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FROM THE
JOURNAL OF ANATOMY
VOL. LII.

S A

4932

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STUDY OF AN OPODYMOUS KITTEN. By J. A. PIRES DE LIMA,
M.D., *Professor of Topographical Anatomy in the Faculty of
Medicine of Oporto (Portugal).*

IN March last a servant of my laboratory brought me the dead body of a malformed kitten. He told me that the mother was three years old, and had already had four broods, each of four kittens. All were perfect except the one described here, which was dead-born. The mother is white all over,



FIG. 1.

except the head and tail, which are black, while the anomalous kitten is white on the ventral surface and dark grey on the dorsal one. It is of the male sex, and weighs 95 grammes. The stump which remains of its umbilical cord measures 15 cm. Save the irregular conformation of the head, the anterior part of which is double, the rest of this animal has a normal external appearance. The head, single at the back, gradually divides into two, as one advances forward. The monster has two ears

(fig. 1); three eyes, the medial one being constituted by two coalescent ocular globes with two corneæ, united along a vertical line; two noses, each with two nostrils, the internal ones only being permeable; two mouths, each with its own tongue.

On the medial line of the anterior surface of this bifid head is a crest of hairs (fig. 1 and fig. 2, 1) which divides it into two perfectly symmetrical parts. The hairs are obliquely implanted outwards on both sides. The two heads are remarkably symmetrical, the whole being deviated to the left.

There is but one medial palpebral cleft, but it is seen to be formed of two clefts that have become united at their internal angles. The medial

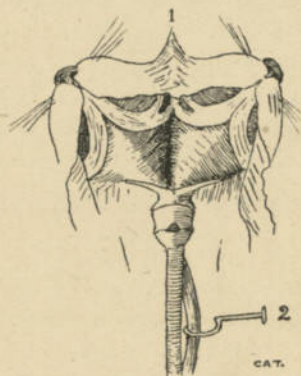


FIG. 2.

ocular globe is lined at the corners with broad and thick half-moon-shaped folds, which are united on the medial line both at the top and at the bottom (fig. 3, *p.s.*).

The conjunctiva is single, as well as the sclera; but there are two optic nerves, which penetrate the central eye at 5 mm. distance from each other. Each of the corneæ presents a convexity of its own. The eccentric eyes have wide membranous plicas.

I have taken the following measurements relating to the body of this animal:—

Distance between the internal corners of the two eccentric eyes	4 cm.
Breadth of the palpebral cleft of the medial eye	17 mm.
Distance between the corner of the medial eye and the internal corner of the lateral eye	12 "
From the internal angles of the lateral eyes to the tip of the nose	1 cm.
From the angle of the medial eye to nasal tip	1 "
Between the free tips of the two noses	3.5 mm.

Distance between the lines of implantation of the ears, measured over the vault of the skull	3 cm.
From the medial point between the two noses and the free extremity of the tail	20 "
Length of the tail	6 "
Circumference of the neck	6 "
Circumference of the abdomen, taken at the umbilicus	9 "

The definition of an opodymous monster according to Isidore Geoffroy Saint-Hilaire is: "Body single, head single behind but separated into two distinct faces from the ocular region." It is a diprosopus triophthalmus, according to Forster's nomenclature.

I began the dissection at the neck. The first layer being removed, I found, enclosed under the concentric mandibular bone, a big submaxillary gland. Next to this was a muscular stratum formed by the undifferentiated suprahyoid muscles. I continued the dissection forward, and uncovered the fore parts of the mandibular bones; the two medial ones are united at their hinder extremities, so that there are three symphyses between the four bony parts, as represented in fig. 2. I went on dissecting backwards, preparing the hyoid bone, the larynx, and the trachea, which, with the œsophagus, are single (fig. 2). I opened the thorax and abdomen, finding nothing anomalous in the respective viscera. I made an incision along the lower margins of the mandibular bones, cutting the two tongues, which were united at their bases. I entered a roomy single pharyngeal cavity, which communicated on one side with the mouths, on the other with the narrow œsophageal canal. The epiglottis was small in comparison with the wide pharynx. The single base of the combined tongues is of course very wide, and is proportionable to the extensive pharynx.

On each of the palatine vaults there was a deep furrow, antero-posterior in direction, representing the lateral nasal fossa of each nose, the half which is not open to the outside, as we have already seen. As a compensation, each of the furrows communicates with the respective medial nasal fossa by means of a short transverse canal. The two medial nasal fossæ open to the outside, but not to the pharynx. These canals have an oblique direction backwards and inwards, ending in culs-de-sac. If the monster were viable, the respiration would be carried out by the air entering through the internal nostrils, the only permeable ones; thence it would pass into the mouth through the transverse canal of communication between the internal nasal fossæ and the palatine furrow, which represents the lateral nasal fossa. The above-mentioned furrows were occupied by the internal halves of the corresponding tongues.

In order to study the external configuration of the skull of the specimen

I made a transverse incision in the soft parts from one ear to the other, and a longitudinal one from the free tips of the noses to the condyles of the occipital bone. Then with a periosteal elevator I exposed the surfaces of the skull and face bones (see figs. 3, 4).

Fig. 3 exhibits the norma facialis of the skull, and fig. 4 its norma verticalis. The symmetry of the skull was remarkable (fig. 4, A, B).

In some bones of the face (maxillary, fig. 3 (M c, M e), nasal (N), intermaxillary (I), and in the condylar portion of the occipital (O)), and the temporal bones, the process of ossification was imperfect.

