III. Description of the equus hemionus or dfhiggetai of the Eastern deserts of Middle Asia

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of the day ; but the small pennons at the mast-heads of the fishing-boats in the harbour were in the morning at all points of the compass.

I was a few days afterwards at Winchelsea, and at several places along the coast ; where I was informed the above phenomenon had been equally visible.

III. *Description of the Equus Hemionus or Dshiggetai of the Eastern Deserts of Middle Asia. By Professor PALLAS. From Neue Nordische Beytrage, Vol. II.*

[Concluded from page 121.]

THE covering season of the dshiggetai falls towards the middle or end of August ; and about this period Messerschmidt observed in a female, which he dissected, a fœtus not larger than a mouse. They cast their young in the spring, and generally have one foal at a time. When the young attain to the age of three, they are equal in size to the old ones, and are fit for procreation, as I was assured by the inhabitants of those countries, who often had an opportunity of killing and examining these animals.

The males when they fight bite each other, like the common wild horses. The dshiggetai fights also with its heels, as was observed in a foal which had been caught, and which, a few years before my arrival in Dauria, was kept there by one of the Cossacks ; but it continued alive only a short time. The hair of the dshiggetai in winter is almost of a pale isabella yellow colour, about an inch and a half long ; a little rough on the back, as was the case in the foal of a wild horse, which I have already described*, and equally soft and tender. Skins covered with winter hair of this kind I have found among the Tungusians. The female, however, which I procured in Dauria, at the end of the month

* See *Pallas Reise*, vol. iii. p. 509, Plate VIII.

of May, had at that period lost almost all its winter hair, though the Tungusian horses still retained theirs. The summer hair of this female was uncommonly smooth and pretty; and I never found it much longer on the skins of animals shot far later in the season. The colour easily becomes paler; and on the stuffed hide of the female, which I have described, and which is preserved in the cabinet of natural history at Petersburg, the summer hair, partly by the preparation the hide has gone through, and partly by the effects of the sun, has been totally bleached to a dull isabella colour, which appears lighter than the common winter hair.

The above female was about three years old, and was shot on the 26th of May O. S. 1772, in the neighbourhood of Tareinoor, in the country of the Tungusians. As the spring heats had then commenced with great violence in those districts, the animal, at Kulussutai, where it was kept for me, had already begun to putrefy on the 28th, and exposed me to a very disagreeable piece of labour, especially in a barren region, where I was obliged to dissect it without any assistance. The figure (Plate V.) done from a drawing made before the dissection, is so accurate, that I was never better satisfied with any representation of an animal. The *dzhiggetai* cannot, therefore, be any longer considered among the doubtful animals, and its description is as follows:

In size and figure it has a great resemblance to a middle-sized mule; but it excels the mule in the beauty and delicacy of its make. The head is larger than that of the horse, and more compressed at the sides; the forehead is perfectly flat, and runs downwards with a small angle towards the muzzle. The sides of the head are also flat, especially where the broad part of the jaw-bones lie, and where the head has the greatest thickness. On the other hand, the throat, between the broad parts of the jaw-bones, is hollow.

The lips, particularly the upper one, are thick and flabby; thinly covered with hair, and black on the edges, which are beset

Irish Wolf Dog.

Wild Ap. of Middle Asia.

Engraved by Lowry

beset with stiff gray bristles, crooked and bent downwards. The corners of the mouth are covered with soft hair on the inside; and the inner side of the cheeks is covered with fine blackish glands. The number of the teeth amounts to thirty-four; so that this animal has two less than the horse. The fore-teeth are six; the four middlemost of which, in the above-mentioned female, had not yet been changed; they were of a conical form marked with a small furrow; and the side ones were obliquely blunted, and pressed towards those in the middle. The situation of the fore-teeth is the same as those of the horse, standing perpendicular in the upper, and obliquely in the under jaw. I found the eye-teeth neither in this female, nor in the skull of a stallion, which had been shot a little before, and brought to me by the Tungusians; but I observed in the upper jaw of the former, at a mean distance between the fore and jaw teeth, a trace as of a socket for a tooth. The jaw-teeth were like those of the horse; but on each side above, as well as below, there were only three fully grown, beyond which the fourth was just beginning to appear. I found a fifth in the before-mentioned skull concealed within the socket. Of the latter, Messerschmidt, speaking of the skull of a stallion, makes no mention. In the palate I counted seventeen broad wrinkles, of which, those before were flatter, and those behind higher and broader.

The nostrils, as in the horse, are wide, blackish on the inside and edges; but under the nostril, on each side of the cartilage, there is an excrescence like a large round wart, which is to be found neither in the horse nor the ass. The muzzle is interspersed with long blackish bristles, the longest of which, about two inches in length, are found on the underlip, and on the outside of the nostrils.

The eyes are of a moderate size, and, with their longest diameter, stand in the head obliquely. The edges of the eyelids and a triangular spot at the corner of the eye are bald and blackish; and the upper eyelid only is furnished
with

with a row of black eyelashes, seven lines in length, which are at a little distance from the edge of the eyelid, and do not reach entirely to the corners. Below the foremost corner, however, of the eye, in the neighbourhood of the *os jugalis*, there are several scattered black hairs, two of which, more than two inches in length, lie entirely flat. In the corner of the eye lies a thick white fold of skin, which is capable of being extended, seven lines in breadth, as far as the iris, and in the middle of its edge has a blackish moon-formed spot. The white of the eye, next to the transparent cornea, is brownish; the iris is darkish gray, and, as it were, radiated with folds; the pupil is elongated, so that its longest diameter runs through the corner of the eye, and, like the eye itself, stands obliquely.

