IN MEMORIAM.

THE COLLECTED

SCIENTIFIC PAPERS

OF THE LATE

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LONDON:
R. H. PORTER: 6, TENTERDEN STREET, W.

1881.

23. ON THE BRAIN OF THE SUMATRAN RHINOCEROS (*CERATORHINUS SUMATRENSIS*).*

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[Plate IV.]

In a communication to this Society, published in its "Proceedings" in 1873 (p. 92), I had the opportunity of describing the visceral anatomy of the Sumatran Rhinoceros (*Ceratorhinus sumatrensis*) from the first specimen received by the Society. A second individual of the species, a female (as was the first), was deposited in the Gardens by Mr. C. Jamrach in July 1875, and was subsequently purchased. It unfortunately died on May 30th of this year, with symptoms of lung disease, a post-mortem examination demonstrating that both lungs were uniformly and throughout implicated. My friend Dr. James F. Goodhart, of Guy's Hospital, late Pathological Registrar at the College of Surgeons, has kindly examined these organs, and reports to me that they "show a very extensive catarrhal pneumonia, degenerating in the centres of most of the patches. There is, in addition, some peribronchial inflammation, evidenced by a large growth of nuclei in the submucous and deeper tissues of the bronchi. The disease therefore precisely corresponds with the caseous pneumonia to which man is subject."

The specimen is the one referred to by Mr. Sclater in his valuable and superbly illustrated memoir in the Society's "Transactions," vol. ix. p. 651 (foot-note [3]).

Feeling how important it is to obtain all possible information with reference to the species, and not having removed the brain in the earlier specimen, I took the opportunity of doing so in the second, and on the present occasion place before the Society the drawings of the brain from different aspects (Plate 4, [LXX]), for verification of which I would refer the reader to the Museum of the College of Surgeons, where the original will be found preserved and mounted.

The brain of the Indian Rhinoceros (*Rhinoceros unicornis*) is represented in its different aspects, and in its internal detail, by Professor Owen, in the "Transactions" of this Society, vol. iv. pls. 19—22, and is described shortly on page 58 *et seq.* of the same volume. To this it is my desire that the figures here given should form a companion.

By comparison it will be seen at a glance that the brain of *Rhinoceros unicornis* is slightly more simple than that of *Ceratorhinus*

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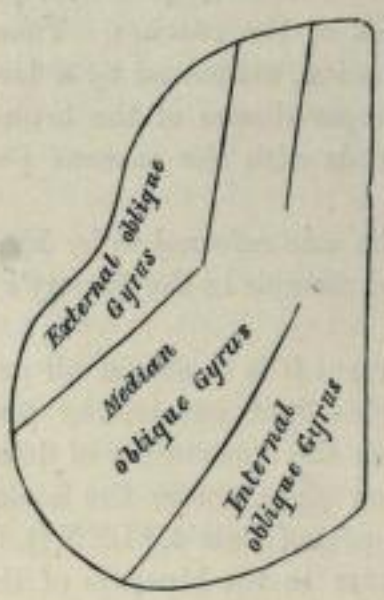
* "Transactions of the Zoological Society," X. pp. 411–3, pl. LXX. Read, June 19, 1877.

sumatrensis, although the greater size of the former species would have favoured an opposite conclusion.

So complicated and numerous are the convolutions that the general type-plan of their disposition is to a considerable extent disguised.
Page 412. They very closely resemble the same in the Equidæ, as might have been surmised. The whole brain, however, is broader, especially near the posterior portion of the cerebral hemispheres, where the breadth is considerably greater than further forward.

The accompanying diagram will facilitate the description. It represents the disposition of the main convolutions upon the superior aspect of one hemisphere, and exhibits the direction of the sulci which divide them. Two diagonal sulci cut up the posterior part of each lobe into three oblique gyri, which may be called the (1) external, (2) middle, and (3) internal gyrus. The middle and internal of these fuse together near the transverse line which joins the two rudimentary Sylvian fissures, anteriorly to which there is, in the Equidæ, no indication of further primary longitudinal division. The external oblique gyrus continues, from this line, directly forwards, and independent.



Upper view of left cerebral hemisphere of *Ceratorhinus sumatrensis*, showing general direction of sulci.

In *Ceratorhinus sumatrensis* the internal oblique gyrus is triangular in shape, its inner boundary being the great longitudinal fissure of the hemispheres, into which it descends a short distance. In the Equidæ the inner boundary of this gyrus is more superficial, and can be seen as a straight longitudinal line, just external to the fissure itself, in the superior view of the brain. The whole gyrus is much broken up by minor foldings of its elements, especially in its median portion, its outer moiety consisting of a minor gyrus, whose general direction is

a continuous oblique line, fairly regularly bent upon itself, first one way and then the reverse.

The median oblique gyrus is divided into two nearly equal moieties by a fissure running parallel to its direction, each half being much doubled upon itself. Anteriorly bridging minor convolutions blend it with the internal oblique gyrus, about one third distant from the anterior extremity of the hemisphere, in front of which the broad oblong cerebral surface is divided by a longitudinal sulcus into two equal moieties, both convoluted. In the great breadth and division of this anterior portion the Rhinoceros under consideration differs from the Equidæ, and agrees with *Rhinoceros unicornis*.

The external oblique gyrus is much doubled on itself, and separated from the Sylvian fissure, which it surrounds, by minor convolutions, more strongly differentiated anteriorly.

On the inner surface of the hemisphere the hippocampal gyrus is seen to be traversed by minor sulci and slight folds which ran parallel to its length, as in the Equidæ, the calloso-marginal sulcus following the anterior bending of the corpus callosum, and not, as in so many Artiodactyla (but not in the Equidæ), becoming superficial anteriorly.

The fissure of Sylvius forms an open angle, at the bottom of which Page 413.
are situated a number of small convolutions radiating from a point, which I take to be the island of Reil.

The under surface of the brain exhibits the smooth surfaces of the middle lobes of the hemispheres and the smooth broad roots of the equally broad olfactory nerves, which are not lobate at their anterior extremities. The optic chiasma is short, the two optic nerves springing from its anterior surface quite close together. The pons Varolii is not large, the reverse being the case with the crura cerebri and the corpora albicantia.

The lateral lobes of the cerebellum are small compared with the median portion, as is the case in the Ungulata generally.

DESCRIPTION OF PLATE 4 (LXX).

Brain of *Ceratorhinus sumatrensis*.

Fig. 1. Lateral view of right cerebral hemisphere.
2. Inferior view of left half of brain.
3. Superior view of left half of brain.
4. Internal view of right cerebral hemisphere.