

LVII. *Osteological Description of the one-horned Rhinoceros, by CUVIER**.

As I propose to publish a part of the researches I have made to discover to what species the fossil bones have belonged, I must first give the osteology of some quadrupeds, which, under this point of view have never yet been described.

When Pallas first published, in the 13th vol. of the *Novi Commentarii* of Petersburg, an account of the fossil bones of the rhinoceros found in different parts of Siberia, he regretted that he did not find in the work of any naturalist an osteological description of the living rhinoceros, and particularly of the cranium.

Some time after Camper had an opportunity of procuring a part of what he wanted; he transmitted to the Academy of Petersburg a description and figures of the head and cranium of the two-horned rhinoceros of the Cape of Good Hope. His memoir was inserted in the first volume of the Transactions for the year 1777, part ii. which was not printed till 1780.

This great anatomist had then no knowledge of the difference of the teeth, by which the two species of rhinoceros are characterized; and as he did not find incisors in his two-horned species, he accused Parsons, Linnæus, and Buffon of error, for having ascribed any to the one-horned species.

But before his memoir was printed he paid a visit to Paris, and, having observed the one-horned rhinoceros then in the menagerie at Versailles, he found its incisors. He even procured the head of a young individual of this species, and had a drawing made of the alveoli. He immediately sent an account of all these facts to Pallas, that they might be printed along with his memoir.

He related the same facts in his Dutch dissertation on the one-horned rhinoceros, printed in 1782, the figures of which were the same as those transmitted to the Academy of Petersburg.

These he confirmed in 1785, when he procured a drawing of the head of a one-horned rhinoceros preserved in the British Museum; and having obtained an older than that which he had first in his possession, he caused it to be engraved by Vinkeles in 1787, with the old figure of the one-horned rhinoceros, in a superb folio plate, dedicated to

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I. Vandersteeg; this plate, however, was never published, but distributed among his friends. For one of them I was indebted to the kindness of his son.

This figure of the head of the unicorn is imperfect, as the real figure of the bones is still covered by some ligaments: there is one in particular behind the orbit, which might deceive those little acquainted with the subject, and be considered as an osseous partition separating this fossa from that of the temples.

M. Blumenbach, however, has copied this plate on a small scale, in his collection of objects relating to natural history, No. 7.

M. Faujas also caused to be delineated on a small scale, by Mareschal, the bones of the head of an adult one-horned rhinoceros, which is preserved in the Museum, and had it engraved in the 10th plate of his *Essais de Geologie*, but this figure is not accompanied by any description. Besides, though very exact on the whole, it is confused by the rugosities being too strongly marked by the engraver, and the sutures not being seen.

If to these be added the excellent figures of the lower face of the cranium and of the lower jaw of the one-horned rhinoceros given by M. Merck, in his third letter on fossil bones, printed at Darmstadt in 1786, we shall have, I believe, a complete catalogue of the materials hitherto published in regard to the osteology of this remarkable species of quadrupeds; and it will be seen that I am not precluded from resuming the subject, and treating it with an extent suited to its importance.

The pieces which will serve as a basis to my description are the beautiful skeleton prepared by M. Mertrud, of the rhinoceros which lived twenty-one years in the menagerie at Versailles, the same which was examined alive by M. Mickel and Peter Camper; and the head of a younger rhinoceros, for which our Museum is indebted to the generosity of Adrian Camper, and which served as an original for the plate given by his illustrious father.

1st, *The Head.*

What strikes most in the form of the head of the rhinoceros, (see Plate VII.) is the pyramidal projection of the cranium: the occipital bone forms the posterior face of it, and the temporal fossæ are the faces of the sides: the obliquely ascending continuation of the front is the anterior face; and instead of a point the summit is a transverse line.

The occipital ascends obliquely from behind forwards,

which is peculiar to the rhinoceros, and renders its pyramid almost straight. In the hog even, which has a pyramid almost similar, it is inclined backwards.

The contour of the occipital is a semi-ellipse, which becomes broader towards its base, to produce a projecting plate behind the foramen of the ear and the posterior base of the zygomatic arch.

The line of the base exhibits at its middle the condyles, and at the sides the mastoid apophyses pointed and hooked: in the hog they are exactly under the condyles. Before each of these apophyses is another very large one, which belongs to the temporal bone, and which contributes to form the articulation of the jaw; it prevents it from moving much from right to left, and it corresponds with an indentation situated at the interior extremity of the condyle.

Between these two apophyses, but a little more inwards, is another short apophysis, the end of which is hollow, and receives the os styloides.