In the constitution of the border of the medial orbit the following bones took part: frontal and medial maxillary (fig. 3, F c, M c), as well

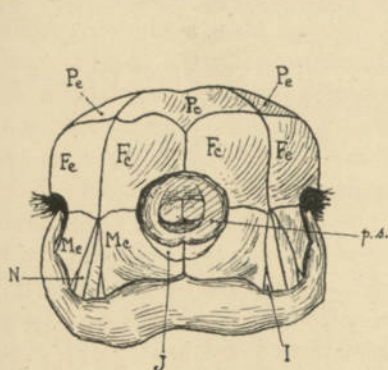


FIG. 3.

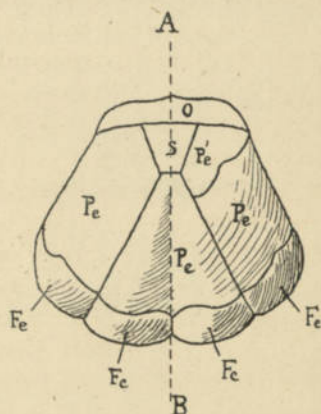


FIG. 4.

as the internal malar bones (J, J), which are reduced to two small half-moon-shaped pieces, with their concavities turned upwards. The medial orbit is 14 mm. wide and 1 cm. high. The four frontal bones present salient eminences; the internal ones are 13 mm. and the external ones 16 mm. wide. Above and behind the frontal bones we see the parietal, three in number; a medial (figs. 3 and 4, P c), perfectly regular and symmetrical, 22 mm. in its greatest width and 20 mm. in length, with a longitudinal groove in its axis, but without any vestige of suture. Of the two lateral parietals, the left is constituted by two independent pieces (P e, P e'). It was apparently developed from two points of ossification, the independence of the two pieces being due to the position of the heads of the monster, which is, as we have said, strongly bent to the left. Between the lateral parietal, the medial, and the occipital bones (fig. 4, O) there is a supraoccipital (S) shaped like a regular trapezium, the greatest width of which is 8 mm. and the least 3 mm.

After having studied the skull, I separated the parietal and the supra-occipital bones in a single piece, a somewhat difficult operation, because the internal surface of the bones was closely adherent to the meninges, at the sutures. Beneath the medial parietal the dura mater was very thick, with a large falx attached to it. I removed the encephalon, which on its upper surface is composed (fig. 5) of two concentric hemispheres (*Hc*) corresponding to the medial parietal bone, and of two medial hemispheres (*He*) united to the lateral ones. Each of the medial hemispheres presents two sulci, antero-posterior in direction, bounding three convolutions. The lateral present a few sulci, irregular and slightly marked.

Behind the four hemispheres a single cerebellum is seen. Fig. 6 represents the inferior aspect of the encephalon. Between the lateral

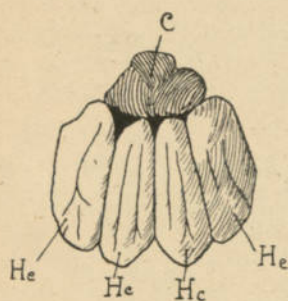


FIG. 5.

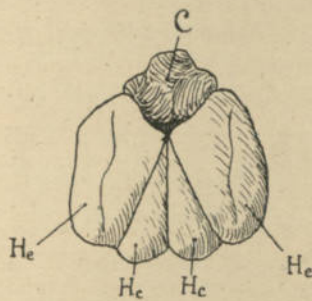


FIG. 6.

hemispheres, where one notices a sulcus antero-posterior in direction, the mesial hemispheres are enclosed like a wedge.

Each nose was supplied with a pair of well-developed olfactory bulbs.

Although this monster is not a rare one, the specimens that have been dissected are not numerous. As we have already said, it was Isidore Geoffroy Saint-Hilaire (1) who gave this genus of monsters the designation of *opodymus*, rejecting the term *polyopse* which his father had coined for them. The creator of scientific teratology duly noted the remarkable symmetry of both faces of the opodymi. He had observed that their tongues were united at their bases; they had but one cerebellum; and he mentions several cases in the human species and in other mammals, specially in the cat, as well as three birds and one fish. He refers to an opodymous child of seven months which was publicly exhibited in Spain in 1775. Taruffi (2) quotes several cases gathered from medical literature, relating to our species, the cat, the ox, the sheep, etc. Gadeau de Kerville (3) summarily described an opodymous chickling. Guinard (4), together with

Professor Lesbre, studied an opodymous kitten which lived five days. It had two concentric palpebral clefts, but only one medial orbit, which lodged an ocular globe, constituted by two coalescent ones, but with two optic nerves. Lesbre and Forgeot (5) published in 1906 a work dealing with this group of monsters. These authors had an opportunity of studying five opodymous monsters—cats, a calf, and a lamb, one of the cats being the one mentioned in Guinard's book. From a study of these five cases, Lesbre and Forgeot gave a description of the opodymous genus. In the cases of this genus there may be two medial parietal bones or a single one, as in my specimen.

Finally, Lesbre and Pécherot (6), in 1913, studied the head of an opodymous calf which lived six days, having been put to death because it was unable to suck. The internal nasal fossæ of this calf ended in a cul-de-sac, and the external nasal fossæ communicated with the mouth and pharynx. It had only three cerebral hemispheres, and the medial submaxillary glands were small—separate. It looked diophthalmic from without, but it really possessed a medial orbitless eye.

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