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VOL. XXIII.

MAMMALIA.

THICK-SKINNED QUADRUPEDS.

BY THE EDITOR.



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HENRY G. BOHN, YORK STREET, COVENT GARDEN;

AND ALL BOOKSELLERS.

about a truss of hay in a week, besides greens of different kinds, which were often brought to him, and of which he seemed fonder than of his dry victuals; and drank large quantities of water at a time, being then, it seems, two years old.

“ He appeared very peaceable in his temper, suffering himself to be handled in any part of his body; but outrageous when struck or hungry, and pacified in either case only by victuals. In his outrage he jumps about, and springs to an incredible height, driving his head against the walls of the place with great fury and quickness, notwithstanding his lumpish aspect: this Dr Parsons saw several times, especially in a morning, before his rice and sugar were given him.

“ In height he did not exceed a young heifer, but was very broad and thick. His head, in proportion, is very large, having the hinder part, next his ears, extremely high, in proportion to the rest of his face, which is flat, and sinks down suddenly forward towards the middle, rising again to the horn, but in a less degree. The horn stands on the nose of the animal, as on a hill. The part of the bone on which the horn is fixed, rises into a blunt cone, to answer to a cavity in the basis of the horn, which is very hard and solid, having no manner of hollow nor core, like those of other quadrupeds. That of this animal, being young, does not rise from its

THE INDIAN RHINOCEROS.

Rhinoceros Indicus. — Cuv.

PLATES VIII. and IX.

R. unicornis, *Linn.* — Indian Rhinoceros, *Dr Parsons* — *Griffith's Cuvier* — *Menagerie du Musee.*

THIS is the oldest known species of modern days. It has been figured by Albert Durer, Dr Parsons, and Edwards; more lately by Frederick Cuvier, in his great work, and by Griffiths, in the Animal Kingdom of Cuvier, both from the same animal, which was first exhibited in London, and afterwards reached the Parisian menagerie. Dr Parsons' account was taken from a specimen exhibited in London in 1739; the animal was young, and the horn had scarcely reached the length of more than an inch. We add a great portion of his interesting and minute description.

“ He was fed here with rice, sugar, and hay: of the first he ate seven pounds mixed with three of sugar every day, divided into three meals; and



INDIAN RHINOCEROS.
Liverpool Zool. Gardens.

INDIAN RHINOCEROS
Liverpool Zoological Gardens.



PLATE 11

Stewart del.

rough base above an inch high, is black and smooth at the top, like those of the ox-kind, but rugged downwards; the determination of its growth is backwards, instead of straight up; which is apparent, as well in the different horns of old Rhinoceroses, as in this of our present subject; for the distance from the base to the apex of this, backward, is not within a third part so long as that before, and it has a curved direction; and, considering the proportion of this animal's size to its horn, we may justly imagine, that the creature which bore any one of those great ones, must have been a stupendous animal in size and strength; and, indeed, it were no wonder, if such were untractable at any rate.

“The sides of his under jaw are wide asunder, slanting outward to the lower edge; and backward to the neck, the edges turn outward; from this structure his head naturally looks large. The part that reaches from the fore part of the horn towards the upper lip, may be called the nose, being very bulky, and having a kind of circular sweep downward towards the nostrils: on all this part he has a great number of rugæ running across the front of it, and advancing on each side towards his eyes. The nostrils are situated very low, in the same direction with the rictus oris, and not above an inch from it. If we look at him in a fore view, the whole nose, from

the top of the horn to the bottom of his lower lip, seems shaped like a bell, namely, small and narrow at top, with a broad base. His under lip is like that of an ox, but the upper more like that of a horse; using it, as that creature does, to gather the hay from the rack, or grass from the ground; with this difference, that the Rhinoceros has a power of stretching it out above six inches, to a point, and doubling it round a stick or one's finger, holding it fast; so that, as to that action, it is not unlike the proboscis of an Elephant.

