

same individual. Both are broken, but conversely, *i.e.* the anterior end of 877 and the posterior of 878, so that jointly they give the complete form of one tooth. They agree in both showing the crochet of the posterior barrel stretching across to join the anterior barrel, as in Cuvier's drawing.<sup>1</sup> They are quite unlike *R. tichorhinus*, and I believe that they agree with *R. hemitæchus*.

X.—NOTE ON RHINOCEROS HEMITÆCHUS FROM CRAWLEY ROCKS.

Oxford, 11th August, 1863.

The Crawley Rocks Rhinoceros tooth in the Oxford Museum is a very fine penultimate or last premolar of *R. hemitæchus*, upper jaw, right side, with crochet in two combing plates. Length of crown outside, 1.74 in.; do., inner side, 1.25 in. The tooth is beautifully marked, and ought to be figured. The valley is very deep. In the Kirkdale series, besides the large worn molar there are two premolars, both germs, the one exactly corresponding in size and form with the Crawley Rock premolar, but intact, and has only one developed combing plate; the second is also an intact germ of the antepenultimate premolar, left side, of the same species; the entrance of the valley here also being vertical. Both these specimens profess to be from Kirkdale, but they differ in mineral appearance from the other. They bear no label, and they agree in condition exactly with the Crawley Rocks specimen. Can there be a mistake? Are they from Gower?

Oxford Museum, 5th July, 1860.

Saw one premolar of *Rhinoceros hemitæchus*, well marked, in a drawer, and labelled 'Crawley Rocks.'

II. NOTES ON RHINOCEROS ETRUSCUS. (FALC.)

(Extracted from Dr. Falconer's Note-books.)

I.—NOTE ON RHINOCEROS ETRUSCUS IN OXFORD MUSEUM.<sup>2</sup>

6th May, 1858.

In Buckland's collection there is a left upper maxillary and half palate of a Rhinoceros labelled '*Rhinoceros leptorhinus* from Venice,' in a hard ferruginous matrix of gritty sandstone. It contains four molars *in situ*, namely, p.m. 3 and 4, and t.m. 1 and 2, and also the broken-off discs of p.m. 2 and t.m. 3. The two premolars are of the second set and half worn. The first true molar is much worn; the penultimate is half worn. The enamel is very smooth, and the teeth are smaller than in the Kirkdale specimen. There is a considerable basal bourrelet at the anterior end of the last premolar and of the penultimate true molar. There are no combing processes whatever projecting into the transverse valley, and no appearance of cement. It reminds me of Ansted's specimens from Malaga. (See p. 360.) The outer surface of the two true molars from the termination of the valley is gone, but it shows the transverse valley well. The first true molar has its anterior outer corner broken, and the third and fourth p.m. have their

<sup>1</sup> See *antea*, p. 337.—[Ed.]

<sup>2</sup> See p. 348, *note*.—[Ed.]

## DESCRIPTION OF PLATE XXV.

### RHINOCEROS HEMITÆCHUS AND RHINOCEROS ETRUSCUS.

Fig. 1. Outer surface of left ramus of young lower jaw of *R. hemitæchus*, with greater part of symphysis and whole of horizontal ramus, and containing the first four milk molars. The figure is one-half of the natural size, and has been copied from a drawing of the original specimen executed for Dr. Falconer by Mr. Dinkel. The specimen is from 'Minchin Hole,' and is described at page 352.

Figs. 2, 3, and 4. Represent upper milk molars of *R. hemitæchus*, from 'Minchin Hole,' of the natural size, copied from drawings of the original specimens executed for Dr. Falconer by Mr. Dinkel. (See page 352.) Fig. 2 shows the second and third milk molars. Fig. 3 is a germ of the second milk molar. Fig. 4 is a detached third milk molar.

Figs. 5, 6, and 7. Represent three upper molars of *R. Etruscus*. The drawings have been made by Mr. Dinkel from three casts presented to Dr. Falconer by Professor Meneghini, of Pisa, and now in the British Museum. They are of the natural size. Fig. 5 shows the crown of the last (t. m. 3) upper molar of the left side. Fig. 6 is the last upper premolar (p. m. 4), right side. Fig. 7 is the penultimate upper molar (t. m. 2), right side, mutilated at posterior outer angle.

Fig. 1.

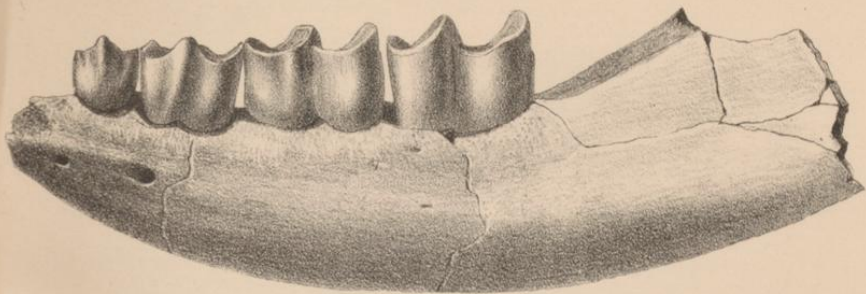


Fig. 2.

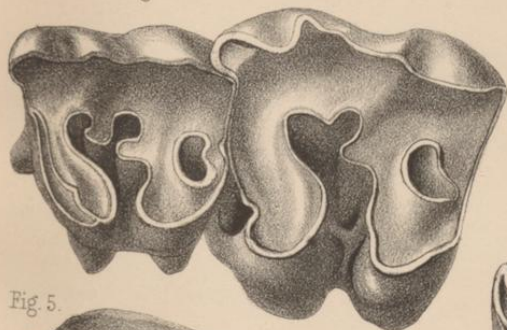


Fig. 3.

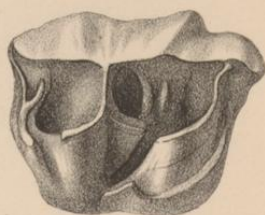


Fig. 4.

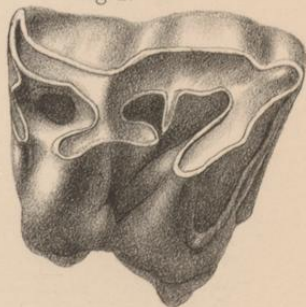


Fig. 5.

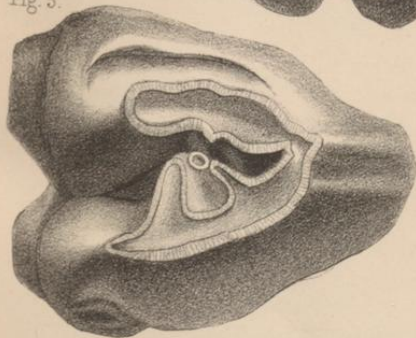


Fig. 7.

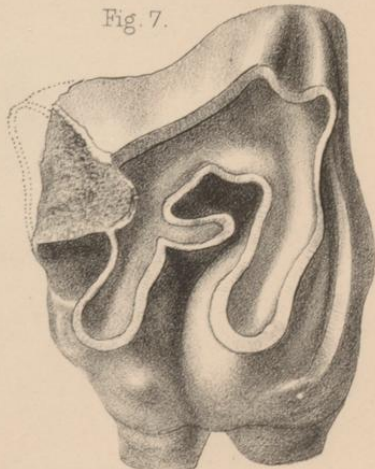
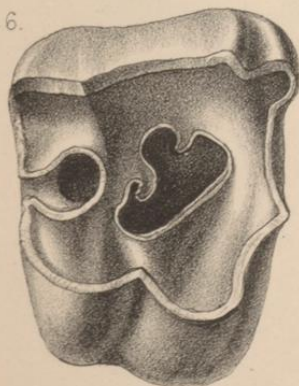


Fig. 6.



J. Dinkel del. et lith.

1, 2, 3, 4 Rhinoceros hemitoechus, Gower Caves.  
5, 6, 7. Rhinoceros Etruscus from Pisa.

W. West imp.

outer surface as to the valley broken off. There is a little mammilla between the barrels of the first and second true molars. In the third and fourth p.m. the end of the valley is only a very slight cleft; in the true molars it is an open flexuous fissure.

*Dimensions.*—Length of 5 teeth (2nd p.m. to end of 2nd t.m.), 7·5 in. Length of 2nd t.m. at middle, 1·85 in. Width in front, 2·2 in.

Can this really be from the Sub-Apennines?

## II.—COMPARISON OF RHINOCEROS OF NORWICH LACUSTRINES WITH 'VENICE' UPPER JAW IN OXFORD MUSEUM.

7th May, 1858.

