

THE  
PHILOSOPHICAL MAGAZINE:

COMPREHENDING  
THE VARIOUS BRANCHES OF SCIENCE,  
THE LIBERAL AND FINE ARTS,  
AGRICULTURE, MANUFACTURES,  
AND  
COMMERCE.

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BY ALEXANDER TILLOCH,

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“Nec araneorum sane textus ideo melior quia ex se fila gignunt, nec noster  
villior quia ex alienis libamus ut apes.” JUST. LIPS. *Monit. Polit.* lib. i. cap. 1.

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VOL. XVI.

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LONDON:

PRINTED FOR ALEXANDER TILLOCH;

And sold by Messrs. RICHARDSON, Cornhill; CADELL and DAVIES, Strand;  
LONGMAN and REES, Pater-noster Row; DEBRETT, Piccadilly;  
MURRAY, No 32, Fleet-street; SYMONDS, Pater-noster  
Row; BELL, No. 148, Oxford-street; VERNOR  
and HOOD, Poultry; HARDING, No. 36,  
St. James's-street; BELL and BRADFUTE,  
Edinburgh; BRASH and REID, Glasgow;  
and W. GILBERT, Dublin.

1803.

[Taylor, Printer, Black-Horse-Court, Fleet-street.]



sider Brunelli's insect as a little known species of this genus till the natural history of it has been better explained. The following is his account of it:—"The Brasilians give the name of *condiru* to an insect shaped like a small worm, which, when stroked with the finger in one direction, is smooth, but when stroked in the other feels so rough that it wounds the finger. It is greedy of blood from wounds; it is dangerous to the crocodile when wounded in the water, and is found in many places in multitudes. It makes its way into the limbs of the natives, and cannot be taken out without laying open the part: the men, therefore, must be very cautious when they go into the rivers."

XI. *Miscellanies in Natural History: viz. An Improvement in the System of the Mammalia; Observations on a living Opossum; and an Account of the third Generation of the Porcupine Man.* By Professor BLUMENBACH\*.

THE system of the mammalia, which I have made the foundation of my *Manual of Natural History*, and which has been followed by various naturalists in their works, will, I hope, be rendered more agreeable to nature, and more perfect, by the following alteration, which has been occasioned, in particular, by the discovery of the *ornithorhynchus paradoxus*. The organs of motion are made the chief ground of these orders, because they soonest strike the attention, and are in the most intimate relation with the whole habits of the animals. I have, however, subdivided two of them, which comprehend a great variety, into two families, according to the diversity of their incisor teeth, and distinguished them by the known names of some Linnæan orders, that those whole classes are arranged as follows:

I. ORDER. BIMANUS.

1. Homo.

II. QUADRUMANA.

2. Simia.

3. Papio.

4. Cercopithecus.

5. Lemur.

\* From *Magazin für den Neuesten Zustand der Naturkunde*, &c., by J. H. Voigt, vol. iii. 1802.



III. CHIROPTERA.

6. Vespertilio.

IV. DIGITATA.

Mammalia with detached toes on all the four feet. This order is divided, according to the diversity of the incisors, into the following families:

A. GLIRES with mouse-like incisors.

- 7. Sciurus.
- 8. Glis.
- 9. Mus.
- 10. Marmota.
- 11. Scavia.
- 12. Lepus.
- 13. Jaculus.
- 14. Hystrix.

B. FERÆ. The *rodentia*, properly so called, and some other genera with similar teeth.

- 15. Erinaceus.
- 16. Sorex.
- 17. Talpa.
- 18. Didelphis.
- 19. Viverra.
- 20. Mustela.
- 21. Ursus.
- 22. Canis.
- 23. Felis.

C. BRUTA. Without incisors, or at least without fore-teeth.

- 24. Bradypus.
- 25. Myrmecophaga.
- 26. Manis.
- 27. Tatu.

V. SOLIDUNGULA.

- 28. Equus.