“As to the tongue of the Rhinoceros, though it be confidently reported by authors, that it is so rough as to be capable of rubbing a man's flesh from his bones; yet that of our present animal is soft, and as smooth as that of a calf; which Dr Parsons often felt, having had his hand sucked several times by him. Whether it may grow more rough as the beast grows older, we cannot say. His eyes are dull and sleepy, much like a hog in shape, and situated nearer the nose than that of any quadruped ever seen, which he very seldom opens entirely. His ears are broad and thin towards the tops, much like those of a hog; but have each a narrow round root with some rugæ about it; and rises, as it were, out of a sinus surrounded with a plica. His neck is very short, being that part which lies between the back edge of the jaw and the plica of the shoulder; on

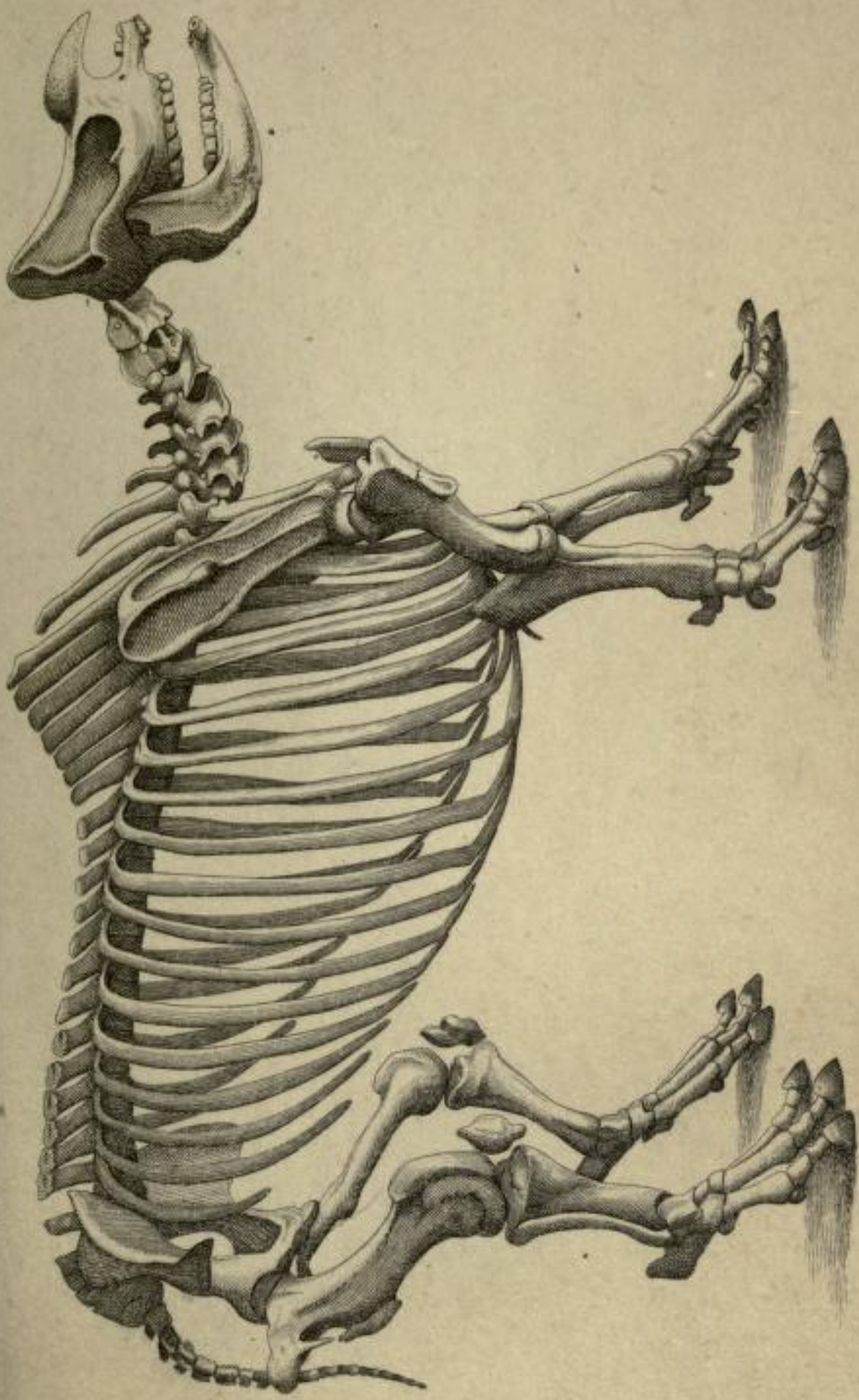
this part there are two distinct folds, which go quite round it, only the fore one is broken underneath, and has a hollow flap hanging from it, so deep that it would contain a man's fist shut, the concave side being forward. From the middle of the hinder one of these folds or plicæ, arises another, which, passing backwards along the neck, is lost before it reaches that which surrounds the fore part of the body. His shoulders are very thick and heavy, and have each another fold downward, that crosses the fore leg; and almost meeting that of the fore part of the body just mentioned, they both double under the belly close behind the fore leg.