Compared the Rev. Mr. Gunn's detached upper molar (Pl. XXII. fig. 5) from the Norwich lacustrines with the upper jaw labelled '*Rh. leptorhinus* from Venice' in Buckland's collection, and found the most important agreement. Gunn's also belongs to the left side. In form Gunn's would agree best with the last premolar from the smaller size of the posterior barrel, but unluckily the fracture of the outer surface of the Venice fossil prevents a rigid comparison. They agree in the following important points:—1. Exact similarity of smooth enamel surface. 2. Decided anterior basal bourrelet, worn down in Gunn's. 3. Like thinness of enamel. 4. Sweep antero-posteriorly of termination of large valley, and its nearly isolated form. 5. Openness of gorge of transverse valley.

### *Dimensions.*

	Gunn's specimen	Venice second true molar
Length of outer side at constriction . . . . .		1·8
Length of inner side . . . . .		1·6
Breadth near middle, anterior barrel . . . . .		about 2·2
Breadth behind, at base of crown . . . . .		2·2
		First true molar
Length of outer side (greatest) . . . . .	2·0	1·75
Length at constriction . . . . .	1·75	1·6
Length of inner side . . . . .	1·85	1·7
Breadth of middle, anterior barrel . . . . .	2·2	2·2 nearly
Breadth behind at base . . . . .	1·9	2·15
Height of enamel crown, posteriorly . . . . .	1·2	1·

Norwich, July, 1863.

Examined the Rhinoceros jaw in Fitch's collection. It belongs to *R. Etruscus*. M. Lartet detected in it the remains of the large mental foramina. 'Got at Anderson's the fisherman's a portion without ends of a femur of an old *R. Etruscus*, very characteristic.'

## III.—DESCRIPTION OF CRANIA OF *R. ETRUSCUS* IN THE GRAND DUCAL MUSEUM AT FLORENCE (PLATES XXVI. AND XXVII.).

18th May, 1859.

In the Museum at Florence is preserved a superb skull of *Rhinoceros Etruscus* from the Val d'Arno, nearly entire; two-horned, and very old. There are six molars on either side, of which even the last is worn to the base. The skull is very little crushed, and there are very few restorations. The nasals are perfect to their very tips on one side,

and are slightly emarginate and arched at the side, very much as in *R. tichorhinus*. They send down a vertical bony partition, which is deepest in front; the posterior part is broken, but does not appear to have been ever complete behind (only partial); what remains occupies one half of the nasal echancre. The incisive bones are broken off, but on the right side a considerable portion of the diasteme remains. The arch of the nasals is higher than in *R. tichorhinus*; and the greatest height of the septum is in front—the septum being lower behind, which is the very reverse of what is observed in *R. tichorhinus*. The broken part of the incisives has been badly restored in coloured gypsum, but the join is easily recognizable. Compared with the Lyons skull of *R. megarhinus* (Plate XXXI. fig. 3), the Florence head is considerably smaller in all its dimensions, and the lower jaw and teeth are in keeping. Viewed from the top, the skull in contour resembles more that of the *R. tichorhinus* (Cuv., 'Oss. Foss.,' Pl. 160, fig. 5, and Gervais of the Montpellier skull, 'Trans. Acad. Montp.' tom. xi. Pl. E. fig. 2) than any of the others. Length from about outer margin to occipital crest, 14 in., and from ditto to tip of nasals about 12.5 in., or as 7 : 6.

The nasal horn rugosity is enormous, projecting greatly at its central nucleus; then there is a smooth interval of about three inches, and then an indistinct and not much raised rugosity for a second horn. This frontal horn was probably small; and there is here nothing like the enormous confluent rugosity of *R. tichorhinus*. The right orbit with rim is nearly entire, but the tubercles are broken off; they are smoothly restored on left side. The maxillary bone on right side is a little crushed below the infra-orbitary foramen. The zygomatic arches are quite entire, thin and high, and but little crushed. The articular surfaces are also entire on both sides. There is only a slight rise for the frontal horn between the orbits. The frontal and sincipital surfaces are smooth, with a tablet showing about the same width as in Gervais, Tab. 11, fig. 2; the two bounding ridges are visible but indistinct. (There is some restoration between the temporal arches on both sides.) There is hardly any sincipital pyramid, but the occiput is slightly crushed on the left side. The occipital plane rises nearly vertically, but is overarched at the sides by the projecting occipito-parietal crest, and an easy echancre in the middle. This part of the skull is formed very much after Gervais' figure above quoted. The occipital plane is wide, and very low as compared with width. (Some little plaster restoration on right side.)

Florence, 19th May, 1859.

The skull of *Rhinoceros Etruscus* in the Florence Museum has the following characters (see Plates XXVI. and XXVII.):—

1. It is smaller and more slender than the horned rhinoceros of Sumatra (Cuv. Pl. IX. *Rhin.*).
2. The cerebral portion is very elongated and shelving behind over a vertical occiput; it is but little elevated behind.
3. The skull is very flat from the occipital crest forwards; there is no pyramid properly so called (*vide* 'Dimensions').
4. The posterior surface of the occiput (when the skull is placed upon the plane of the teeth) is inclined forwards, and is overarched by the shelving occipital crest (Plate XXVI. fig. 1).
5. The nasal bones are more elongated than in the Cape species;

## DESCRIPTION OF PLATE XXVI.

### RHINOCEROS ETRUSCUS.

Three different views of cranium in the Florence Museum, one-fifth of the natural size. Fig. 1. Upper surface. Fig 2. Profile view, showing well the incomplete nasal septum. Fig. 3. Lower surface, showing palate and series of six molars on either side well worn. These figures have been copied by Mr. Dinkel from drawings executed for Dr. Falconer by Vincenzo Stanghi, artist at Florence. (See page 356.)

Fig. 1.

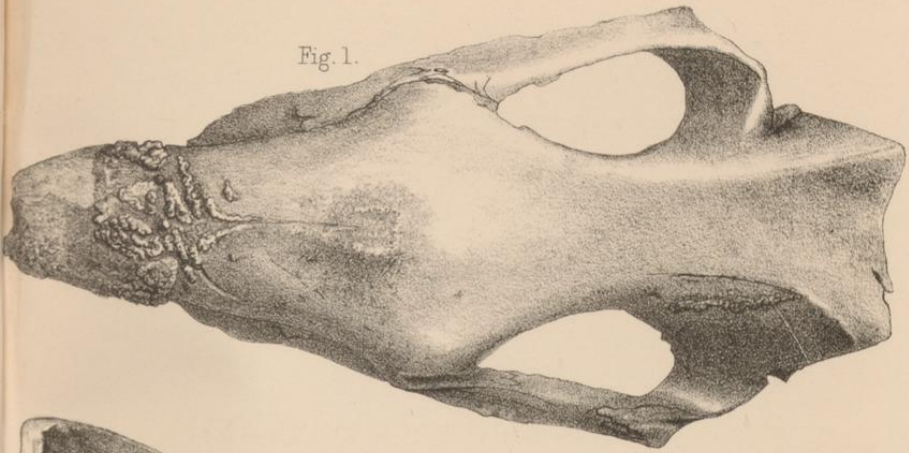
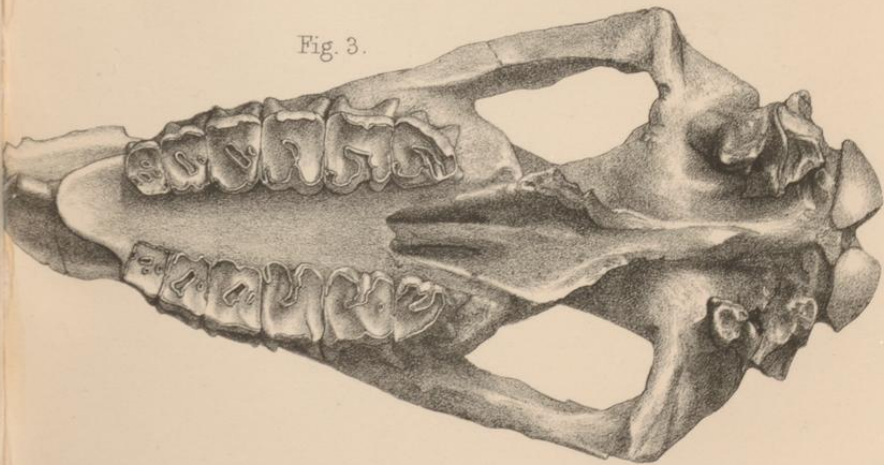


Fig. 2.



4.  
10

Fig. 3.



DESCRIPTION OF PLATE XXVII.

RHINOCEROS ETRUSCUS.

Views of cranium, lower jaw, and teeth in the Florence Museum. The figures have been copied by Mr. Dinkel from drawings executed for Dr. Falconer by Vincenzo Stanghi, artist at Florence. (See page 356.)

