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MAMMALIA.

VOL. V.

PACHYDERMES.

BY

SIR WILLIAM JARDINE, BART.

F.R.S.E. F.L.S. &c. &c.

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CONTENTS

OF

VOLUME FIFTH.

| | PAGE. |
|---|-------|
| MEMOIR OF SIR HANS SLOANE. | 17 |
| PACHYDERMES. | 93 |
| The Elephants. | 104 |
| The Elephant of India. | |
| <i>Elephas Indicus.</i> Plate II. | 106 |
| The Elephant of Africa. | |
| <i>Elephas Africanus.</i> Plate IV. | 124 |
| The Elephant of the Lena. Plate V. | 133 |
| The Great Mastodon. Plate VI. | 150 |
| The Hippopotamus. | 153 |
| The Common Hippopotamus. | |
| <i>Hippopotamus amphibius.</i> Plate VII. | 154 |
| Rhinoceros. | 158 |
| The Indian Rhinoceros. | |
| <i>Rhinoceros Indicus.</i> Plates VIII. and IX. | 164 |
| One-Horned Sumatran Rhinoceros. | |
| <i>Rhinoceros Sondaicus.</i> Plate X. | 174 |
| Two-Horned Sumatran Rhinoceros. | |
| <i>Rhinoceros Sumatranus.</i> Plate XI. | 179 |

| | PAGE. |
|--|-------|
| Two-Horned African Rhinoceros. | |
| <i>R. Africanus</i> . Plate XII. | 182 |
| The Flat-Nosed Rhinoceros. | |
| <i>Rhinoceros simus</i> . Plate XIII. | 186 |
| The Syrian Hyrax. | |
| <i>Hyrax Syrianus</i> . Plate XIV. | 189 |
| The Cape Hyrax. | |
| <i>Hyrax Capensis</i> . Plate XVI. | 197 |
| The Swine. | 201 |
| The Wild Boar. | |
| <i>Sus scropha</i> . Plates XVII. and XVIII. | 205 |
| The Papuan Hog. | |
| <i>Sus Papuensis</i> . Plate XIX. | 210 |
| <i>Sus Koiropotomus</i> . Plate XX. | 212 |
| The Domestic Hog. Plate XXI. | 213 |
| Chinese Breed. Plate XXII. | 215 |
| The Babiroussa. | |
| <i>Sus babiroussa</i> . Plate XXIII. | 216 |
| Ælians' Wart Hog. | |
| <i>Phascochaeres Æliani</i> . Plate XXIV. | 219 |
| The Æthiopian Wart Hog. | |
| <i>Phascochaeres larvatus</i> . Plate XXV. | 232 |
| The Collared Peccary. | |
| <i>Dycoteles torquatus</i> . Plate XXVI. | 234 |
| The White Lipped Peccary. | |
| <i>Dycoteles labiatus</i> . Plate XXVII. | 236 |
| The Tapirs. | 238 |
| The American Tapir. | |
| <i>Tapirus Americanus</i> . Plate XXVIII. | 241 |
| The Tapir of the Andes. | |
| <i>Tapirus pinchaque</i> . Plate XXIX. | 243 |
| The Malay Tapir. | |
| <i>Tapirus Malayanus</i> . Plate XXX. | 246 |

RHINOCEROS.

The Rhinoceri are another race of enormous animals, which are peculiar to the warm parts of Africa and India, inhabiting the districts where vegetation is profuse, and where there is an abundance of water. They may be said to be characterized externally; principally by the great thickness and strength of their skin, which is destitute of hair, often arranged in folds, and presents, as it were, a mailed armour, almost impenetrable to an ordinary leaden bullet; and by the nose and snout being furnished by one or two excrescences having the form and appearance of curved formidable horns. These are of a substance as if hair was agglutinated together, and rendered compact, possessing no central sheath, and unconnected with the bone of the skull. Mr Burchell's remarks on their structure are interesting. "The horn of the Rhinoceros, differing in structure from that of every other animal, and placed in a situation of which it is the only example, had long appeared