“ His body, in general, is very thick, and juts out at the sides like that of a cow with calf. He has a hollow in his back, which is mostly forward, but backwards, the line or ridge rises much higher than that of the withers; and, forming the plica on the loins, falls down suddenly to the tail, making an uneven line. His belly hangs low, being not far from the ground, as it sinks much in the middle. From the highest point in his back, the plica of the loins runs down on each side between the last ribs and the hip, and is lost before it comes to the belly; but, above the place of its being lost, another arises, and runs backward round the hind legs, a little above the joint; this he calls the crural fold, which turns up

behind till it meets another transverse one, which runs from the side of the tail forward, and is lost before it reaches within two inches of that of the loins. The legs are thick and strong; those before, when he stands firm, bend back at the knee, a great way from a straight line, being very round, and somewhat taper downwards. The hinder legs are also very strong, bending backwards at the joint to a blunt angle, under which the limbs grow smaller, and then becomes gradually thicker, as it approaches the foot; so also does that part of the fore leg. About the joint of each of his legs, there is a remarkable plica when he bends them in lying down, which disappears when he stands."

Another specimen, as we have mentioned, was exhibited in London in 1815, and a good figure appeared in Griffith. This animal, to judge from the figure, was of a much greater age than Dr Parsons',—the horn lengthened, and appearing a formidable weapon.

The animal recorded by F. Cuvier as being in the Parisian menagerie, is nearly thus noticed. The height, at the most elevated part of the back, was four feet ten inches, and its entire length about nine feet. The body was covered with a thick tuberculated and almost naked skin, formed into irregular folds. The natural colour of the skin, was a dull grayish violet, but it appeared



RHINOCEROS.

Linnaeus.

Another animal, the One-Horned Sumatran Rhinoceros, *Rhinoceros Sondaicus*, Cuvier, is closely allied to this; it is a native of the Indian

London, Glasgow, and Edinburgh, and is at present the property of the proprietors of the Zoological Gardens at Liverpool. It is stated to be six years old, and to weigh two tons; is a beautiful specimen, and appears to be in the highest state of health. It is fed on bruised nuts, boiled rice, and bran steeped in warm water, with large quantities of hay, and a few carrots, consuming, in the whole, about one hundred weight and a-half per day. Its drink is water, with the chill off. There are two canine teeth, one on each side of the lower jaw, and two corresponding ones just protruding at the upper jaw: the grinders are so far back in the head, that it is impossible to count them. There are long eyelashes on the upper eyelid, but more on the lower; and the only appearance of hair is on the ears, the extremity of the tail, and three or four on the centre of the back, between the shoulders: its skin is dressed with cocoa-nut oil. I may remark that it is retromingent. The following are the measurements, which were taken with as much accuracy as possible, consistent with the motions of the animal. They invariably include the angles of the body.

	feet.	inches.
Height from the highest part of the back,	4	8
Length from the tip of the snout, to the extremity of the tail	12	9½
Length from tip of snout, to back of skull bone,	5	0
Length from back of skull, to the insertion of the tail,	7	9½
Length of tail,	2	0
Length of fore feet from the fold of the skin, to the toes,	2	5
Girth of fore feet at the knee,	1	10½

Islands, and was first discovered in Sumatra by Dr Horsfield and Sir Stamford Raffles, while the distinctions were pointed out and the name applied by Baron Cuvier.