Fig. 1. Posterior view of cranium represented in Plate XXVI., showing occiput, zygomatic arches, occipital condyles, and foramen magnum, one-fourth of the natural size.

Fig. 2. Profile view of lower jaw, outer surface, one-fourth of the natural size.

Fig. 3. Same lower jaw, viewed from above, showing crowns of molars far advanced in wear, one-fourth of the natural size.

Fig. 4. Symphysial portion of same lower jaw, viewed from below, one-fourth of the natural size.

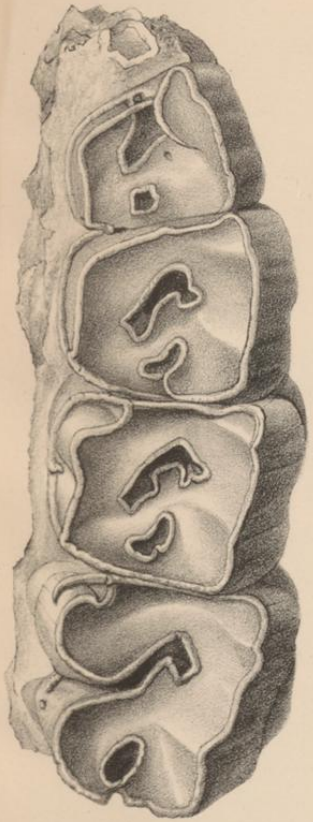
Fig. 5. Four molars of upper jaw, left side, smaller and less advanced in wear than those in skull represented in Plate XXVI., fig. 3. Three-fourths of the natural size. (The dimensions almost correspond to those given in page 359.)

Fig. 5.

Fig. 1.



Fig. 5.



5/6

Fig. 1.



Fig. 2.

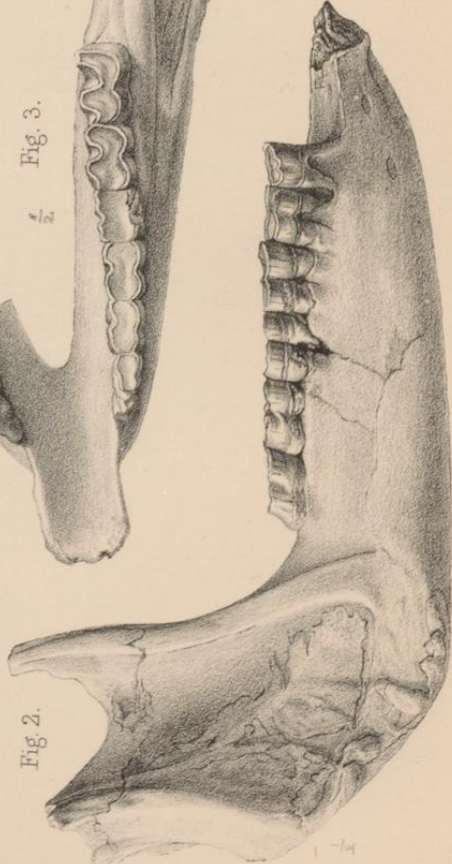


Fig. 3.

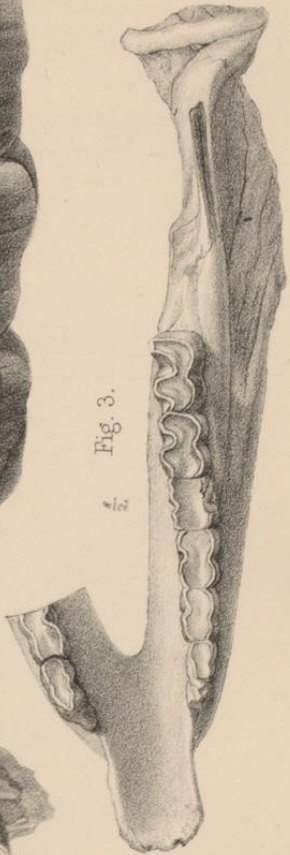


Fig. 4.



Saunders and J. Deibel lith.

Rhinoceros Etruscus.

W. West. imp.

they are vaulted forwards, but not uniformly, as in *R. tichorhinus*; they are bifid at the apex and then throw down a septum which terminates below in a thick knob (Plate XXVI. fig. 1), and is incomplete behind (*vide* 'Dimensions'). The nasal horn is very rough and overlaps the sides of the nasals with an excessively rugous conical raised nucleus; there are no *ramures*, as in *R. tichorhinus* and *R. megarhinus*; the edges of the nasals are thin and arched; the nasal echancre is narrow at the bottom, and then arches high forwards, followed below by a rim on either side of the septum.

6. The zygomatic arches in front are nearly horizontal; then the posterior part rises upwards in the arch to the glenoid surface, but not nearly so much as in *R. megarhinus*. (In the detached maxillary and orbital fragment there is a distinct post-orbital tuberosity defining the orbit behind.)

7. The temporal fossæ are very much as in Cuvier's fig. of *R. tichorhinus*, fig. 5, Pl. IX. *Rhin.*; and in the two-horned Sumatra Rhinoceros, fig. 3.

8. The incisive bones join on to the septum, but are broken. (In the right maxillary specimen, 2.2 inches of diasteme remain.) There are no upper incisors apparent, as certainly there are none in the lower jaw.

9. The orbit is placed mostly above the seventh molar, but its anterior border advances as far as the middle of the sixth or penultimate molar in the large skull. (In the right maxillary fragment it advances only to the rear part of the sixth molar; the same remark applies to the skull in two pieces.)

10. The suborbital foramen is situated between the third and fourth premolars in the large skull. In the maxillary fragment of the head in two pieces it is over the fourth premolar, close to the nasal echancre between third and fourth premolars.

11. The auditory foramen is large and in a line with the upper edge of the zygomatic arches.

Viewed above, the skull is very like that of *R. tichorhinus*, but it is not so wide and the nasals are more elongated. The interval also between the orbits is narrower, and the cerebral portion longer. The temporal fossæ are of considerable extent; their bounding edges being less defined than in *R. tichorhinus*; they are nearly parallel in the middle, but diverge into the occipital crest behind, and into the orbits in front, as in *R. tichorhinus*. The frontal tableau is longer and less pronounced; it is less broad than in *R. tichorhinus*, but wider than in *R. Indicus*. There is no hole with *ramures* to the nasal horn. The occiput is inclined in front with two diverging ridges and a deep depression; but is shelved over by the projecting crest.

*Measurements of the Rhinoceros Skull and Lower Jaw, at Florence.*—SKULL.—Length of 6 last molars, right side, 8.8 in. Length of 3 last (true) molars, right much worn, 5.0 in. Length of 3 premolars, 4 in. Total length of skull from occipital lateral crest, measured along chord to overhanging tip of nasal, 25.25 in. Total length of ditto from posterior surface of occipital condyle to tip of nasals (vertical plane), 25 in. Total length from nasal echancre left side to tip of nasals (by callipers), 7.7 in. Total length from nasal echancre (left) to anterior border of orbit (exactly), 4.5 in. Total length from anterior border of right orbit to occipital crest (lateral), 14.0 in. Total length from anterior border occipital foramen to palatine echancre, 12 in. From palatine echancre to tip of nasals, 12 in. Greatest width across zygomatic arches in line with articular surface, 12.75 in.