VI. BISULCA. The ruminating animals with divided hoofs.

- 29. Camelus.
- 30. Capra.
- 31. Antilope.
- 32. Bos.
- 33. Giraffa.
- 34. Cervus.
- 35. Moschus.



VII. MULTUNGULA. Mostly large, or shapeless, bristly, thinly haired mammalia, with more than two claws on each foot; comprehending swine, for these properly have four claws.

- 36. Sus.
- 37. Tapir.
- 38. Elephas.
- 39. Rhinoceros.
- 40. Hippopotamus.

VIII. PALMATA. Web-footed mammalia, again divided, according to the diversity of their incisors, into the above three families.

A. Glires.

- 41. Castor.

B. FERÆ.

- 42. Phoca.
- 43. Lutra.

C. BRUTA.

- 44. Ornithorhyncus.
- 45. Trichechus.

IX. CETACEA.

- 46. Monodon.
- 47. Balæna.
- 48. Physeter.
- 49. Delphinus.

*Observations on a living Opossum, Didelphis marsupialis.*

Some months ago I obtained that wonder of all the land animals, as Mr. Lawson calls it, for which I was indebted to the kindness of an American friend, Dr. Tidyman, of Charlestown, in South Carolina.

It is about as large as a middle-sized cat. Its head is shaped like that of the fox: but its long snout, and the bare flesh-coloured nose turned somewhat upwards almost in the form of a snout, are nearly like those of a pig. The aperture of the mouth is exceedingly wide: the lower jaw is perceptibly shorter than the upper; and the upper angular teeth, even when the mouth is shut, are visible. The head is white, with a faint blackish stripe along the forehead, and the part between the fore corners of the eyes and the snout is of the same colour. Both sides of the mouth, and in particular the chin, are furnished with a great many long stiff hairs. The pupil of the eye is small, but the cornea is proportionally large and exceedingly convex, so that very little of the white of the eye can be seen; and this,



this, with the dark brown colour of the iris, gives to the animal a lively appearance. Of a *membrana nictitans*, as among the quadrumana, scarcely any rudiment is to be seen. The ears are large, black, naked, and, according to appearance, merely membranous, without any cartilaginous folds, and therefore nearly like those of the bat; in my animal also, without the white border which is ascribed to others of this genus.

The neck is short and thick, and the same is the case with the rump, which is well covered with hair. Sometimes the hair on the back is long and erect, almost as in the badger; its colour is white mixed with black, and darkest on the shoulders.

The bag on the belly is very apparent by its prominence, especially when the singular *ossa marsupialia* or *cornua pelvis abdominalia* lie under it. The place of its aperture is marked only by a longitudinal fissure.

The tail is about the length of the body; it is almost naked, and as scaly as that of the rat, but a real *cauda prehensilis*.

The shoulders and fore legs are black, and covered with soft hair. The toes are naked, and of a flesh colour. The hind feet are furnished with detached toes with a small flat nail, but on all the other toes there are hooked claws of a white colour.

A figure of the animal, drawn from the life, may be seen in my *Abbildungen naturhistorischer Gegenstände*, tab. 54.

It is a real *animal omnivorum*, and can feed upon any kind of fruit; it is fondest of plums, and of other food, next to flesh, of fowl, game, and in particular of soup and bouilli. It chews its food with great deliberation, and catches the large pieces very dexterously with its fore feet; and it uses these feet with great address for dressing its snout, on which occasions it sits on its hind legs like a squirrel.

Its cry, which it seldom emits except when irritated, is a weak kind of grunting. It drinks very little, and sometimes not for several days. It seldom makes water, and even when in good health voids its excrements only once in four or five days. It however does neither in the place where it lies, but always retires to a corner of its kennel.

In general it preserves itself very clean; and on the whole is a quiet, good-natured animal; slow, and as it were cautious in all its motions; and of so strong a constitution that the people in America are accustomed to say,



"If a cat, according to the proverb, has nine lives, the opossum has nineteen."