	Feet	Inches
Length of hind feet, from the fold of the skin, to the toes,	1	8
Girth of ditto,	2	6 $\frac{3}{4}$
Width from the Tygoma <i>over</i> the skull,	1	5
Width from the same point <i>under</i> the skull,	3	0
Length from the fold of the skin, at the back of the head, to the tip of the lower jaw,	2	0 $\frac{7}{8}$
Width of the fold of the skin straight across the shoulder,	1	11
Width of the fold of skin straight along the body,	2	10
Girth of the middle of the belly,	9	4 $\frac{1}{4}$
Girth of the neck <i>within</i> the folds,	4	4 $\frac{1}{2}$
Space between the base of the ears,	0	4
Length of the ears,	1	0 $\frac{3}{8}$
Space from the ear to the eye,	1	0
Space from the eye to the nostril,	0	9
Length of the eye,	0	2

I have said nothing of the general appearance of the animal, because the common engravings give a very correct idea of its figure. Its eye is dull, and its disposition is heavy and sluggish, seeming inclined to sleep a good deal. The keeper appears to have it in great subjection; but on one occasion, during his absence, it shewed a sudden ebullition of irritation, when it repeatedly knocked its head with considerable violence against the wall with great quickness; but on the reappearance of the keeper, immediately became tranquil. The only noise I have ever heard it emit, was like the lowing of a calf. Much has been written about the roughness of the tongue; the tongue of this individual appears to me to be very similar to that of a cow, except that it is much thinner at the point.

ONE HORNED SUMATRAN
RHINOCEROS.

Rhinoceros Sondaicus.—CUVIER.

PLATE X.

Rhinoceros Sondaicus, Cuv. — Horsfield's *Zool. Researches in Java*.

THE chief distinctions are seen in the more attenuated head and muzzle. The folds appear less rough and prominent; those of the neck comparatively smaller; and the posterior fold, which has an oblique direction towards the spine, is less extended. The thick covering, or coat, is divided on the surface into small tubercles, or polygonous scutula; and a few short bristly hairs, rising from a slight depression in the centre, constitute a peculiar character. The ears are bordered with a series of long stiff bristles, closely arranged, and a similar series also extends along the tail through its whole length. Dr Horsfield gives the following description of its habits.

“ The individual represented in our plate, and which has afforded the preceding details, was



SUMATRAN RHINOCEROS.

Linnæus 30.

Scamper del.

taken, when very young, in the forests of the province of Keddu, and was conveyed to the residency at Magellan, in the year 1815 or 1816.

“By kind treatment, it soon became domesticated to such a degree, that it permitted itself to be carried in a large vehicle, resembling a cart, to the capital of Surracarta. I saw it during its conveyance, and found it perfectly mild and tractable. At Surracarta, it was confined in the large area or square which bounds the entrance to the royal residence.

“A deep ditch, about three feet wide, limited its range, and for several years it never attempted to pass it. It was perfectly reconciled to its confinement, and never exhibited any symptoms of uneasiness or rage, although, on its first arrival, harassed in various ways by a large proportion of the inhabitants of a populous capital, whose curiosity induced them to inspect the stranger of the forest. Branches of trees, shrubs, and various other twining plants, were abundantly provided for its food. Of these the spices of *cissus* and the small twigs of a native fig tree, were preferred: but plantains were the most favourite food, and the abundant manner in which it was supplied with these by the numerous visitors, tended greatly to make the animal mild and sociable. It allowed itself to be handled and examined freely, and the more daring of the visitors some-

times mounted on its back. It required copious supplies of water; and, when not taking food, or intentionally roused by the natives, it generally placed itself in the large excavations, which its movements soon caused in the soft earth that covered the allotted space.

“ The animal rapidly increased in size. In the year 1817, having been confined at Surracarta about nine or ten months, the dimensions, as already stated, were nine feet in length, and four feet three inches in height at the rump. In 1821 it had acquired the height of five feet seven inches. This information I received from my friend Mr Stavers, who is now in England, on a visit from the interior of Java; and he favoured me farther with the following details, which complete the history of the individual whose figure is annexed. Having considerably increased in size, the ditch of three feet in breadth was insufficient for confining it; but, leaving the enclosure, it frequently passed to the dwellings of the natives, destroying the plantations of fruit trees, and culinary vegetables, which always surround them. It likewise terrified those natives that accidentally met with it, and who were unacquainted with its appearance and habits. But it shewed no ill-natured disposition, and readily allowed itself to be driven back to the enclosure like a Buffalo. The excessive excavations which it made by continually wallow-

ing in the mire, and the accumulation of putrifying vegetable matter, in process of time became offensive at the entrance of the palace, and its removal was ordered by the Emperor to a small village near the confines of the capital, where, in the year 1821, it was accidentally drowned in a rivulet.