Extreme length of right temporal cavity taken at base of skull, 5.2 in. Greatest width of ditto between pterygoid and inside of zygoma, 4.4 in. Greatest constriction of skull between zygomatic arches, 4 in. Length from posterior surface of occipital condyle, to apex of pterygoid alar process, 9.4 in. From ditto to posterior boundary temporal fossa below (edge of articular), 6.4 in. Length of diasteme remaining, right side, 1.5 in. Interval of palate between p.m. 2, 1.5 in. Interval between outer surfaces (posterior end) of p.m. 2, 4.7 in. Interval between anterior barrels of last molars, 2.5 in. Interval between outer surfaces of ditto, 6.6 in. Transverse extent of articular surface of glenoid, 3.9 in. Stretch across condyles to outer border, 5.2 in. Height of occipital crest, right side, from lower surface of condyle, 6.5 in. Height of right styloid (left a little broken), about 2.1 in. Interval between ditto, inside, at apex, 3.8 in. Length from palatine echancre to posterior edge pterygoid alae at base, 5.8 in. Length from posterior surface condyle to posterior surface of last molar, 11.6 in. Constriction of skull below auditory foramina, 7.1 in. From anterior border, right orbit, to tip of nasals, about 12.5 in. Length of zygomatic arch from posterior fang of 6th molar or penultimate, in a line with anterior margin of orbit, to border of auditory foramen, approximately, 10 in. Antero-posterior extent remaining of septum, upper margin, 4.7 in. Antero-posterior extent remaining at middle, about 4.2 in. Width of brow between orbits (right half, 4.5), 9.0 in. Interval between sincipital ridges in line with ear, 2.5 in. Width of nasals in middle of anterior horn at base, 4.45 in. Width of nasals in line with echancre, 4.25 in. Height from diasteme to edge of nasal arch, 3.9 in. Length from posterior angle (tuberosity) of right orbit to occipital crest, 11.4 in. Height of skull from right condyle to right occipital crest, 6.5 in. Width of occiput near the apex, 6.3 in. Vertical height, right orbit, 2.1 in. Diameter of ditto from post-orbitary process to anterior border (obliquely), 2.7 in. Height of septum from upper surface of incisives to nasal arch, at one inch from premolar, 2.5 in. From tips of nasals to suborbitary (posterior orbit) apophysis, about 1.5 in. Interval between inner borders of glenoid surfaces, 6 in. Width of zygomatic arches outside, in line with anterior boundary of temporal fossa, left, (end of last molar), 10.4 in. Width of ditto at middle, 11.5 in. Greatest width in line of glenoid surface, 12.2 in. Height of frontal chord at middle of frontal horn (chord stretches over apex of horn), 1.5 in. Height of frontal chord behind ditto, 2 in. Height between horns in middle, 1.8 in. Height in line with posterior boundary of temporal fossa, 1.1 in. Height of chord from middle of occipital crest to smooth surface at posterior boundary of front horn, at middle, 0.55 in. Height of chord from ditto to between horns, .45 in. Height from ditto to behind the horn depressed (broken?) 1.3 in. Width of maxillary over last premolar, 6.7 in. Width of ditto at commencement of zygomatic arch, 9.7 in. Greatest width of zygomatic arches, 13.2 in. Greatest thickness of nasals to salient point of disc knob, 2.9 in. Medium thickness of ditto to base of conical knob, 2.15 in. Height of septum from tuberosity in front and below to edge of nasals, near tips, 3.3 in.

LOWER JAW (see Plate XXVII).—Entire length of jaw, from posterior margin of ascending ramus to symphysis, 19.25 in. Height of ascending ramus to top of coronoid, 10 in. Breadth of ascending ramus, 5.4 in. Length of line of molars (six last), 8.5 in. Length of three last molars, 4.9 in. Length of three premolars, 3.5 in. Length of last true molar, 1.55 in. Length of penultimate ditto, 1.6 in. Length of antepenultimate, 1.5 in.

Florence, 20th May, 1859.

The Florence Museum also contains a palate specimen of a young *Rhinoceros Etruscus*, showing on the right side the four milk molars emerged, of which the first three are very slightly affected by wear, the fourth is hardly emerged from the gum, and is in a state of germ. The second and third have each a small intercolumnar tubercle, but no basal *cingulum* sweeping round the inside of the barrels. On the left side there are only the first and second milk molars, with the anterior part of the third.

Dimensions.—Length of the four teeth, 5.7 in. Length of first, 1 in. Width of ditto, .08 in. Length of second, 1.5 in. Greatest width of ditto, 1.3 in. Length of third, 1.8 in. Width of ditto, 1.6 in. Length of last, 1.9 in.

Another fine palate specimen in the same Museum is a little more advanced in age, showing on the left side the four milk molars, in place, and all more or less worn, together with the germ of the first true molar not out of the gum. On the right side there are only the last four of these teeth. The three anterior milk molars are worn nearly in the same degree; the first, being the least worn, shows three distinct fossettes; the second also shows three fossettes, the middle one of which is caused by the confluence of the 'crochet' with the outer combing plate. Both these teeth show an intercolumnar tubercle, and the crochet forms a very open angle with the hind barrel; the same is the case with the last milk molar, which shows no intercolumnar tubercle. None of these milk molars have any internal basal *cingulum*; the intercolumnar tubercle is most pronounced in the antepenultimate or second.

*Dimensions.*—Length of four milk molars, 5·8 in. Length of first, 1·1 in. Length of second, 1·5 in. Length of third, 1·7 in. Width of ditto in front, 1·7 in. Length of fourth, 1·9 in. Width of ditto in front, 1·7 in. Length of first true molar, 2 in.

All these specimens are labelled 'Rinoceronte a parete internasale, ou Rhinoceros tichorhinus, Cuvier.'<sup>1</sup>

IV.—MEMORANDUM OF REMAINS OF RHINOCEROS ETRUSCUS, ETC., IN MUSEUM AT PISA. (See also Plate XXV. figs. 5, 6, and 7.)

22nd May, 1859.

The cast of the skull of the Rhinoceros with the partial septum is not of *R. hemitechus*,<sup>2</sup> but of the Val d'Arno species (*R. Etruscus*). The original, which has since been much mutilated, is still preserved in the Florentine Museum. The cast is wonderfully perfect in what concerns the septum, which is distinctly limited to the anterior half, and terminates in a thickened portion united to the incisive bone. (See Pl. XXVIII. fig. 1.)

The posterior part of the skull is wanting. On one side there are no teeth, but on the other the premolars and one molar remain. The teeth are worn low, but in the remaining molar the crochet is thick, and at somewhat of an acute angle. There is both a nasal and a frontal horn, and the nasal disc is very rugous. Saw also several lower jaws of Rhinoceros, some of them evidently of the '*R. Valdarnensis*.'<sup>3</sup> Another, much larger, and said by Prof. Meneghini to be from the Val d'Arno, is certainly of another species, and probably of *R. megarhinus*.

Pisa, 1st June, 1859.

Examined a very fine specimen of the right ramus of lower jaw of *Rhinoceros*. The six last molars are in place, and the posterior five are entire; the crown of the anterior molar is broken off. The ascending ramus is broken vertically through the sigmoid echancre, so that the condyle and angle are missing, but the coronoid is perfect to the very apex, and compares beautifully in its greater dimensions, especially in breadth, with that of *Rhinoceros Etruscus*. The coronoid rises very vertically.<sup>4</sup> The teeth are all emerged and are very perfect; the cres-

<sup>1</sup> See *antea*, p. 314.—[Ed.]

<sup>2</sup> As stated in a previous note, and at page 332.—[Ed.] <sup>3</sup> *R. Etruscus*.—[Ed.]

<sup>4</sup> Dr. F. seemed to infer that this was the lower jaw of *R. megarhinus*. See page 356, line 13; and page 369, line 6.—[Ed.]

cents of the first true molar are still distinct; those of the last are but slightly affected by wear. The specimen was found in the Collines of St. Regolo.

*Dimensions.*—Total length of specimen, 15 in. Length of line of 6 molars, 9.6 in. Length of ditto of 3 premolars, 4.1 in. Length of 3 last molars, 5.7 in. Height of jaw under penultimate premolar, inner side, 3.2 in. Height of ditto under penultimate molar, inner side, 3.9 in. Height to apex of coronoid, 10.5 in. Width of apex of ditto, at sigmoid, 1.7 in.

V.—NOTE ON A SPECIMEN OF RHINOCEROS ETRUSCUS, BELONGING TO THE MARCHESE CARLO STROZZI.

*Leghorn, 2nd June, 1859.*

This is a magnificent specimen of a symphyseal portion of a lower jaw with part of the two rami. The rami are broken obliquely, so that only the fangs of two molars are seen in the section. The incisive border is obtusely bifid, with a very pronounced sinus above and behind each of the lobes. There is a narrow alveolar pit, as for an incisor that has dropped out. The symphyseal portion is very carinate below, and is completely drilled by large mentary holes, nine on right side and seven on left. Seven of the nine holes on the right side are close together. This is an invaluable specimen.

*Further Note on same Specimen—1860.*

Mr. Dinkel's drawing is good (See Pl. XXVIII. figs. 2, 3, and 4). It shows on the right side the fangs of the anterior premolar, and of the next adjoining tooth. Mr. Dew's cast<sup>1</sup> is chiefly defective in the great size he has given to the incisive pits, especially on the left side, both in length and in antero-posterior diameter; the cast also makes them unsymmetrical, which they are not. Dinkel's drawing represents the pits accurately. They are evidently the pits of a small shed incisor.

*Dimensions.*—Extreme length of fragment, left side, 7.3 in. Length of diasteme, right side, 2.5 in. Length of symphysis, at middle, 4.3 in. Width of symphysis at middle of diasteme, 1.75 in. Greatest width of ditto at protuberances below, 1.85 in. Width of ditto at incisive pits, 1.4 in.

VI.—DESCRIPTION OF UPPER JAW OF RHINOCEROS ETRUSCUS, FROM MALAGA.

