremity of a humerus, perhaps belonging to this species ; from Nebraska. *Purchased*, 1855.

The reference of the three following genera to the present family is provisional.

Genus **CADURCOTHERIUM**, P. Gervais⁴.

The complete dental formula is unknown ; the molars are rhinocerotid, but are extremely narrow in a transverse direction ; the lower molars are imperfectly crescentoid.

Cadurcotherium cayluxense, P. Gervais⁵.

Hab. France.

- M. 2419.** Two specimens of left upper true molars, and two lower (*Fig.*) molars of opposite sides ; from the Upper Eocene phosphorites of Caylux (Tarn-et-Garonne), France. These specimens (one of which is figured in the accompanying woodcut) agree with those figured by Gervais in the *Zool. et Pal. Générales*, sér. 2, pl. ix. (1876). *Purchased*, 1855

¹ Proc. Ac. Nat. Sci. Philad. vol. v. p. 121 (1850 ; vol. dated 1852) ; *Rhinoceros*.

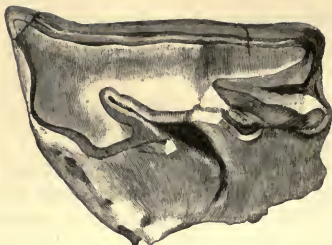
² *Loc. cit.*

³ *Ibid.* vol. v. p. 331 (1852).

⁴ Comptes Rendus, vol. lxxvii. p. 106 (1873).

⁵ *Loc. cit.* Amended from *cayluxi*

Fig. 20.



Cadurcotherium cayluxense.—A left upper true molar; from the Upper Eocene of Caylux. †.

M. 1731. Two upper and two lower true molars; from the Upper Eocene of Bach, near Lalbenque (Lot), France.

Purchased, 1884.

Genus **HOMALODONTOTHERIUM**, Huxley¹.

Dentition:—I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$. There is no diastema, and the dentition is of a generalized rhinocerotid character; the structure of the cheek-teeth being so like that obtaining in *Cadurecotherium* (although of a rather more complex type), that there can be little hesitation in placing the two genera in the same family, although the present genus is sometimes classed with *Nesodon*. No other portion of the skeleton is known.

Homalodontotherium cunninghami, Flower².

This is the only known species.

Hab. South America.

46295. The palate, showing all the dentition except the right m.2 (*Fig.*) and m.3; from Tertiary strata on the river Gallegas, south-east Patagonia. This and the next specimens are the types of the genus and species, and are described and figured by Flower in the *Phil. Trans.* for 1874, p. 173, pl. xvi.

Presented by R. O. Cunningham, Esq., M.D., 1874.

¹ *Quart. Journ. Geol. Soc.* vol. xxvi. p. lvii (1870).

² *Phil. Trans.* vol. clxiv. p. 173 (1874).

46296. The greater portion of the mandible, showing all the teeth ;
(Fig.) associated with the preceding specimen.

Presented by R. O. Cunningham, Esq., M.D., 1874.

Genus **ELASMOTHERIUM**, Fischer¹.

Dentition :—I. $\frac{?}{?}$, C. $\frac{?}{?}$, Pm. $\frac{2}{2}$, M. $\frac{3}{3}$. The skull is essentially rhinocerotie, but the cheek-teeth are taller than those of *Rhinoceros*, and thus approach those of the *Equidæ* and the *Toxodontia* (see J. F. Brandt, *Mém. Ac. Imp. St. Pétersbourg*, ser. 7, vol. viii. art. 4, 1864). The narial septum is ossified, and the frontals carry a large bony protuberance for the support of an immense horn.

Elasmotherium sibiricum, Fischer².

Syn. *Elasmotherium fischeri*, Desmarest³.

Hab. Northern Europe.

M. 1890. Cast of the cranium, wanting several of the cheek-teeth.
The original is from the Pleistocene of Novovonsensk,
Samara, Russia. *Purchased.*

M. 1891. Cast of an upper cheek-tooth. The original is from the
Pleistocene of Novovonsensk. *Purchased.*

Family CHALICOTHERIIDÆ.

The upper premolars are simpler than the true molars ; the latter (fig. 21, p. 165) usually have four columns, of which the two hindmost are frequently connected by an oblique transverse ridge, and there may be a less complete anterior transverse ridge. The crowns of all the cheek-teeth are very low, and the upper ones when worn present V-shaped dentine surfaces ; those of the lower jaw are crescentoid, and $\overline{\text{m. 3}}$ has no third lobe. In the American forms there are four digits to the pes and three to the manus. The number of the cutting-teeth presents variations analogous to those obtaining in *Rhinoceros*. On these grounds, coupled with slight differences in the form of the cheek-teeth, a large number of genera have been founded⁴ ; at least all the Old-World forms are, however, included in the present work in the type genus.