to me to be an anomaly very deserving examination. Dispersed over the skin of all animals are pores, which I have supposed secrete a peculiar fluid, which may be designated by the name of *corneous matter*. This secretion or fluid is designed by nature for the forming of various most useful and important additamentæ, all of which continue growing during the whole life, have an insertion not deeper than the skin, and are farther distinguished by the absence of all sensibility and vascular organization, being purely exuvial parts, like the perfected feathers of birds. In all these parts, the growth takes place by the addition of more matter at their base. When these pores are separate, they produce hairs; when they are confluent, and in a line, they produce the nails, the claws, and the hoofs, the fibrous appearance of which naturally leads to the supposition of their being confluent hairs; and the same may be said of the scales of the Manis, the quills of the Porcupine, Hedge-hog, and other animals, which may be regarded as hairs of extraordinary size. When the pores are confluent, and in a ring, they furnish the corneous core of the horns of the animals of the ruminating class; and when confluent on a circular order, they supply matter for the formation of a solid horn, such as we see in the Rhinoceros. At its base, it is, in most instances, evidently rough and fibrous, like a

worn-out brush. It grows from the skin only, in the same manner as the hair, — a circumstance which entirely divests of improbability the assertion of its sometimes being seen loose, although by no means so loose as some writers have supposed. Nor is it at all extraordinary that the Rhinoceros should possess the power of moving it to a certain degree, since the Hog, to which, in the natural arrangement, it so closely approaches, has a much greater power of moving its bristles, which, if concreted, would form a horn of the same nature.* The teeth vary considerably at different periods of their age; their feet have three toes, apparent externally, as if shod with blunt hoofs; and the real structure of their bones, with that of the other parts of the skeleton, will be seen in our first plate.

The Rhinoceri go sometimes in pairs and in small groups, but at other times are gregarious. They feed entirely on vegetables, tender branches of trees, and the grasses; and their interior structure, though simple, is very ample, the stomach and cæcum very large, the intestines very long. The upper lip is rather long, elongated into a narrow point, and prehensile, thus continuing the form of the proboscidean animals, and is used in the same way to collect and gather in the

* Burch. Trav. ii. p. 76.

vegetable food.* In temper they are slovenly and inoffensive, but on being irritated, they are furious and revengeful, possessing enormous strength, and exercising a most formidable power with their horn, which renders them no despicable assailant, even to animals the most powerful and active. Their principal horn is sometimes nearly three feet in length, and though a blunt looking instrument, when wielded by an animal of such bulk and strength, is made to force its way through almost any resistance.

The skins of the Rhinoceri are used for various purposes both in Africa and India; but in the latter country they seem more pursued as a matter of emolument by the natives,—few European sportsmen liking to engage them, both from the actual danger, and the great dislike which the Elephants have to face them. Shields are made by the Indians, which will turn a leaden bullet; and their tallow is used medicinally — for which purpose we also find it mentioned in some of the old Pharmacopeias. They are shot by the native sportsmen, Colonel Williamson tells us, with *jingals*, or heavy guns, containing an iron ball of three ounces weight, and an aim is generally taken at the eye or thorax, or some of the vulnerable parts, where the skin is thinnest, and the part is

* See our account of that animal, p. 164, extracted from the description of Dr Parsons.

generally struck with the greatest correctness. According to the last mentioned writer, the Rhinoceros (and he speaks, we believe, of the *R. Indicus*) is a much more active animal than what he is represented to be by others, possessing great acuteness of smell, great rapidity of motion, and accompanied by a vivacity, such as a cursory view of the animal would by no means suggest. He writes also of this animal making wanton attacks on the Elephant whenever he has an opportunity, and mentions the circumstance of the latter being found with the belly torn open. An instance is, at the same time, related, as well known, of a Rhinoceros, which even rendered the roads impassable by attacking travellers, or those who passed near his haunts; and he relates an attack upon a sporting company, which was made by the same animal in the close of the year 1788, as generally known to the army and residents of the district. "Two officers belonging to the troops cantoned at Dunapore, near Patna, went down the river towards Monghyr, to shoot and hunt. They had encamped in the vicinity of Derriapore, and had heard some reports of a Gheudah, or Rhinoceros, having attacked some travellers many miles off. One morning, just as they were rising about day break, to go in quest of game, they heard a violent uproar; and on looking out, found that a Rhinoceros was goring

their horses, both of which being fastened by their head and heel with ropes, were consequently unable either to escape or resist. Their servants took to their heels, and concealed themselves in the neighbouring *jow* jungles ; and the gentlemen had just time to climb up into a small tree not far distant, before the furious beast, having completed the destruction of the horses, turned his attention to their masters. They were barely out of his reach, and by no means exempt from danger, especially as he assumed a threatening appearance, and seemed intent on their downfall. After keeping them in dreadful suspense for some time, and using some efforts to dislodge them, seeing the sun rise, he retreated to his haunt ; not, however, without occasionally casting an eye back as with regret at leaving what he wanted the power to destroy.”*

Both a single and two horned Rhinoceros was known to the ancients, as we know from their sculpture, coins, and writings. What the individual species were, we cannot now so well make out.

