

the gonys; the margins of both mandibles are dentated in the middle.

The length from the upper part of the base of the casque to the tip of the maxilla is five inches and three lines.

The head which forms the subject of this description is supposed to have been brought from West Africa.

*Observations on some points in the Embryology of the Lemuroidea, and on the Zoological Affinities of those Animals.* By M. ALPH. MILNE-EDWARDS.

In all existing systems of classification the Lemuroidea form with the Monkeys a single group, called *the order Quadrumana*. Various anatomical considerations had led me to doubt the correctness of this approximation; and I had a lively desire to ascertain whether the characters drawn from the development of the embryo would support or contradict it. Therefore, when my friend M. A. Grandier started upon his last voyage of exploration in Madagascar, I directed his attention to this point, requesting him to seek carefully for female Lemuroidea in a state of gestation. The results obtained by him surpassed my hopes; for he procured fœtuses belonging to four different genera of the group Lemuroidea; and these he has been kind enough to place at my disposal.

The dissections that I have made of these have enabled me to ascertain that, with regard to the intra-uterine development, there exist essential differences between the Lemuroidea and the Apes. It is well known that in the latter the placenta is small, discoidal, and intimately united with the uterine decidua, and that the umbilical vesicle is greatly reduced, and even disappears very early. The Lemuroidea present a very different arrangement. Thus, in *Propithecus*, which may be regarded as one of the highest representatives of the type under consideration, and consequently as nearest to the Monkeys, the chorion is almost entirely covered with thick and close villousities, constituting a sort of vascular cushion, and forming the placenta, which forms almost a complete hood over the amnios, and which I shall denominate the *bell placenta* (*placenta en cloche*) in opposition to the *discoidal placenta* of man and the monkeys, the *zonary placenta* of the Carnivora, and the *diffused placenta* of the Herbivora. The villousities, which are very much tufted towards the middle and upper portions of the ovum, gradually diminish as they approach the cephalic pole, where they disappear almost entirely over a small space. The uterine decidua is greatly developed, and presents a corresponding arrangement.

Between the chorion and the amniotic coat we find a vast membraneous sac extending in the direction of the major axis of the ovum, and adhering to the umbilical cord by a short slender peduncle. This sac is elongated so as to form at each of its extremities a sort of digitiform horn, and only contracts slight adhesions to the two adjacent coats; none of the large vessels of the cord are distributed upon it. If air is injected into this sac under water, it is distended



and its outlines become distinctly marked. It represents the umbilical vesicle, which is much less developed in most of the ungulate Mammalia.

In the genera *Lepilemur*, *Haplemur*, and *Chirogaleus* the placenta presents the same characters.

From this investigation it follows that the tunics of the embryo of the Lemuroidea are constructed upon a plan of which we are acquainted with no other example in the class of Mammalia. This special type departs much more from that of Man, the Monkeys, Chiroptera, Insectivora, and Rodentia than from that which is proper to the Carnivora; for if we suppose the caudal pole of the ovum in the dog to be invaded by the villousities of the placenta, we have almost a realization of the special characters of the ovum of the Lemuroidea; and I may add that the arrangement of the umbilical vesicle is very nearly the same in the two types, whereas in the Monkeys it is completely different.

These important embryological characters are in accordance with those furnished by the brain, the skull, the dental system, and the hands.

The brain of the most highly organized Lemuroidea is but little developed behind; and instead of entirely covering the cerebellum, as it does in the Monkeys, it leaves a more or less considerable portion of that organ exposed. Gratiolet, also, had previously noticed that the characters of the encephalon of the Lemuroidea separate these animals clearly from all the Primates.

The orbit, which, in the group of the Monkeys, is completely closed outwardly and isolated from the temporal fossa, communicates broadly with the latter in all the genera of Lemuroidea, which gives their skull a certain resemblance to that of the Carnivora.

The teeth which arm the lower jaw in front are formed very differently in the Monkeys and the Lemuroidea. In the former the distinction between the canines and the incisors is very clear, and the latter are nearly vertical; in the Lemuroidea they are narrow, pressed against each other like a comb, laid almost horizontally, and their forms are so similar that certain zoologists regard them as being all incisors, whereas in reality those of the third pair represent the canines of other Mammalia.

The hands, of which the thumb is always well developed, and almost constantly opposable to the other digits, do not present the characters of those of the Monkeys; they are admirably constructed for climbing, but unfitted for the prehension of articles of food. It is with the mouth that these animals usually lay hold of their nourishment, unless they employ their united hands for this purpose, as the squirrels and many rodents are in the habit of doing. The fingers, instead of tapering towards the end, like those of Monkeys, are generally enlarged in their terminal portion, forming discoidal pads which the nail does not entirely cover. Lastly, the index of the posterior hand terminates, as is well-known, in a regular claw.

If, in the classification of the Mammalia, we desire that the natural groups, denominated *orders*, should have the same zoological



value, it seems to me impossible to unite in one division having this degree of importance the Monkeys and the Lemuroidea. The existence of a hand may occur in animals derived from very different types; we have long known examples of it among the Marsupials, whilst among the Monkeys we find, side by side with clearly pentadactyle species, others of which the anterior limbs are destitute of a thumb. We therefore cannot regard this organic peculiarity as constituting a dominant character; and the numerous and essential differences that I have indicated in the course of this memoir seem to me to have a far higher zoological value, and to call for a profound distinction between the Monkeys and the Lemuroidea. It is upon the support of these facts that I propose to regard each of these groups as forming a distinct order, the order of the Lemuroidea uniting the order of the Simiæ to the order of the Carnivora. —*Comptes Rendus*, August 14, 1871, tome lxxiii. pp. 422-424.

*On some Fungi belonging to the Family Laboulbeniæ.*

By Dr. PEYRITSCH.

The Laboulbeniæ include *Stigmatomyces muscæ* of Karsten, the genus *Arthrorhynchus*, referred by Kolenati and Diesing to the *Rhygodeæ* in the system of parasitic worms, and the structures occurring on *Nebriæ*, which were regarded by Mayr as morbid growths of the chitinous membrane.

The author observed the development of *Laboulbenia muscæ*, which lives parasitically upon the common housefly. The *Laboulbeniæ* made their appearance epidemically upon the flies in the summer and autumn, showing themselves in the males particularly upon the limbs, in the females chiefly upon the head and trunk. The fungus develops no mycelium growing upon the surface or in the tissues of the animal. The perithecium, which is furnished with a long bicellular stalk, is produced from the bicellular spore, together with a curved branch furnished with points, which is inserted at the apex of the superior cell. When the spore has fixed itself by its pointed end, it ascends, the product of the lower cell of the spore becomes the stalk and perithecium, and that of the upper cell of the spore becomes the branch (with the exception of its basal cell, which is produced from a segment of the lower cell of the spore). The rudiment of the perithecium, which originally appeared as a lateral excrescence, grows rapidly in length. When its vertex does not yet appear to be equal in height with the terminal branch, the latter has already attained its complete development and definitive size, spherical cells make their appearance at the points, whilst at the same time the protoplasmic contents protrude from the cell at the vertex of the perithecium. The further development of the perithecium probably takes place in consequence of the fertilizing influence of the round cells of the branch upon the protruded fertilizable body; and there is produced in the cavity of the perithecium a tuft of tubes, in each of which eight spores are developed.