¹ Program. Moscou, 1808 ; see also *Mém. Soc. Imp. Nat. Moscou*, vol. ii. p. 255 (1809).

² *Loc. cit.*

³ *Mammalogie*, Supplement, p. 546 (1822).

⁴ See Cope, *Proc. Amer. Phil. Soc.* vol. xix. p. 396 (1881).

Genus **CHALICOTHERIUM**, Kaup¹.Including:—*Anisodon*, Lartet².*Nestoritherium*, Kaup³.

Dentition:—I. $\frac{(0-3)}{(0-3)}$, C. $\frac{(0-1)}{1}$, Pm. $\frac{3}{3}$, M. $\frac{3}{3}$. The two hinder cusps of the upper true molars are connected by a transverse ridge in the Old-World forms, although this may be very faint (*e. g.* *C. sivalense*⁴). In the closely allied North-American forms named *Palæosyops*, Leidy⁵, and *Limnohyus*, Marsh, there are four premolars and the cross-ridges are absent; but as variations of at least equal importance occur in the upper molars of the different species of *Rhinoceros*, the writer is by no means assured of the advisability of their generic separation.

Chalicotherium goldfussi, Kaup⁶.Syn. *Chalicotherium antiquum*, Kaup⁷.*Chalicotherium grande*, Gervais⁸.*Anisodon magnus*, Lartet⁹.

This is the type species, and is of large size; incisors and canines were present in both jaws. As it is difficult to draw any distinction between the type form and the smaller so-called *C. antiquum*, all the specimens are provisionally referred to one species.

Hab. Europe.

M. 2713. Cast of the third left upper true molar. The original is from the Upper Miocene of Eppelsheim, Hessen-Darmstadt, and is preserved in the Darmstadt Museum; it is the type, and is figured (reversed) by Kaup in the *Oss. Foss. d. Darmstadt*, pt. 2, pl. vii. fig. 3.

Egerton Collection. Purchased, 1882.

M. 2714. Cast of the second right upper true molar. The original is from Eppelsheim.

*Egerton Collection. Purchased, 1882.*¹ *Oss. Foss. d. Darmstadt*, pt. 2, p. 4 (1833).² Notice sur la Colline de Sansan, p. 30 (1851).³ Beiträge, pt. 4, p. 3 (1859).⁴ Cope, *op. cit.*, says that there is no transverse ridge in this species, for which he retains the name *Nestoritherium*.⁵ See 'Extinct Vert. Fauna, Western Territories' (Rep. U. S. Geol. Surv.), pl. iv.⁶ *Oss. Foss. d. Darmstadt*, pt. 2, p. 4 (1833).⁷ *Ibid.* p. 6.⁸ Zool. et Pal. Françaises, 1st ed. vol. i. p. 91 (1849-52).⁹ Notice sur la Colline de Sansan, p. 30 (1851).

- M. 2715.** Cast of the imperfect third left upper true molar. The original is from Eppelsheim.
Egerton Collection. Purchased, 1882.
- M. 2716.** Cast of a smaller third right upper true molar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. vii. fig. 6, under the name of *C. antiquum*, of which it is the type.
Egerton Collection. Purchased, 1882.
- M. 2717.** Cast of the much-worn first left upper true molar. The original is from Eppelsheim.
Egerton Collection. Purchased, 1882.
- 40821.** Cast of a fragment of the left maxilla, showing the last four cheek-teeth. The original is from the Middle Miocene of Sansan (Gers), France. The teeth correspond in size to Kaup's *C. antiquum*.
Presented by C. Falconer, Esq., 1867.
- M. 2720.** Cast of the third right upper premolar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. vii. figs. 8, 9 (as a lower incisor¹).
Egerton Collection. Purchased, 1882.
- 40821 a.** Cast of a fragment of the left ramus of the mandible, showing $\overline{pm. 4}$, $\overline{m. 1}$, and $\overline{m. 2}$. The original is from Sansan, and belongs to Lartet's so-called *Anisodon magnus*.
Presented by C. Falconer, Esq., 1867.
- M. 2719.** Cast of a fragment of the left ramus of the mandible of an immature individual, showing three milk-molars. The original is from Eppelsheim.
Egerton Collection. Purchased, 1882.
- M. 2718.** Cast of the third left lower true molar. The original is from Eppelsheim, and is figured by Kaup, *op. cit.* pl. vii. fig. 5 (as $\overline{m. 2}$)²; it is of very large size.
Egerton Collection. Purchased, 1882.
- 21878.** A first or second left lower true molar; from Sansan.
Croizet Collection. Purchased, 1848.
- 40764.** A first or second left lower true molar; from Sansan.
Presented by C. Falconer, Esq., 1867.