I shall now say a few words respecting the oldest accounts and figures of this animal, which were published in Europe after the discovery of the New World.

The first person who made mention of it, as far as I know, was V. Pinzon, who accompanied Columbus on his first voyage of discovery. This notice is to be found in Herwag's Collection (*Novus Orbis*, the first edition of 1532, p. 121\*.)

About the end of the fifteenth century one of these animals was brought alive to Seville, and presented to the king of Granada.

Peter Martyr, who saw a dead specimen of this animal, gave a more accurate account of the opossum, which he thus describes: "*Monstrosum animal, vulpino rostro, cercopithecæ cauda; vespertilionæ auribus, manibus humanis, pedibus simiam æmulans, &c.*"

The name of *simivulpa* was first given to it by Gylli, in his edition of *Ælian*, 1553, 4to. p. 209; and this denomination was afterwards adopted by Gessner.

The oldest figure of it with which I am acquainted, but which is indeed very defective, is in the unfortunate Servetus's edition of *Ptolemy*, 1535, fol. tab. 28. It is there given as brought from the eastern coast of *Terra Firma*, with this inscription: "*Reperitur hic animal habens reservaculum quo suos pullos secum portat, et eos non nisi lactandi tempore emittit. Tale regi Hispaniæ Granatæ oblatum est.*"

The first tolerable figure was given by Nierenberg, p. 156, if we except the woolly hair and the hind feet, which are entirely misrepresented.

#### *The third Generation of the Porcupine Man.*

The well-known astronomer J. Machin gave in the *Philosophical Transactions* for 1732† the first account of a boy of 14 years of age, afterwards called the *porcupine man*, whose whole skin, the head, the palms of the hand, and the soles of the feet excepted, was covered with corneous pegs, which gave the body an appearance as if covered with a coat of mail. He was not born with this cuticular defor-

\* This very scarce *editio princeps* seems to be unknown to modern bibliographers best acquainted with the literature of voyages and travels. I obtained my copy through the kindness of Sir Joseph Banks.

† Vol. xxxvii. p. 299.



mity, which first made its appearance seven or eight weeks after birth, at which period the skin became yellow, and gradually continued to grow darker, till at length it became black, and soon after thicker and more corneous.

In his fiftieth year this man, who was now married and a father, exhibited himself in London, together with his son, who had the same deformity of skin. The celebrated Baker, who wrote on the microscope, gave at that time in the *Philosophical Transactions*\* an appendix to M. Machin's paper; and as the latter had given a representation of the hand of the father, the former gave a figure of that of the son from a drawing, an engraving of which may be seen also in Edwards's *Gleanings of Natural History*, p. 1, tab. 212.

This son afterwards married; and in the month of September 1801 I saw two of his sons perfectly like their father and grandfather, and consequently the third generation of this family so singular on account of this cuticular deformity.

The oldest was twenty-two years of age and married, the younger was fourteen. Both were stout, well made, and of an athletic constitution. The older was a good pugilist like his grandfather, who is said to have excelled in this gymnastic art. His face, the palms of the hands, and the soles of the feet were of the usual appearance, but seemed to me to be uncommonly red. The skin of the remaining parts of the body was covered with corneous excrescences, or pegs of greater or less size, and of a more or less horny nature. The longest, strongest, and hardest, were on the fore arm and thighs; the finest were on some parts of the lower belly. They were in general smaller on the younger brother, and in many places, such as the breast, soft. The largest excrescences were from four to five lines in length, and of an irregular prismatic form, with blunt edges, almost as if pressed flat. The thickest were about three lines in diameter; at the extremities in general split, and many of them diverging like a fork. On the other hand, I scarcely observed one of them of that cylindric form ascribed to them by Baker, who besides supposed them to be hollow; at least such was the opinion of Haller, who considered this as a confirmation of Boerhaave's opinion in regard to the construction of the epidermis, as he says: "*In hoc puero tota superficies corporis abiit in congeriem tubulorum exstantium, callosorum, subinde renascentium, quod*

\* Vol. xlix. part i. p. 21.



certe exemplum quasi de industria ad conformandam præceptoris sententiam factum est." Boerhaave says expressly of the epidermis: "Constat vasorum exhalantium et inhalantium innumerabilium extremis annulis, inter se connatis."