The specimen consists of the greater part of a right upper maxillary bone, comprising *in situ* the second and third premolars, and the three true molars. The last premolar (p.m. 4) is wanting. The specimen has been fictitiously repaired with cement, placing all these teeth in series, without allowance for the missing premolar, and it is in consequence deceptive at first sight. The outer border of the crown is more or less damaged in most of the teeth. Together with Mr. Waterhouse, to whom I referred the fossil, I was at first led to believe that it belonged to the miocene *Aceratherium incisivum* of Kaup, from its close general resemblance to the specimen figured by De Blainville in the 'Ostéographie' (*Rhinoc.* Pl. XII.), under the name of *Rhinoceros incisivus d'Auvergne*. But I have since arrived at the conclusion, after a fresh examination of the Tuscan collections, that the Malaga Rhinoceros is the *Rhinoceros Etruscus*, so named by me from its prevalence in the Pliocene deposits of the Upper Val d'Arno. This form has hitherto been confounded, on the one hand with *Rhinoceros tichorhinus*, and on the other with *R. leptorhinus* of Cuvier. It had a bony nasal septum,

<sup>1</sup> Now in British Museum.—[Ed.]

## DESCRIPTION OF PLATE XXVIII.

### RHINOCEROS ETRUSCUS.

Fig. 1. Is a profile view of a cast of a skull of the Val d'Arno Rhinoceros in the Museum at Pisa, showing the septum distinctly limited to the anterior half of the nasal bones and terminating in a thickened portion united to the incisive bone. The figure is one-fourth of the natural size, and has been copied from a drawing executed for Dr. Falconer by Pierucci, artist at Pisa. (See page 359.)

Figs. 3, 4, and 5. Symphysial portion of the lower jaw, with part of the two rami belonging to the Marchese Carlo Strozzi, and described at page 360. The figures are one-half of the natural size, and have been reproduced from drawings by Mr. Dinkel. Fig. 2. Upper surface. Fig. 3. Under surface. Fig. 4. Lateral view.

Fig. 1.

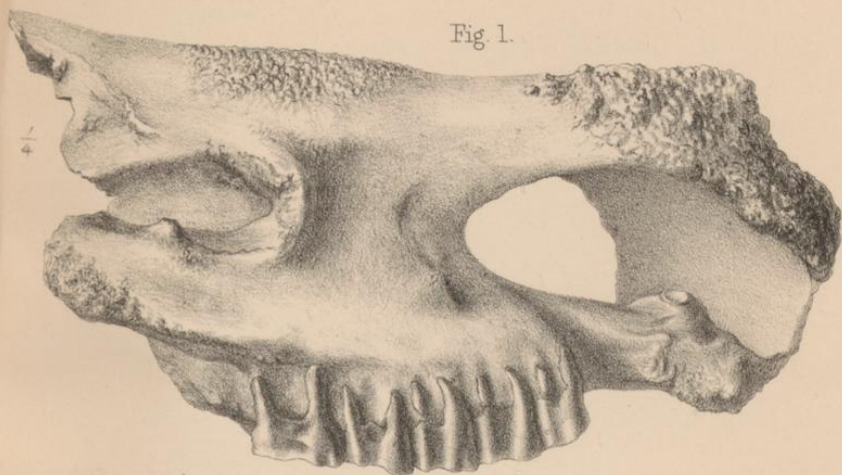


Fig. 2.

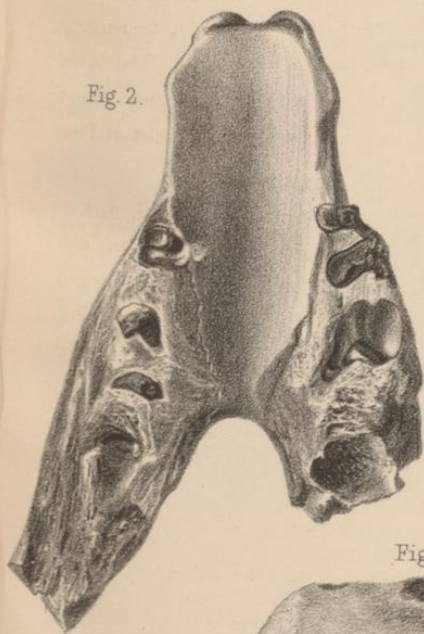


Fig. 3.

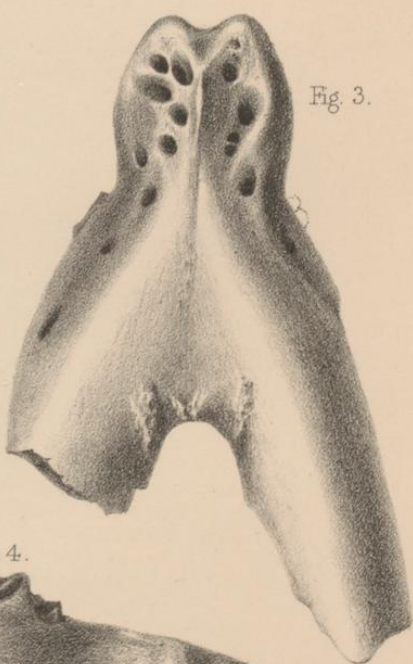


Fig. 4.



as in the Clacton form, described in the 'British Fossil Mammalia,' under the designation of *Rhinoceros leptorhinus*, from which, however, it is essentially distinct in every detail throughout the construction of the skeleton.

The true *Rhinoceros leptorhinus* of Cuvier, founded upon the Cortesi cranium, had no ossified nasal septum, and is distinct alike from the species here called *Rhinoceros Etruscus*, and from the fossil *Rhinoceros* of Clacton. I have ascertained that the character of an ossified nasal septum was common to three European fossil species of *Rhinoceros*, of the Pliocene and newer Pliocene periods; and that there is only one known species of this category in which it was wanting. The characters of these species, and their distribution over the European area, will be described in detail in a separate essay.—H. F., Oct. 1859.

[The above description appeared as an appendix to a paper by Professor Ansted in the 'Quarterly Journ. Geol. Soc.' for Feb. 1860. The maxilla with portions of vertebræ were found a few miles from Malaga in white marl, overlying Pliocene blue clay, abounding with shells. The following details of a comparison of the specimen with others in the British Museum is extracted from Dr. Falconer's Note-books.—Ed.]

British Museum, 16th August, 1859.

Brought with me to-day Ansted's specimen from Malaga, and compared it again with:—1. Kaup's *Acerath. incisiv.*, a cast of the old palate figured in the 'Oss. Foss. de Darmstadt;'; 2. Kaup's cast of entire cranium of ditto; 3. De Blainville's *Rhinoc. incisiv.* of Auvergne, cast figured in 'Ostéogr.,' Pl. XII.; 4. Lartet's *Rhinoc. Simorrensis*; 5. Duvernoy's *Rhin. pleuroceros*, cast; and 6. Lartet's *Rhinoc. brachypus*, *Acerath. Goldfussi*—all *Aceratheria*.

Observed the following constant characters:—1. In *Acerath. Goldfussi*, the last molars even have a basal bourrelet all round, most strongly marked in the penultimate.

2. In all the *Aceratheria*, the base of the crown outside presents an angular bulge, a rudiment of what is seen in *Palæotherium*. This is very strongly marked in a beautiful specimen of Lartet's *Rhin. Simorrensis*, a skull with the palate and teeth on both sides (7 on left, only 6 on right); it is also very strongly marked in Lartet's *Acerath. brachypus*, the British Museum specimen of which is made up of teeth of different individuals. It is also well marked in the cast of Duvernoy's *Rhinoc. incisivus* of Auvergne, and very marked in the penultimate of Kaup's old palate specimen and in the skull cast.

3. The anterior outer vertical angle and groove are very boldly defined in all the *Aceratheria*, and the angular projection is very broad; but from that forwards the surface is nearly smooth, and without the undulated swelling seen in *Rh. megarhinus* and the *Rh. tichorhinus*, &c.

4. In Lartet's *Rhin. Simorrensis*, which is of an adult with all the teeth worn except the last, and is in the best stage of wear, besides the projection of the crochet from the back barrel, there is a constriction of the anterior barrel, which when worn forms a well-marked emargination, so that a lobe of the anterior barrel projects into the valley like a kind of anterior crochet; but overlapped by the true crochet, *i.e.* nearer the inside. The same thing is observed in the penultimate and antepenultimate of Kaup's cranium of *Aceratherium*, in his old palate specimen figured in the 'Oss. Foss. de Darmstadt,' and in De Blainville's *Rhinoceros* of Auvergne—*i.e.* in the last premolar and penul-



timate true molar. This anterior crochet survives when the true crochet is worn out; this is seen in De Blainville's drawing of the penultimate, which shows a kind of trefoil to the anterior disc.