¹ See 'Falconer's Palæontological Memoirs,' vol. i. p. 218 (1868).

² *Ibid.* p. 220.

Chalicotherium sivalense, Falconer and Cautley¹.Syn. *Anoplotherium sivalense*, Falconer and Cautley².*Nestoritherium sivalense*, Kaup³.*Dentition* :—I. $\frac{0}{0}$, C. $\frac{0}{1}$, Pm. $\frac{3}{3}$, M. $\frac{3}{3}$.

This species is equal in size to the smaller individuals of the preceding; the antero-internal column of the upper true molars is relatively larger, and the ridge connecting the two hinder columns shorter and lower. The species is the type of *Nestoritherium*.

Hab. India.

15366-7. The two halves of the palatal portion of the cranium, (Fig.) showing on the left side the last six, and on the right the last four cheek-teeth; from the Pliocene of the Siwalik Hills. This specimen is described and figured by Falconer and Cautley in the Proc. Geol. Soc. vol. iv. p. 235, pl. ii. figs. 1, 2 (1843); and is also figured in the 'Fauna Antiqua Sivalensis,' pl. lxxx. figs. 2, 3, and in 'Falconer's Palæontological Memoirs,' vol. i. pl. xvii. figs. 1, 2.

Cautley Collection. Presented, 1842.

M. 2710. Cast of the anterior portion of the cranium, with the mandible attached. The original is from the Siwalik Hills, and is preserved in the Museum of Mareschal College, Aberdeen; it is described by Falconer and Cautley, *op. cit.*, and is figured in the 'Fauna Antiqua Sivalensis,' pl. lxxx. fig. 1, and in 'Falconer's Palæontological Memoirs,' vol. i. pl. xvii. figs. 3-5. *No history.*

36734. Part of the symphysis and the left ramus of the mandible (Fig.) of an immature individual, showing the last four cheek-teeth; from the Siwalik Hills. Described by Falconer and Cautley, *op. cit.*, and figured *op. cit.* pl. lxxx. fig. 4, and xvii. figs. 6, 7. *Cautley Collection. Presented, 1842.*

M. 2711. An axis vertebra, provisionally referred to this species; (Fig.) from the Siwalik Hills. Figured (without determination) by Falconer and Cautley in the 'Fauna Antiqua Sivalensis,' pl. lxxxiii. fig. 13.

*Presented by Gen. Sir W. E. Baker, K.C.B., 1848.*¹ Trans. Geol. Soc. ser. 2, vol. v. p. 502 (1837); *Anoplotherium*.² *Loc. cit.*³ Beiträge, pt. 4, p. 3 (1859).

M. 2712. The distal extremity of a right femur, provisionally referred to this species; from the Siwalik Hills. Figured (*Fig.*) (without determination) by Falconer and Cautley, *op. cit.* pl. lxxxiii. fig. 4.

Presented by Gen. Sir W. E. Baker, K.C.B., 1848.

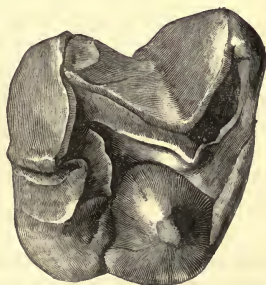
Chalicotherium sinense, Owen¹.

This species is known only by two upper molars, which are rather larger than those of *C. sivalense*, and present certain differences which are regarded as of specific value (see Koken, Pal. Abhand. vol. iii. pt. 2, p. 17 [1885]). Till the anterior dentition is known its full affinity cannot be determined.

Hab. China.

41934. The third right upper true molar, in an early condition of wear; from a cavern near Chung-king-foo, Sechuen, N.W. China. This specimen (woodcut, fig. 21) is the type, and

Fig. 21.



Chalicotherium sinense.—The third right upper true molar; from the Pliocene (?) of China. †.

is described and figured by Owen in the Quart. Journ. Geol. Soc. vol. xxvi. p. 429, pl. xxix. figs. 7–10.

Purchased from R. Swinhoe, Esq., 1870.

¹ Quart. Journ. Geol. Soc. vol. xxvi. p. 429 (1870).

Family MACRAUCHENIIDÆ.

Of this family only the type genus is at present known, and the characters of the latter may therefore be taken as those of the former¹.

Dentition:—I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$.