The impressions of the muscles divide the occipital face of the four fossæ: the anterior face of the pyramid descends, always becoming broader between the eyes, where the post-orbital apophyses of the frontal are the most distant limits. The point of the nose completes the formation of the rhomboid, which characterizes the upper face of the whole cranium. The region between the eyes is concave in the longitudinal direction, and plane in the transverse; that of the bones of the nose becomes convex in every direction.

The parietals begin a little before the summit of the pyramid; they terminate towards the middle of the space between that ridge and the orbital apophyses; the sutures analogous to the coronal, and the lamdoid are perfectly transverse.

The scaly suture, or the limit of the parietal and temporal in the temporal fossa, is parallel to the direction of the anterior face of the pyramid.

The large ala of the sphenoid ascends only very little into the temporal fossa, and this bone is not articulated with the parietal.

The posterior half of the zygomatic arch belongs to the temporal; all the rest belongs to the os jugale or the cheek bone.

The direction of the arch is like an Italic S, descending obliquely from behind forwards: its inferior edge is very thick in my adult individual, and projects considerably; it is much less in the young subject given by M. Camper.

The

The maxillary bone advances under the orbit, and forms there a plate: there is no apophysis either of the frontal or the jugal to join the zygomatic arch to the frons, and to close the orbit behind.

The sub-orbital foramen is small, longer than broad, and near to the bottom of the nasal indentation.

The maxillary bones form before a projecting apophysis parallel to the bones of the nose, and situated under them, which articulates with the incisors. The alveoli of the incisors form together an angle of more than eighty degrees in the adult, but which is not sixty in the young individual. The incisor foramen is very large, elliptic, and not divided into two parts.

The incisor bones have at their upper edge a small apophysis, and a square plate which rises towards the roof, formed by the bones of the nose.

The latter are of a size and thickness of which there is no example in other quadrupeds: they form an arch which inclines to the incisor bones, and which supports the horn. In my adult individual their upper face is granulated like the head of a cauliflower.

Between them and the incisor bones and that part of the maxillary bones which supports them, is that large nasal indentation, which on the first view characterises the cranium of the rhinoceros. It results from the depth of this indentation that in this animal three pairs of bones, the nasal, the incisors, and the maxillary, contribute to form the contour of the external apertures of the nostrils; while in other quadrupeds, the tapir excepted, there are only the two latter. The lacrymal bone is small, and advances a little on the cheek. It has a very broad lacrymal canal, before which is a small pointed apophysis.

The vomer is ossified only in its most remote part, and there remains nothing in four-fifths of its length even in my rhinoceros full grown, and in which all the sutures were effaced. This remark is of great importance for a comparison of the living with the fossil rhinoceros.

The posterior groove of the palate is very deep, for it advances opposite to the fifth molar tooth; the suture which separates the palatine from the maxillary bones corresponds to the interval between the fourth and fifth molar tooth.

The pterygoid apophyses are short in the longitudinal direction, but very high in the vertical; single, and only a little forked towards the end.

The middle part of the sphenoid is straight, and proceeds much further back than its pterygoid ala; its articulation with

with the os basiliare of the occipital forms a very sensible projection; along the middle of this basiliary part is a projecting ridge, which becomes broader and is flattened towards the inferior edge of the occipital foramen.

The rupes is small and very irregular: the foramen lacrum is large, and extends along the interior edge of the rupes.

Length of the head from the edges of the occipital foramen to the edges of the incisor bones	-	-	-	-	0·6
Distance between the most projecting part of the zygomatic apophysis	-	-	-	-	0·43
Height of the occiput counting from the lower edge of the occipital foramen	-	-	-	-	0·26
Breadth between the apophyses placed behind the holes of the ears	-	-	-	-	0·31
Breadth between the orbital apophyses of the frontal	-	-	-	-	0·23
Depth of the nasal notch	-	-	-	-	0·15
Its height	-	-	-	-	0·095

[To be continued.]

LVIII. *On the Antiquity of the Gaelic Language.* By
CUTHBERT GORDON, M. D.

Mr. Tilloch,

IF you deem the following observations on the antiquity of the Gaelic language not entirely foreign to the nature of your publication, and worthy of a place in it, you will oblige me by inserting them.

I am, &c.

CUTHBERT GORDON.

THE Gaelic presents numbers with their names, which no other language, the antient Hebrew only excepted, can do. To know why those names are fixed to numbers we must take them in their order, beginning at one. Doing so will naturally show why they contain such excellent names, as it were, within themselves; and why those names, in preference to all others, are given to be our numbers. Their order runs thus:

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