Where the excrescences were longest and thickest, they appeared to me to be like those which I have seen in the elephant under the forehead and above the trunk.

The colour of them in general appeared to be a chesnut or coffee brown. This however was the case at the surface, for in other parts the larger ones were rather yellowish gray.

The hair of the skin appeared sometimes as if grown into the horny substance of these excrescences.

Both the brothers, as well as the father and grandfather, had had the smallpox, in the last stage of which they lost the greater part of their excrescences; but they were soon gradually reproduced. In general they drop off singly from time to time, especially in winter; but new ones gradually grow up. When they are in any manner torn off, the skin which lies under them readily begins to bleed.

The skin on the top of the head before, and especially in the oldest, forms a kind of broad callosity, which has some resemblance to the *tofts* of the camel.

The perspiration of these two brothers exhibits nothing uncommon, no perceptible smell, &c. and during great heats or violent exercise they sweat like other men.

I am acquainted with only two cases which have a real analogy to that of the porcupine men from Suffolk. The one is the boy from Biseglia, of whom Stalp van der Wiel has given a figure and some account, in his *Observations*\*: the other is a female child, three years of age, at Vienna, whose history and an account of the cure have been published by J. A. von Brambilla†. In both the face was free from these excrescences, but the palms of the hands and the soles of the feet were the most covered with them. An observation made in regard to the boy corresponds exactly with a circumstance related of the porcupine man: "Delapsis veteribus, novæ illico succedebant squamæ, quibus avulsis mox effluebat sanguis;" and the case is the same with what Brambilla says of the girl: "she was born with a smooth and somewhat yellow skin, but in six weeks it became brown, and in the course of a year black and bristly." The last-mentioned child was freed from its bristly warts

\* *Observat.* part ii. p. 374.

† *Abhandlungen der Josephinischen medicinisch-chirurgischen Akad.* vol. i. p. 371.



by the continued use of bathing and mercurials; and we are told by Baker that the first porcupine man twice employed salivation to cleanse his skin; that by these means the excrescences dropped off, and that the skin continued for some time as white and smooth as that of other people; but that soon after the cure it became covered with these horny excrescences as before.

Other instances of singular deformities in the skin are mentioned by Fabricius, Hildanus, Fourcroy, &c., but these are so different from that here alluded to, that they cannot be placed in the same class.

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XII. *A Survey and Report of the Coasts and Central Highlands of Scotland; made by the Command of the Right Honourable the Lords Commissioners of His Majesty's Treasury in the Autumn of 1802. By THOMAS TELFORD, Civil Engineer, Edinburgh, F. R. S.*

[Continued from vol. xv, p. 311.]

*The Fisheries.*

IN what regards the fisheries, I beg leave to quote a passage from my last year's Report. "I believe it is generally admitted, that in the improvement of a country, the interference of government should extend only to the removing obstacles, and affording conveniences which are of a nature not easily to be surmounted by individuals, or any body of men who can be brought to act together; and where it is evident that by removing those obstacles and affording these conveniences, the exertions of individuals will be greatly facilitated, so as to promote the general good of the empire."

The objects connected with the Fisheries, which seem to come under the foregoing description, are, 1st, the want of a ready communication by water between the east and west coasts; 2dly, the want of communications by land from the low countries and the east coast, with the shores and fishing lochs of the west coast; 3dly, the inconveniences arising from the operation of the salt laws; and 4thly, the want of a harbour in Caithness.

The first and second of those objects have already been fully discussed under the heads of the Caledonian Canal, and the proposed Bridges and Roads. The third has been so often and thoroughly investigated, that I shall only in this place take the liberty of mentioning that all the information

I have