The cheek-teeth are rhinocerotine, the upper true molars presenting two external V's and two transverse crests; there is only a very short diastema in the upper jaw. The cervical vertebræ resemble those of the *Camelidæ* in the position of the vertebrarterial canal, but the extremities of their centra are flat. The fibula articulates with the calcaneum (a character not known in any other Perissodactyle); and there are three digits to each foot, the lateral digits being of large size. Schlosser² regards the structure of the limbs as extremely primitive, and the dentition as more specialized.

Genus **MACRAUCHENIA**, Owen³.

Macrauchenia patachonica, Owen⁴.

This is the type species.

Hab. South America.

19950. The greater part of the left ramus of the mandible, showing (*Fig.*) all the cheek-teeth except $\overline{\text{pm. 1}}$; from the Pleistocene of Buenos Ayres. Described and figured by Owen in his 'Odontography,' p. 35, pl. cxxxv. fig. 7, and in the Phil. Trans. for 1870, p. 79, pl. viii. figs. 1-3.

Purchased, 1846.

43247. The distal half of the right humerus; from the Pleistocene of Buenos Ayres.

Presented by Señor L. J. Fontana, 1871.

M. 2706. Cast of the right metacarpals and many of the phalangeals. The original of these and the other casts are the type specimens, and are preserved in the Museum of the Royal College of Surgeons; they were obtained from the Pleistocene of Port St. Julian, Patagonia, and are described and figured in the 'Voyage of the Beagle.'

Presented by the Royal College of Surgeons.

¹ See Burmeister, 'Descripcion de la *Macrauchenia patachonica*' (Buenos Ayres, 1864).

² Zool. Anzeig. no. 210, 1885.

³ Zoology of H.M.S. 'Beagle,' pt. i. p. 35 (1840).

⁴ *Loc. cit.*

M. 2707. Cast of the right femur.

Presented by the Royal College of Surgeons.

43233. The distal half of the left femur; from the Pleistocene of Buenos Ayres. *Presented by Señor L. J. Fontana, 1871.*

40085. The right calcaneum; from the Pleistocene of Buenos Ayres. *Purchased, 1860.*

M. 2708. Cast of the right astragalus.

Presented by the Royal College of Surgeons.

M. 2709. Cast of a middle cervical vertebra.

Presented by the Royal College of Surgeons.

The serial position and the right to distinction of the three following Suborders is provisional, and subject to future revision.

Suborder TOXODONTIA.

The members of this group, which is provisionally regarded as of subordinal value, present extremely generalized characters. Thus *Nesodon* shows indications of affinity with the Perissodactyla by its dentition; *Toxodon* is related to the Artiodactyla by its cranium, and with the Proboscidea, and perhaps Amblypoda, by its foot-structure; while *Typrotherium* has considerable resemblance to a rodent. The femur of *Toxodon* has no third trochanter, and the fibula articulates with the calcaneum. Cope¹ suggests affinity with the Condylarthra and Hyracoidea, the structure of the carpus being apparently similar (*vide infra*, p. 172).

Family TOXODONTIDÆ.

Genus NESODON, Owen².

Dentition:—I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$. The dentition of this genus connects *Toxodon* with *Homalodontotherium* and *Macrauchenia*. The incisors have short crowns, and the true molars a complex, rhinoceroid structure. The limb-bones are unknown. Four species are recognized by H. Gervais and Ameghino³.

¹ Proc. Amer. Phil. Soc. vol. xx. p. 444 (1882).

² Rep. Brit. Assoc. for 1846, p. 66 (1847).

³ Mammifères Fossiles de l'Amérique Méridionale, pp. 105-107 (1880).

A D D E N D A.

Family RHINOCEROTIDÆ (page 90).

Genus **RHINOCEROS** (page 91).

Atelodine group (page 92).

Rhinoceros karnuliensis, Lydekker¹.

This is a small brachydont species, apparently allied to *R. etruscus* but presenting some approximation in the form of the mandibular symphysis to *R. bicornis*.

Hab. India (Madras).

M. 2955. Casts of the second and third left upper true molars, and part of the symphysis and right ramus of the mandible. The originals (which are the types) were obtained from the caves of Billa Surgam, Karnul district, Madras, and will be described and figured by the present writer in the 'Palæontologia Indica,' ser. 10, vol. iv. pt. 2, pl. x.

Made in the Museum, 1886.

Incertæ sedis.

Rhinoceros, sp. c.

Hab. Formosa.

M. 2956. Fragment of a mandibular ramus and one half of the atlas vertebra; from Tertiary (?) beds in Formosa.

By exchange, 1885.

¹ Rec. Geol. Surv. Ind. vol. xix. part 2 (1886).