“The Rhinoceros lives gregarious in many parts of Java. It is not limited to a particular region or climate, but its range extends from the level of the ocean to the summit of mountains of considerable elevation. I noticed it at Tangung, near the confines of the Southern Ocean, in the districts of the native princes, and on the summit of the high peaks of the Priangang regions, but it prefers high situations. It is not generally distributed, but is tolerably numerous in circumscribed spots, distant from the dwellings of man, and covered with a profuse vegetation. On the whole, it is more abundant in the western than in the eastern districts of the island. Its retreats are discovered by deeply excavated passages which it forms along the declivities of mountains and hills. I found them occasionally of great depth and extent.

“In its manners the Rhinoceros of Java is comparatively mild. It is not unfrequently met in the wilds by Europeans and by natives. No instance of its shewing a disposition to make an attack has come to my knowledge. Being the

178 ONE-HORNED SUMATRAN RHINOCEROS.

largest animal in Java, its passions are not roused, as in many parts of India, by contentions with the Elephant. It is rarely seen in a domestic state, but it is occasionally decoyed into pits, and destroyed. Our animal rambles chiefly at night, and often occasions serious injury to the plantations of coffee and pepper, which are laid out in the fertile districts selected for its retreat.

“The horns and skin are employed for medicinal purposes by the natives.”*

* Horsfield's Zool. Researches in Java.



Littore 14

TWO HORNED SUMATRAN RHINOCEROS.

F. Cuvier

Howard del.



THE TWO-HORNED SUMATRAN RHINOCEROS.

Rhinoceros Sumatranus.

PLATE XL

Sumatran Rhinoceros, *Bell, Phil. Trans.* — Rhinoceros
de Sumatra, *F. Cuv. Mammif.* — *R. Bicornis Sumatranus,*
Griff. Cuv. Synopsis. — *Desmarest, Mammalogie, ii. 401.*

ONE of the oldest authenticated descriptions of this animal is always referred to, as given by Mr William Bell, surgeon at Bencoolen, in the Transactions of the Philosophical Society. That gentleman made his observations from an animal, shot about ten miles from Fort Marlborough, within a day from its death,—a male, four feet four inches high at the shoulder, and about eight feet five inches high. He judges, from its appearance, that it had not reached maturity. The shape of the animal was much like that of a hog. The general colour, a brownish ash; under the belly, between the legs, and fold of the skin, a dirty flesh colour. The ears were small and pointed,

lined and edged with short black hair. The horns were black, the larger was placed immediately above the nose, pointing upwards, and was bent a little back; it was about nine inches long. The small horn was four inches long, of a pyramidal shape, flattened a little, and placed above the eyes, rather a little more forward, standing in a line with the upper horn immediately above it. The neck was thick and short; the skin, on the under side, thrown into folds, and these again wrinkled. The body was bulky and round; and from the shoulder ran a line or fold, though but faintly marked: there were several other folds and wrinkles on the body and legs, and the whole gave rather the appearance of softness. The whole skin of the animal is rough, and covered very thinly with short black hair. The skin was not more than one-third of an inch in thickness at the strongest part, and under the belly scarcely one-fourth.*

In 1825, F. Cuvier gave another figure of this Rhinoceros in his *Mammifères*, which nearly agrees with what we have detailed above, the colour is a dull brown, the skin is nearly quite smooth, and without any of the tuberculated structure, which is so peculiarly seen in *R. Sondaicus*, and it is furnished with a greater

* W. Bell's Philosophical Transactions, for 1793.

proportion of short and strong hairs. The folds in the skin, with the exception of those on the neck, are shallow, and there is only one large one behind the fore legs, and another before the hind quarter. The height of this animal is only given at about three feet ten inches.

We have used the figure of F. Cuvier, and regret that there seems to be little known of the habits of this animal, farther than inhabiting the island of Sumatra.

These three species seem to be ascertained as clearly distinct in the Asiatic continent. De Blainville gave to another, which he characterized from the skull, the title of *R. Camperii*; but the species remains in uncertainty, and can scarcely be now admitted, without farther examination. From the examination of the skull, G. Cuvier thought that it might be a young species of *R. Sondaicus*.

The species of Africa, which are authenticated with any certainty, are only two, *R. Africanus* and *R. simus*, Burchell.