We shall now examine the species which have been recorded ; and shall first notice the animals of the Indian continent.

* Oriental Field Sports.

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

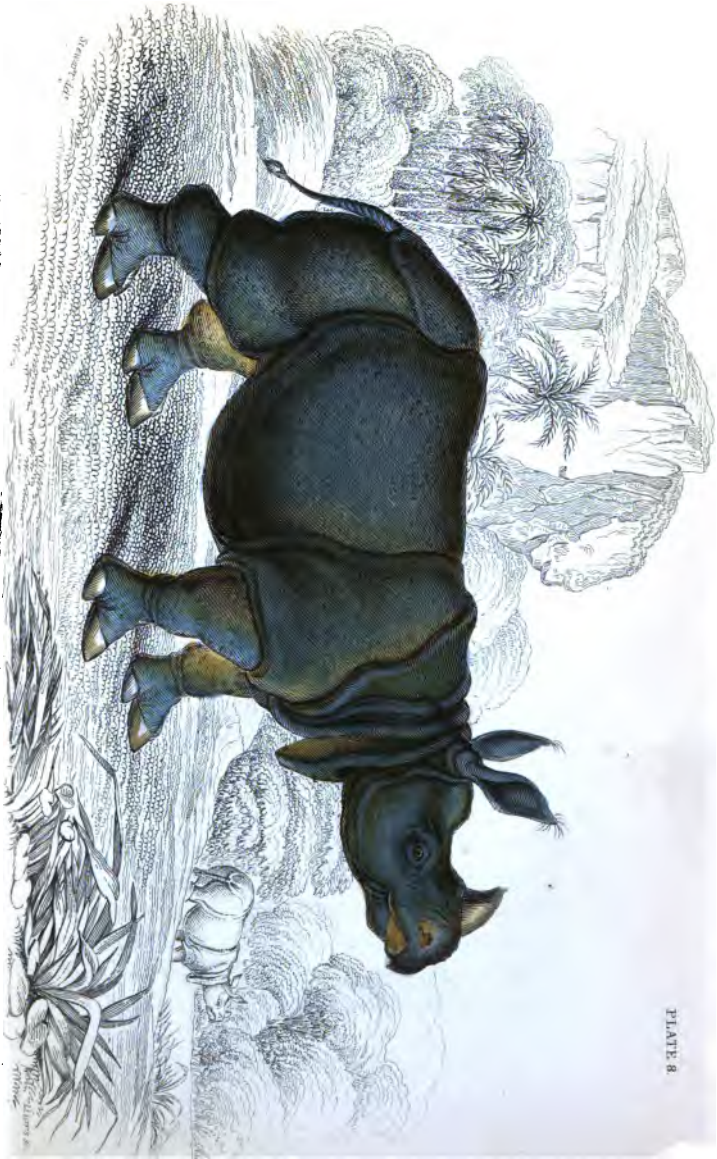


PLATE B

INDIAN RHINOCEROS
Imperial Zoölogical Gardens

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

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

almost black, from being smeared with grease two or three times weekly, to prevent the hide becoming dry and cracking. Under the folds, it was of a flesh colour, and much softer. Upon certain parts, the outside of the limbs, the knees, and about the head and face, excrescences from the skin had acquired a considerable length, and resembled horny threads, which have been considered by some authors as a disease. The hairs, principally upon the tail and ears, were strong and smooth, while a few, which were found on the other parts of the body, were thick and hard, but had a woolly appearance. The knees were bent; but this was evidently caused by confinement and the inactive life which it led. The feet were furnished with three large nails, almost in the form of slippers, covering the toes above and below. The tail, kept habitually in a hanging position, could be moved backwards and forwards. The eyes were very small, a simple eyelid and round pupil. The nostrils open upon the sides of the upper lip. The external ear was large and moveable. The sense of touch appeared only to exist in the upper lip. The horn, which was short and blunt, was used, in anger, to strike, and even to tear and destroy the object of attack, and there seemed an instinctive motion to make use of that part rather than any other, in any case where the employment of force was necessary.