The ears are much larger than those of the horse, though much more in proportion to the size than those of the ass; sharp-pointed, erect, internally of the colour of the body; but the inside, at the top, and a stripe on the edges downwards, are brownish black. On the inside they are covered with curled whitish hair, which rises up from the circumference. Three raised stripes run along the inside of the ear lengthwise, which are thinly covered with hair of the like kind projecting from each other.

The neck is smaller and rounder than that of the horse, and even than that of those called stag-necked. The mane proceeds from the back part of the skull to the shoulders, of an equal height, and is as soft and as upright as in young foals. It is of a blackish colour with yellowish gray points, and about three quarters of an inch in length. Instead of the tuft before, the whole space between the ears and the orbits of the eyes is thick set with soft hair of the same colour as the mane, and at most one inch three lines in length.

The body is pretty long, more compressed on the sides than in the horse, contracted towards the lower part of the breast, particularly before, into a conical form, and strongly built.

built. The rump is pretty straight and somewhat sharp, as in the afs. As the body was swelled up, the spine was become bent into the form of a bow.

The animal stands high on its limbs, which are delicate, though its muscles are strong; but the shoulders, thighs and legs are somewhat meagre, like those of slight-formed mules. The fore legs, on the inside, have a longish, round, bald, blackish scar, covered with a tender, somewhat hard and brittle skin, which, at some times of the year, may perhaps be covered by a corneous substance. In the common afs this scar is more of a round form. It was in length two inches seven lines, and in breadth one inch six lines. On the hind legs no traces of such a scar were to be seen. The lower part of the leg is perfectly smooth, ornamented behind with a considerable tuft of short hair: on the fore-side inwards there is a black spot, and outwards a faint mark near the before-mentioned tuft. On the hind feet there are two small faint spots above it. The hoofs are very hard, dry, of a black colour, small, and almost like a half cone; roundish-above, and very hollow on the sole. The edges of all the hoofs exhibited traces of cracks which had grown up again.

The tail was almost like that of a cow; the trunk is thin, moderately long, perfectly round, quite bald from the rump to the middle; but the other part is covered with short bristles of the same colour as the sides of the body. It is bushy at the end, where it forms a black tuft, about nine inches in length.

I found the winter hair on the skin already mentioned to be two inches long, tolerably thick, as soft as camel hair, and of an isabella gray colour outwardly, but of a pale iron-gray towards the roots. The summer hair on the female, which I have described, was scarcely three quarters of a line in length, here and there disposed into circular arrangements (*vortices*) and shadings, and on the back never turned forwards as in the zebra. A shading of the hair runs length-

wise

wise along the face, and two others above the eyes. The vortices I observed first on each side of the mane immediately behind the ears. There were two also above each other under the neck; two on the sides of the neck opposite the shoulders; a larger one on each joint of the shoulder; another large one on each side of the breast behind the shoulders, and also a cruciform shading of the hair. Several more of these hair vortices could be observed on different parts of the body.

The colour of the muzzle is whitish; the rest of the body inclines a little more to yellow; the neck is of a fallow colour; the rump from the back to the sides of an ochre yellow; the sides fallow, and the limbs paler. The hind part of the fore legs, and the inner part of the hind legs, together with the lower part of the rump and the hinder edge of the thigh, are whitish. Where the mane ceases, there begins a blackish brown stripe, which runs along the ridge of the back to the bushy part of the tail. The udder is blackish and perfectly bald, with two strong short teats. The measurement of the principal parts of this animal is as follows: The length from the skull between the ears to the root of the tail 5 feet 1 inch 3 lines; length of the head 1 foot 8 inches 6 lines; height of the animal at the shoulders before 3 feet 9 inches 9 lines; height behind 4 feet 3 inches 6 lines; length of the ears 7 inches 2 lines; length of the tail without the brush at the end 1 foot 4 inches 1 line; length of the brush 8 inches 2 lines. The weight of the whole animal amounted to 560 pounds apothecary's weight.

Every thing considered, the *dshiggetai* is distinguished particularly by the head, which has a mean proportion between that of the horse and the ass; and, in that respect, as well as by the ears and the tail, it approaches very near to the zebra. In the rest of the body and the thighs it is more like the ass; and in the limbs it has a greater similarity to the mule and the horse. The tail is more naked than that of the ass, and nearly like that of the cow. Its

colour

colour and hair vortices are peculiar to itself. The stripe on the back, however, is like that of the female onager, and of many horses, without any cross stripes. The tail excepted, it has, in general, the greatest likeness to the mule. But, from the above circumstances, it clearly appears that the dshiggetai is an animal of a distinct genus, and as much peculiar to Asia as the zebra and quagga are to Africa; whereas the ass, and perhaps the horse, in a wild state, belong to both these quarters of the world in common.

IV. *Experiments on, and the Manner of distinguishing, several Diseases by the Urine.* By Mr. CRUICKSHANK. *From Cases of the Diabetes, &c. Second Edition.*

THE urine is a fluid separated from the blood by the kidneys, containing several neutral salts, with more or less animal extractive matter. The relative proportions of these substances are found to vary so much in the same person, both in health and disease, that it is extremely difficult to fix on what may be considered as a standard for healthy urine. The specific gravity of this fluid reaches from 1005 to 1033, that of distilled water being 1000: by exposure to the air it soon runs into the putrefactive state, accompanied with the production of much ammonia, although when first voided it always contains an excess of phosphoric acid, and reddens litmus: in consequence of this excess, it holds in solution more or less phosphat of lime, which may be readily thrown down by a fixed alkali, or even pure ammonia. By evaporation, 36 oz. yield a residuum varying from 1 oz. to $1\frac{1}{2}$: this consists of the muriats of potash and soda, the phosphats of soda, lime, and ammonia, the phosphoric and lithic acids, with animal extractive matter. Their relative proportions in a healthy state may be nearly as follows:

Oz.