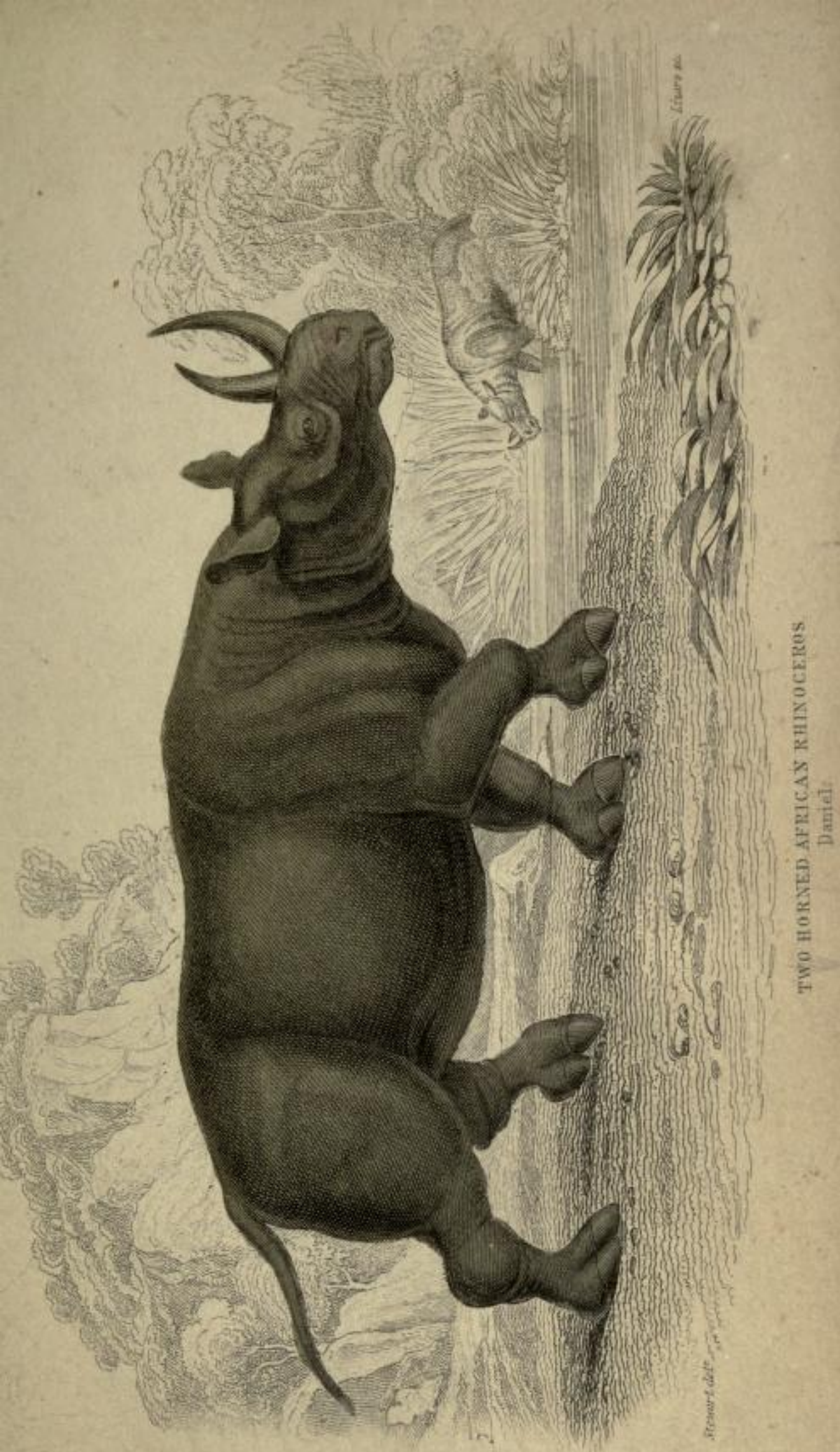
THE TWO-HORNED AFRICAN RHINOCEROS.

R. Africanus.—CUVIER.

PLATE XII.