5. In *Acerath. Goldfussi*, the posterior tubercle forms a long crenulated 'gradus,' most salient at the outer end; the same is seen in Lartet's *R. Simorreensis* and in Kaup's *Aceratherium*. The ridge is confluent inside, free and high outside (like the bourrelet in the Mastodons.)

6. The mouth of the valley of the last molar is very open, and will admit the forefinger easily.

Compared the Malaga specimen, after making these observations, and remarked the following peculiarities:—

1. The last true molar behind has only a moderate tubercle, as in the Tuscan specimens, and has no 'gradus' ridge at base behind.

2. The mouth of the valley is comparatively narrow; in the last molar it will not admit the finger as in De Blainville's Auvergne specimen; the anterior barrel is broad and has a crochet constriction.

3. Unfortunately the apex of the outer ridge-summit of the crown is broken in the three last molars, but what remains of the low crown presents an undulated surface.

4. There is no true constriction of the anterior barrel, which in the antepenultimate is very broad.

5. There is a duck's bill pattern to the termination of the posterior valley, with an accessory plate forming a reniform outline, as in *Aceratherium*, but no subdivision of the crochet into plates in any of the teeth.

6. The most important and marked difference is that the second premolar (p.m. 2) has no disc of pressure in front—no p.m. 1! p.m. 3 has two fossettes and the anterior inner cone (barrel) is isolated all round by a deep fissure and gives a narrow ovate disc.

7. There is a basal bourrelet to p.m. 2 and 3, but not very marked.

8. The basal bourrelet to the premolars of the Auvergne specimen forms actually a sharp raised rim; the bourrelet is very little pronounced in comparison in the Malaga specimen, in which it does little more than make a bridge between the barrels, while in the Auvergne specimen it sweeps round the anterior barrel, rising obliquely in the posterior.

I infer the specimen to be of *Rhinoceros Etruscus*.

#### Dimensions.

	Ansted's specimen from Malaga	De Blain- ville's Auvergne palate
Joint length of three last molars . . . . .	5.5	5.55
Joint length of 2nd and 3rd p.m. . . . .	2.9	2.8
Length, outer edge of p.m. 2 . . . . .	1.4	1.35
Width of ditto behind . . . . .	1.55	1.6
Length of p.m. 3 . . . . .	1.6	1.5
Width of ditto, outer . . . . .	2.	2.05
Length of t.m. 1 in middle . . . . .	1.8	1.55
Greatest width in front . . . . .	2.1	2.18
Length of t.m. 2, outer . . . . .	2.15	2.1
Length of ditto, middle . . . . .	1.9	1.85
Width in front at base . . . . .	2.3	2.25
Length of t.m. 3, from tubercle to outer bourrelet . . . . .	1.9	1.9

VII.—DESCRIPTION OF CRANIUM WITH TEETH, HUMERUS, TIBIA, AND FIBULA, IN THE MUSEO DI STORIA NATURALE DELLA R. UNIVERSITÀ, AT BOLOGNA.

13th May, 1861.

'Modello in gesso dell' intera regione palatina delle ossa mascellari, colla doppia serie dei molari quasi interi di un grande Rinoceronte fossile piuttosto giovine, e probabilmente della specie denominata dal Cuvier *Rhinoceros leptorhinus*. L'originale dal quale si è cavato questo modello fu trovato a poca distanza da Barberino del Mugello in quella stessa località dove furono rinvenuti gli altri denti e mandibule di Rinoceronte che si conservano nel Gabinetto sotto i no. 2,381, 3,450, 3,758, regolati dal veterinario di quel paese Signor Onorio Da Barberino. Vedi per il pezzo ora descritto la di lui lettera che si conserva nel museo sotto questo numero. La forma onde ottenere questo modello è stato levata dall' originale con tutta diligenza dal modellatore dei Gabinetti Anatomici dell' Università Signor Giuseppe Astorri.'<sup>1</sup>

*Description of the original specimen in the Bologna Museum, to which the above memorandum applies.—Rhinoceros Etruscus, Pl. XXIX.*

This specimen (represented in Pl. XXIX.) consists of the maxillaries on both sides, with part of the zygomatic arch of the left side, the palate, the palatine echancure, with the entire series of molars on either side in the finest state of preservation. The cranial portion is broken off behind the palatine bones, and all of the facial part of the chaffron is broken on both sides in a line a little above the upper margin of the zygomatic arches; the lower boundary of the nasal echancure to the bottom is perfect on the left side, and nearly so on the right. The left suborbital foramen is distinctly shown; that on the right side is broken and concealed by an attached portion of distinct bone, enveloped in (*Sansino*) matrix. There remains in the front of the series of molars about  $2\frac{1}{2}$  inches in length of the diastemal beak; but no indication of the descending portion of the nasal septum, the position of which is occupied by (*Sansino*) matrix.

The dentition, as regards the age of the molar teeth, is in the most perfect state to give the dental characters of the species; the antepenultimate true molar being but slightly worn, the penultimate less so, and the last true molar but very slightly affected by wear. Some of the crowns are more or less damaged, but what is wanting from this cause on one side is happily supplied on the other. The teeth belonged to an animal that was perfectly adult, but not aged; the three last premolars are beautifully seen on the left side; on the right there is most happily preserved the alveolus (triple) of the pre-antepenultimate premolar, which had dropped out, and the antepenultimate at its front edge shows distinctly the disc of pressure of the fallen tooth. It is therefore clear that there were seven molars in the adult state, viz. 4 premolars and 3 true molars. The following are the principal dimensions:—

<sup>1</sup> Il pezzo originale è stato poscia acquistato pel Gabinetto dal lodato Signor Da Barberino pel tenue prezzo di romani scudi quattro, e si conserva sotto

questo stesso numero nel museo, dove fu depositato in Marzo del 1847, con altre ossa fossili scavate nella stessa località.

Extreme length of the line of 6 molars on the left side, measured from the base outside of the penultimate p.m. to the posterior boundary of the rudimentary pit at base of last molar, 9.1 in. Length of ditto on right side from anterior margin of alveolus of dropped first premolar to posterior boundary of last true molar, 9.5 in. Length of last three premolars, left side at top of crown, outside, 4.3 in. Length of three true molars to posterior boundary of last, left side, 5.4 in. Length from the antepenultimate p.m., right side, to the posterior margin penultimate true molar (to correspond with the Pisa cast), 7.7 in. Length of antepenultimate p.m., left side, top of crown outside, 1.35 in. Extreme width at base of ditto, behind, 1.6 in. Length of penultimate ditto ditto, left side, 1.55 in. Greatest width of ditto in front at base, 2 in. Length of last premolar in front at left side, 1.6 in. Greatest width of ditto in front at base, 2.1 in. Length of crown of penultimate true molar (1.95, right side), 2 in. Greatest width of ditto at base in front, right, 2.2 in. Length of crown of ditto at base inside, 1.5 in. Length of crown of penultimate true molar, right, outside, 2 in. Length of crown of ditto, inner side, at base, 1.5 in. Greatest width at base in front of ditto, 2.2 in. Antero-posterior diameter last true molar, left side, from anterior bourrelet, in front, to posterior boundary of basal valley behind, 1.8 in. Transverse diameter of ditto, in front, at base, 2.1 in. Interval between the anterior barrels of antepenultimate premolars, 2.05 in. Interval between anterior barrels of last premolar at base, 2.8 in. Interval between anterior barrels, first true molar, 3 in. Interval between anterior barrels of penultimate true molar, 2.1 in. Interval between anterior barrels of last molars, 2.85 in.

MEMO.—The above dimensions give the width of the palate.

Length of diasteme in front of pre-antepenultimate premolar, right side, 1.75 in. Interval between the diastemal ridges in front of first premolar, 2.1 in. (These comprise the principal dimensions of the teeth.) Height of zygomatic arch, left side, 1.8 in. Width of zygomatic fossa, left side, 3.5 in.

*Description of the Teeth on right side.*—There were 4 premolars. This is distinctly shown on the right side by the triple fang-pits of the pre-antepenultimate or p.m. 1, viz. one in front and two separate ones behind: they are more or less filled up.

