LIX. Anatomical observations on the structure of the ornithorynchus paradoxus

J.F. Blumenbach

To cite this article: J.F. Blumenbach (1802) LIX. Anatomical observations on the structure of the ornithorynchus paradoxus , Philosophical Magazine Series 1, 11:44, 366-367, DOI: [10.1080/14786440208676008](https://doi.org/10.1080/14786440208676008)

To link to this article: <http://dx.doi.org/10.1080/14786440208676008>

Published online: 18 May 2009.

Submit your article to this journal [↗](#)

Article views: 2

View related articles [↗](#)

LIX. *Anatomical Observations on the Structure of the Ornithorynchus Paradoxus.* By J. F. BLUMENBACH, Professor of Medicine at Göttingen, and Member of the Medical Society of Paris*.

THE specimen of this animal in my possession is about 19 inches in length; the head is 4 inches; the tail nearly the same; and the neck and trunk 10 inches†.

It is covered with two kinds of hair. The interior gray, short, and very soft, like down; that on the outside, mixed with others longer and stiffer, brownish on the back, and yellowish on the belly.

The limbs are short. The fore feet are about $2\frac{1}{2}$ inches in length; the hind feet are somewhat longer. The feet have five toes, palmated (*nataatorii*). The natatory membranes of the fore feet are very broad, not inserted between the toes, but attached below them, so as to be better calculated for diving.

The tail flat, and covered with stiff hair like bristles.

But what appears most singular and anomalous is the conformation of the head, being furnished with a broad beak resembling that of a duck. The mandibles, spatula-formed, are flat. The upper one, about 2 inches in length, and $1\frac{1}{3}$ in breadth.

These mandibles are covered with a coriaceous membrane, which extends to the corners of their aperture.

The under mandible, which is narrower than the upper, is serrated (*a*, fig. 1. Plate IX.) on the edges, as is the case in a duck's bill. The palate is furrowed across.

My specimen is destitute of teeth, like that described by Dr. Shaw; but I have lately been informed, in a letter from Sir Joseph Banks, that in another specimen two small *dentes molares* have been found on each side of each mandible.

The whole beak at the root is edged with an undulated membranaceous border running across it (*b*).

* From *Mémoires de la Société Médicale d'Emulation*, quatrième année.

† Dr. Bobba, a very respectable physician now resident at Göttingen, had before sent us a very interesting note on the *ornithorynchus paradoxus*, in which he says that there are three specimens in Great Britain similar to that in the possession of professor Blumenbach; viz. one in the British Museum; one in the possession of Mr. Dobson, an amateur of natural history at London; and a third in the university of Edinburgh. But the information he sent us having been already published in the *Bulletin des Sciences*, we did not think it necessary to insert it in this work. We have confined ourselves therefore to these new observations of professor Blumenbach.—*Note of the French Editor.*

Lowry sculp.

The conformation of the cranium, taken from the occipital condyli (*cd*), and the intermaxillary bones (*ef*), has, on the first view, a great resemblance to that of the duck. The bones of the skull are divided by no sutures; but the interior chamber of the brain is divided by an osseous hook (*g*) running lengthwise, which is found in no other quadruped *, and similar to that of the *tetrao urogallus*.

What seems to be highly worthy of notice, however, is the remarkable apparatus of the nerves of the second branch of the fifth pair, and the distribution of it in three regions of the coriaceous membrane which surrounds the beak. The nerve (*b*) which proceeds from the lower orbital foramen goes to the transverse edge: the other (*i*), which issues behind the intermaxillary bones, is distributed on the labial edges: the third (*k*), which issues from the synchondrosis, that divides the anterior hooked legs of the intermaxillary bones, proceeds to the integument of the beak.

Comparing this large apparatus of maxillary nerves, with which nature has provided this coriaceous integument, and the like structure of the duck's bill, there can scarcely be a doubt that this highly sensible membrane, which surrounds the beak, serves, in a very particular manner, in the *ornithorynchus*, as in aquatic birds, for the purposes of feeling, by means of which these animals can search for their food in muddy places, where neither sight nor smell can be of any use to them in that respect. Hence the eyes of the *ornithorynchus* are very small, but the nostrils (*lm*) exceedingly broad.

This wonderful animal, therefore, affords an exception to the order of the internal senses assigned to quadrupeds by Buffon †, who says: "In quadrupeds, smell is the first of senses; taste is the second; or rather, these two form only one: sight is the third; hearing the fourth; and feeling the last."

In the annexed figure, one of the bones of the skull is represented broken, that the interior of the chamber of the brain may be seen. N, denotes the orbita; O, the zygoma; PQ, the processus molares of each mandible. The other parts will be understood from the preceding description.

* I once found, but the instance is very rare, a similar osseous hook in the cranium of a woman about thirty years of age.

† Histoire des Oiseaux, tom. i. p. 48.