R. bicornis, Sparman, *Linnaeus*. — *R. Africanus*, *Cuvier*,
Burchell.

THIS Rhinoceros, which was formerly frequent within the boundary of the Cape Colony, is the animal seen and described by most of the travellers in Africa, during the last century; and being then the only two horned species which was known, received the distinguishing epithet of *bicornis*, not, however, now a good appellation, from several species having a similar number of like appendages. It was met with frequently, and is noticed most lately, in the interesting travels of Mr Burchell, who was fortunate in being able to shoot no fewer than nine of these huge animals. Speaking of the second which came under his observation, he says, "The first view of this beast, suggested the idea of an enormous hog,



TWO HORNED AFRICAN RHINOCEROS

Daniel

to which, besides, in its general form, it bears some outward resemblance in the shape of its skull, and the smallness of its eyes, and the proportionate size of its ears; but in its shapeless clumsy legs and feet, it more resembles the Hippopotamus and Elephant. Its length, over the forehead, and along the back, from the extremity of the nose to the insertion of the tail, was eleven feet two inches, of English measure; but in a direct line, not more than nine feet three inches. The tail, which, at its extremity, was compressed or flattened vertically, measured twenty inches, and the circumference of the largest part of the body, eight feet four inches." There was no hair, except on the edges of the ears, and on the extremity of the tail. The skin, though thick and strong, did not flatten the balls which did not strike some bone." They were, however, of a mixture of lead and tin; and Mr Burchell admits, that bullets of pure lead, fired with a small charge, or at too great a distance, would fall from the strong part of the folds, flattened and harmless.

The Rhinoceros of Africa does not seem to be looked upon with the same terror by the natives or Hottentots, as the animal of India. He possesses the same keen and nice smell, and delicate sense of hearing, and can only be approached

against wind, and they do sometimes become furious, and attack their pursuers; but the cool disposition of the native hunters, and their great agility, protects them. They allow the animal to rush impetuously on, and, when near, by shifting nimbly aside, avoid the charge, and have time, in their turn, to attack him, and to reload their muskets. They are often killed with a single ball, and one individual thinks it no hazard to act alone against them. In South Africa they are much esteemed as food, which Burchell agrees in considering excellent, much resembling beef. The tongue is considered the most delicate part. When an animal of this description is killed, the neighbours all flock around it, and encamp by its side, until they have consumed it entirely, being scarcely so provident as to dry any part of the flesh for after use. The bushmen are insatiable. They broil, eat, and talk, and no sooner have they finished one slice than they turn to the carcass, and cut another. According to Bruce, the Rhinoceros is also used as food in North Africa, and much esteemed by the Shangalla. The sole of the feet is here reckoned the part most fitting for the epicure. Of the skin, shields are sometimes made as in India, which are said to be capable of turning a musket ball; but the most useful and common application

of it is for whips, *shamboks*;* and the skin is always immediately cut up into strips for this purpose.

* The *shambok* is a strip three feet or more in length, of the hide either of a Hippopotamus or Rhinoceros, rounded to the thickness of a man's finger, and tapering to the top. This is universally used in the Colony for a horsewhip, and is much more durable than the whips of European manufacture. This manufacture is also known in North Africa, and forms an article of trade, under the name of *corbage*.

THE FLAT-NOSED RHINOCEROS.

Rhinoceros Simus — BURCHELL.