P.m. 2, the antepenultimate premolar, is quite entire on both sides, and in nearly the same stage of wear. The discs of the two inner barrels are distinct, and nearly of the same size; the anterior barrel does not form an isolated compressed cusp-shaped cone, as in Gervais' drawings of *R. leptorhinus*. The disc forms a very compressed oval, which is not confluent with the outer longitudinal disc. The disc of the posterior barrel is wider, and it is connected by an isthmus with the disc of the outer ridge, forming a kind of gourd-shaped outline. The disc of the outer longitudinal ridge is not much advanced in wear, being where broadest but 0.4. The posterior valley is nearly quadrangular in form and well defined, the posterior boundary being quite intact. The great middle valley forms a large triangular fissure, into which crochet processes are intruded from behind forwards. There is a distinct cingulum to the base at the inside, but not in strong relief, not so much so as the anterior talon. The outer surface of the crown is convex, antero-posteriorly.

P.m. 3, the penultimate premolar, right side. This tooth resembles in form the antepenultimate, but is larger and more advanced in wear. The discs of both barrels being confluent with the outer disc, it is much broader in front than behind. The anterior outer vertical furrow is well marked, the posterior valley is very much as in p.m. 2. The great middle valley forms a large fissure which is divided into two portions by the crochet processes, and an outer accessory plate is intruded from the longitudinal ridge; one little ring of enamel is isolated on the base of the crochet.

The penultimate premolar is equally perfect on both sides, and in the same stage of wear. They both show the basal bourrelet round the inner barrels, but not very pronounced.

P.m. 4, or the last premolar, has the anterior outer angle of the crown broken on the right side; it is beautifully perfect on the left, which shows the crown but very slightly advanced in wear; the discs of both barrels are confluent with the outer disc. The posterior valley is well defined and intact behind; the anterior transverse valley has intruded into it a large crochet process, and two large accessory plates (or combing processes), proceeding parallel to each other from the outer ridge, and converging towards the crochet. A distinct ring of enamel isolating a pit is situated on the base of the crochet, the whole causing a complex pattern to the convolutions of the transverse valley. Fine parallel and wavy grooved lines of enamel are beautifully shown on the inner surface of the enamel. This tooth, like the others, shows a distinct basal cingulum; it is more triangular in form than the two which precede it.

T.m. 1, the first true molar, is quite perfect on the right side; on the left side the posterior barrel is broken on its inner surface. The crown is more advanced in wear than any of the others, but still not very much so, being not yet half worn. The posterior valley is quite intact behind, but is narrower and more vertical than in the premolars. The transverse valley is divided into two nearly distinct portions by a very thick crochet, protruded from the posterior barrel; the outer division has no accessory plates intruded into the fissure from the outer longitudinal ridge; the inner division forms a narrow triangular fissure. The crochet is emitted at a very open angle from the posterior barrel, more open even than in *R. leptorhinus*, and totally different from that seen in *R. hemitæchus*. There is a little basal mammilla between the barrels at the inside, but not a trace of an anterior basal bourrelet to the anterior barrel. The teeth are very much alike on both sides. The central termination of the middle valley does not exhibit the duck's head pattern, figured by Gervais and De Christol in the teeth of *R. megarhinus*. There is a little tendency to the peculiar twist of the posterior barrel near the apex of the crown; the anterior outer vertical groove is broad, but shallow; the angle boldly overlaps the last premolar.

T.m. 2, or the penultimate, on the right side, is nearly perfect, but the outer anterior angle is broken off vertically on the left side. The tooth in general form resembles very much the antepenultimate just described, but is less advanced in wear; the crochet is also, as in it, emitted at an open angle. The transverse valley is divided in two by the crochet, the inner division being triangular, without any accessory plates or complication whatever. The summit of the posterior barrel has the peculiar compressed contortion well marked. The crochet advances nearly into contact with the anterior barrel; the discs form narrow bands of wear, which are confluent throughout. There is not a trace of a basal cingulum on either side.

T.m. 3, or the last true molar, is broken partly on both sides, but in different directions, so that what is wanting in the one is supplied by the other. The crown is but very slightly affected by wear on the right side. It is of a distinct triangular form, all the parts converging to a

contracted summit. The anterior barrel has a distinct basal bourrelet, which is wanting in the posterior. The transverse valley is divided into two parts by a crochet, advancing on the right side to meet an accessory plate emitted from the anterior barrel. On the left side, these two plates overlap. On the right side, an accessory plate is also given off from the outer ridge, converging towards the crochet. The most striking character about the tooth is, that, as in *R. hemitæchus*, there is a distant rudiment of a posterior valley restricted to the base, but not forming a well-defined cup with a distinct rim, as in that species. This rudiment is distinctly shown on both sides, bounded posteriorly by a basal cingulum. The basal bourrelet behind the posterior barrel of the last true molar has barely emerged above the alveolar margin.

The enamel is smooth in all these teeth, and marked by beautiful, fine, wavy, horizontal lines. There is not a trace of general superficial rugosity, and not the slightest indication of a layer of cement.

The outer surface of the enamel is traversed in a dendritic fashion, by fine channels, like those which are attributed to the work of Marine Sponges, but the formation out of which this specimen came is fresh water.

The bottom of the palatine echancre comes in a line with the middle of the posterior barrel of the penultimate true molar, and the suborbital foramen is immediately over the line of junction between the penultimate and last premolars. The disc of the crochet of the penultimate true molar is nearly as broad as that of the posterior barrel, the crochet being very thick and simple. The anterior outer vertical furrow is well pronounced in all the molars, from the penultimate premolar to the last true molar inclusive. It is wide and shallow, but the other vertical hollows are but very slightly pronounced by an undulation of the surface. There is not the slightest indication of an outer basal bourrelet, as seen in the *Aceratherium incisivum* of Kaup, the outer surface being smooth, and nearly vertical throughout.

Besides the above, there are casts in the Bologna Museum of several of the principal specimens of Rhinoceros figured by Nesti, and a duplicate cast of the Targioni Tazzetti cranium of the Florence Museum, made by Savi for Pisa, and of which I got drawings. There are also casts of the following bones:—A humerus, left side, very closely resembling the figs. 1 and 2 of Cuvier's Pl. X. *Rhin.*, but more perfect, of which the following are the dimensions:—

Extreme length from top of tuberosity to tuberosity of outer condyle, 16·25 in. From articulating head to middle of inner condyle, 14 in. Width of articular surface of condyles, 3·4 in. Greatest width at inferior end, 5·2 in. Antero-posterior diameter of inner condyle, 4·1 in. Greatest width of shaft at middle of median tuberosity, 5·1 in. From sinus, at lower margin of middle tuberosity, to top of great tuberosity, 7·2 in. Greatest constriction of shaft, below middle tuberosity, 2·2 in. Antero-posterior diameter of articular head and tuberosity, 4 in. Transverse diameter of articular head, about 3·7 in.

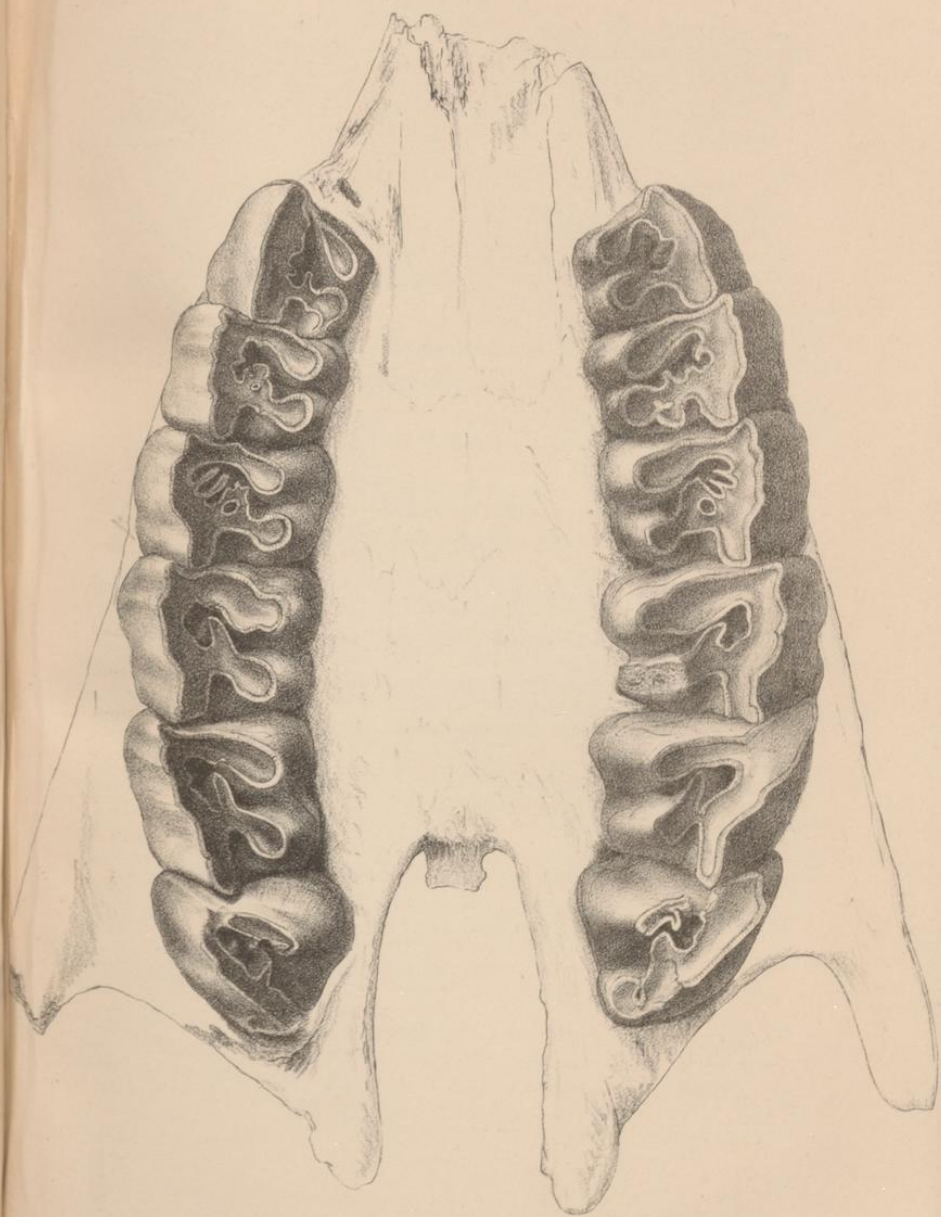
Specimen of tibia and fibula, figured by Cuvier, Pl. XI., *Rhin.*, fig. 15.