All the senses of the animal, except that of touch, appeared to be very delicate. It frequently consulted its sense of smell, and gave the preference to sweet fruits, or even sugar itself. It collected the smallest things with its moveable lip to carry them to its mouth; and when eating honey, collected it with this lip, and conducted it to its mouth with the assistance of its tongue.

Our figures of this animal are taken from a young specimen, belonging to the Liverpool Zoological Gardens, during its late visit to Edinburgh. We give below an account of it, for which we are indebted to a friend, who used considerable pains in taking correct measurements, and ascertaining its habits since it had been kept in confinement.*

* Within the last fifty years there have been, so far as I am aware of, only four individuals brought to Great Britain. The first, in 1790, which died in 1793 of inflammation, brought on by the accidental dislocation of his right fore leg; the second, in 1799, which was sold by Mr Pidcock to an agent of the Emperor of Germany for £1000, but it died before it could be exported; the third was exhibited at Exeter Change, London, in 1810, and after being kept four years, was sold for exhibition on the Continent; a fourth specimen is at present living, exhibiting in Edinburgh, which I have examined and accurately measured, and has been the occasion of my drawing up this paper. The animal in question is a male, and was brought from Bengal, having been for some time kept in the gardens of the Governor-General at Calcutta. He has been sixteen months in Britain, during which time he has visited

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 oats, 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 | 9 $\frac{3}{4}$ |
| Length from tip of snout, to back of skull bone, | 3 | 0 |
| Length from back of skull, to the insertion of the tail, | 7 | 9 $\frac{3}{4}$ |
| 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 | 10 $\frac{3}{4}$ |

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 $\frac{1}{2}$ |
| 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 high 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.



ONE-HORNED SUMATRAN RHINOCEROS. 175

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 visiters, tended greatly to make the animal mild and sociable. It allowed itself to be handled and examined freely, and the more daring of the visiters some-

176 ONE-HORNED SUMATRAN RHINOCEROS.

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 Stavens, 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.



TWO HORNED SUMATRAN RHINOCEROS
F. CHURCH

PLATE II

THE TWO-HORNED SUMATRAN
RHINOCEROS.

Rhinoceros Sumatranus.

PLATE XI.

Sumatran Rhinoceros, *Bell, Phil. Trans.* — Rhinoceros de Sumatra, *F. Cuv. Mammiff.*—*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,

180 TWO-HORNED SUMATRAN RHINOCEROS.

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 *Mammifferes*, 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
Dunell

TWO-HORNED AFRICAN RHINOCEROS. 183

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

184 TWO-HORNED AFRICAN RHINOCEROS.

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

TWO-HORNED AFRICAN RHINOCEROS. 185

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



Desmuntz del.

Atkins sc.

FLAT-NOSED RHINOCEROS.

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 vertibræ, 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 : —

188 THE FLAT-NOSED RHINOCEROS.

| | | | |
|---|-------------|------------------------------|-----|
| From the lips to the insertion of the tail of the | | | |
| <i>Rhinoceros bicornis</i> , | 111 inches, | of <i>Rhinoceros simus</i> , | 134 |
| Length of the tail, | 20 — | ————— | 25 |
| Circumference of the | | | |
| body, | 100 — | ————— | 140 |
| From the extremity of | | | |
| the lips to the ear, | 27½— | ————— | 43 |

Several extinct species of *Rhinoceros* are known, in part, from their remains, distinct from any of those we have been noticing. In almost every country where the bones of the Elephant have been found, they are accompanied, in nearly equal quantities, by those of the *Rhinoceros*. The vale of Arno, in Italy, is one of the greatest deposits, also different parts of Germany and Siberia. One of the more remarkable species, and unfortunately least known, is scarcely larger than the common hog. Our authority for its introduction rests upon the discovery of some teeth and other bones found in the department of Loire and Garonne, among the debris of other *Rhinoceri*, *Crocodiles*, and *Tortoises*. *R. minutus* has been applied to it.

We have now come to another genus of animals, which most of our later zoologists have agreed to bring into the present situation. It is the genus *Hyrax* of Herman, which we shall illustrate first by