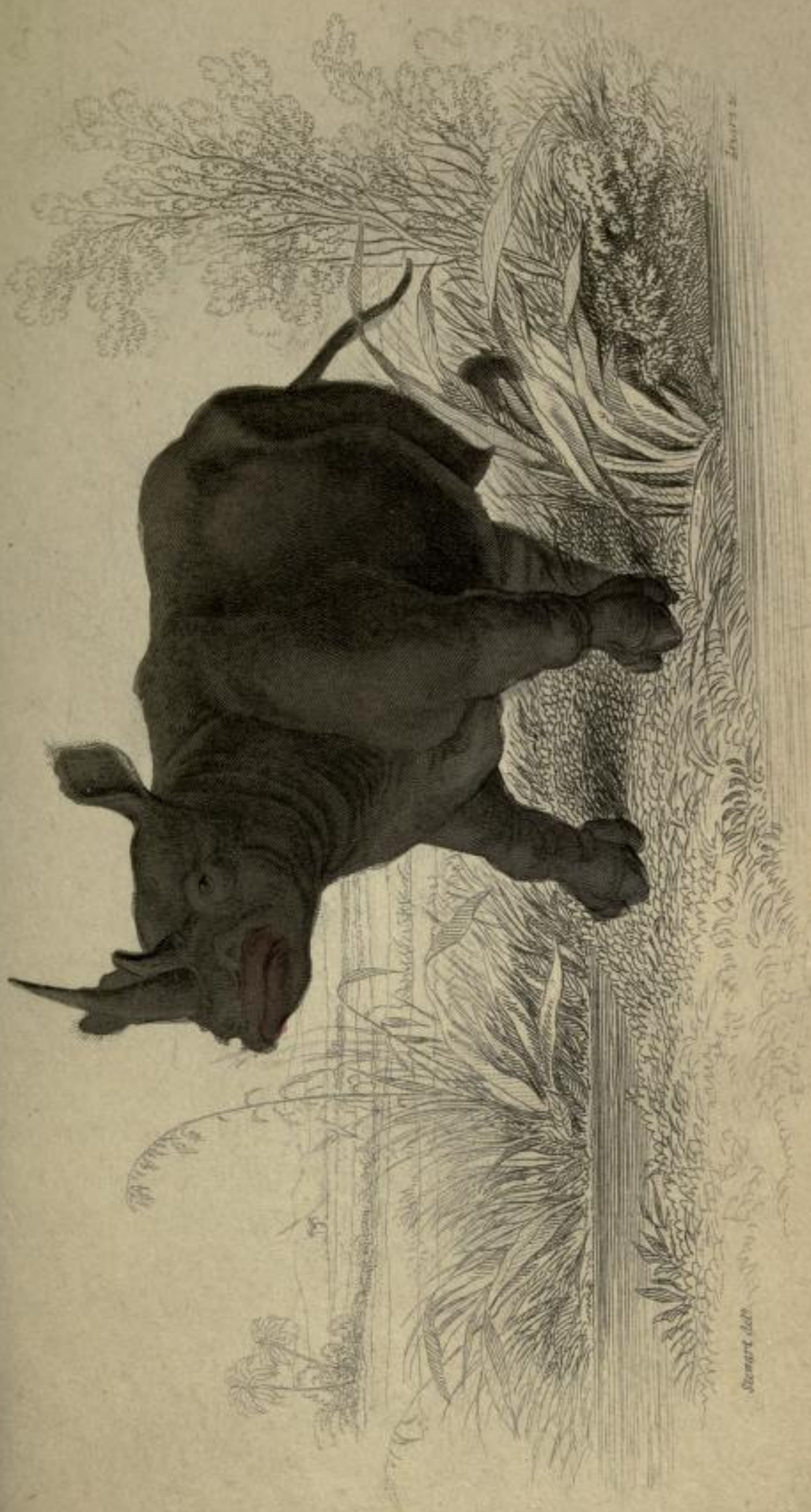
PLATE XIII.

Burchell, *Journal de Phys.*—*African Travels*, ii. p. 75.

THE second African species is so named from its flattened nose and mouth, by which distinctions it is easily known from the last, as well as by the different proportions of its head, and its greater size.

The following is Mr Burchell's account of this Rhinoceros : —

“ In my travels in the interior of Southern Africa, I met with this animal for the first time near the 26° of latitude, inhabiting the immense plains, where they are wild during the greatest part of the year. They frequent the fountain every day, not only for drink, but also for the purpose of rolling in the mud, which, by adhering to a skin entirely free from hairs, serves to protect them from the scorching heat of the climate. The size is



FLAT-NOSED RHINOCEROS. Native of Africa.

nearly double that of the specimen named *Rhinoceros bicornis*. These two animals are recognized by the negroes and Hottentots, as two very distinct species, and are distinguished by them by different names. As we have killed ten examples, I have had sufficient opportunities of observing the characters which distinguish them. They consist principally in the form of the mouth, as may be verified by comparing the *Rhinoceros bicornis* and the *Rhinoceros unicornis* with the figure, (Pl. XIII.) which I have carefully drawn after nature. I have named this species *Rhinoceros simus*. The negroes and Hottentots inform me, that it eats nothing but grass, while the other species feeds on branches of trees and shrubs, — a peculiarity which may be inferred from the structure of the mouth. The head, when separated from the first vertebræ, was of such enormous weight, that four men could only raise it from the ground, and eight were required to put it into the carriage. The flesh of the two species is equally good to eat; and they resemble each other in having a double horn, and wanting conspicuous hairs on the skin, which distinguishes, at first sight, the *Rhinoceros unicornis*. The following comparative measures, taken from adult individuals, killed by ourselves, in these countries, will afford a proof of the difference of size : —