Extreme length of tibia at middle, about 14 in. Transverse diameter of upper articulating surface, 4·4 in. Antero-posterior ditto to inner margin of inner articular surface, 4·8 in. Transverse diameter, lower articular head, including fibula, 4·3 in. Antero-posterior diameter, inner articular cup, lower end of tibia, 2·8 in. Extreme length of fibula, 12·25 in. Transverse diameter of shaft of tibia, at middle, 2·3 in.

DESCRIPTION OF PLATE XXIX.

RHINOCEROS ETRUSCUS.

This Plate represents the palate view of the cranium in the University Museum of Natural History at Bologna, described at page 363. The drawing is one-half of the natural size, and has been copied from one which Dr. Falconer had executed at Bologna, and on which he had inscribed '*Rhinoceros Etruscus*, Museum, Bologna.' A cast of the specimen which Dr. Falconer also brought from Bologna has been deposited in the British Museum.



J. Deibel lith.

Rhinoceros Etruscus.  
(Bologna)

W. West imp.

Cast of right femur, figured by Cuvier, Pl. XI. *Rhin.*, fig. 19, of which the upper articulating head is wanting

Extreme length taken at the middle, 16.50 in. Antero-posterior diameter of inner condyle and pulley, the latter partly broken, 6 in. Length of pulley in middle, 2.5 in. Transverse diameter of ditto, 2.5 in. Least transverse diameter of shaft below the middle trochanter, 2.5 in. Vertical height of neck of middle trochanter, 2.1 in. Transverse diameter of shaft, including middle trochanter, at middle of ditto, 5.2 in. Width of bone at middle of sinus above middle trochanter, 4.1 in.

All these bones belong to *Rhinoceros Etruscus*, and there are still preserved in the Bologna Museum, the originals of the specimens represented by Cuvier, figs. 5 to 10, inclusive of Pl. X., *Rhin.*, of 'Os. Fossil.' These are the upper and lower extremities of a humerus of the same species (*R. Etruscus*), stated to have been procured by the Ab. Ranzani in France.

#### VIII.—DESCRIPTION OF SPECIMENS OF RHINOCEROS ETRUSCUS AT LE PUY.

*Le Puy, 15th September, 1863.*

In the Museum of Le Puy there is a magnificent series of remains of the skeleton, consisting of three feet, with all the bones *en suite* to the terminal phalanges—the tibia, fibula, astragalus, and astragal head of the femur. The shaft of the femur with the third trochanter is exactly as in Pentland's specimen in the British Museum. There are also two detached calcanea, both of the left side, and one astragalus. All are from Solilhac.

In the same Museum there is also a series of the molars of *R. Etruscus*, six right and left, but detached and separate, with the last molar just coming into use, and in the finest condition for figuring. They are from Vialette. In addition there is a superb specimen of the left ramus of the lower jaw of *R. Etruscus*, having the four last molars *en suite*, all a little worn, and the hind portion of the penultimate premolar; the teeth are in a beautiful condition to be drawn.

There is also the muzzle of the lower jaw of *R. Etruscus*, perforated below exactly like the specimen of Carlo Strozzi (see page 360), and with the empty pits of two small median incisors more round, more pronounced and less angular than in Strozzi's. There is no keel below, as in the Florence specimen. The specimen is red, heavy and ferruginous, and in the same mineral condition as the Vialette lower jaw.

*Dimensions of Lower Jaw, left, from Vialette.*—Length of fragment, 11.5 in. Length of series of four molars, 6.75 in. Length of last true molar, 1.75 in. Length of antepenultimate, 1.65 in. Length of antepenultimate, 1.62 in. Length of last premolar, 1.50 in. Height of jaw at posterior edge, last molar, 3.35 in. Height at anterior edge of first true molar, 2.9 in. Height at anterior edge of last premolar, 2.65 in.

The inferior border is perfectly straight along the three true molars; there is no curve, but there is a strong longitudinal channel along the middle of the inner side; and to each of the anterior barrels of the four molars there is an oblique descending bourrelet, strongly marked. The jaw is truncated along the ascending ramus and in front. The specimen ought to be figured.

*15th September, 1863.*

Masel, near Le Puy, with Messieurs Pichot, Robert, and Lartet. Jaw of *Rhinoceros Etruscus* found by M. Pichot at Sainxelle, near St. Aune.



There is also a magnificent head, very well preserved, of *Rh. Etruscus*, with the series of molars (six) of the two sides present. The anterior portion is entire, and also the bony wall of the nasal partition. The two jaws are slightly broken, and likewise the orbit of the left side. The occipital portion, as well as the condyle, is wanting. The age of the dentition is that which best shows all the characters, the last true molar being very little worn. The three premolars are much affected by wear. The antepenultimate has three fossettes; the echancre of the first anterior ridge is still apparent, as in the drawing of the Bologna skull (Pl. XXIX.). The penultimate is less worn and has two fossettes, the middle one being divided into two parts; and the crochet is serrated, as in the Bologna jaw. The last premolar of the left side is well worn, and shows three very distinct fossettes, and the crochet is but little denticulated. The first true molar is half worn, the crochet is simple and at right angles, without a combing plate; the median hollow is quite open on the inner side. The penultimate true molar has nearly the same form, but on the left side the crochet is confluent with the anterior ridge, so as to isolate one part of the median hollow which is situated behind, as in the tooth of Crozes; but on the right side the crochet is detached. The last molar is very little worn, with the crochet free, and a plate projecting from the anterior ridge. In form and size it perfectly resembles the cast that I have brought from the Museum at Pisa (Pl. XXV. fig. 5), and the molars (pre- and true-molars) have a basal crown on the inner side. The length of the series of six molars is nearly the same as that in the drawing of the Bologna skull (9.8 in.). The osseous partition and the nasal bones exactly resemble the drawings of the specimens in the Florence Museum, but it seems to both M. Lartet and myself that the osseous partition is less complete.

The jaw is embedded on the left side in tufaceous greenish grey alluvium—the 'Alluv. inter-volcanique' de M. Pichot.

### III. NOTES ON RHINOCEROS LEPTORHINUS (Cuv. PRO. PARTE), R. MEGARHINUS (CHRISTOL).

#### I.—DESCRIPTION OF REMAINS OF RHINOCEROS LEPTORHINUS (R. MEGARHINUS) IN THE MUSEUM AT MONTPELLIER.

18th November, 1858.

Examined the original of the fine lower jaw of *R. megarhinus* figured by Gervais, and also another lower jaw of the same species more perfect at the muzzle, but mutilated behind. The former is double, and on the right side comprises the whole of the ramus from the tip of the incisive margin on to the condyle and coronoid, the apex of the coronoid being alone wanting. On comparing it with Dinkel's drawings of *R. hemitæchus*, observed the following points of difference (See Pl. XXX.):—

1. The lower edge of the horizontal ramus is nearly a straight line from the angle on to the anterior edge of the first true molar.
2. The low elevation and great thickness of the body of the ramus.
3. The horizontal line (still slightly concave) of the plane of dentition (very concave in *R. hemitæchus*).