

THE  
WONDERS  
OF  
ANIMATED NATURE;  
CONSISTING OF  
*DESCRIPTIONS AT LARGE*  
AND  
ENGRAVED REPRESENTATIONS  
OF THE PRINCIPAL  
*ANIMALS AND BIRDS*  
IN THE  
ROYAL MENAGERIES  
OF  
LONDON AND PARIS.

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## THE SINGLE-HORNED RHINOCEROS.

THE Rhinoceros, which is an animal next in size to the Elephant, deserves, almost equally with that, the attention of naturalists, from the singularities of its constitution and manners. But as it is not possible to reduce it to a state of domestication, and as it is found only in desert places, and is not to be approached without danger, it has in all ages been much less known than the elephant. In fact, it has not been, till late years, that mankind have been able to form any correct notions even of the most conspicuous parts of its organization.

The characters of the genus are well defined. The horn which these animals carry on their nose, sufficiently distinguishes them from all others.--- It is not hollow like that of oxen and sheep, nor bony like those of the deer. But it is solid like the last, and composed, as in the first, of fibres somewhat analogous, in their nature, to hair.--- The Rhinoceroses have each of their feet, both before and behind, divided into three toes, a formation which is not found in any other quadruped.

As their legs are not so long as those of the elephant, and their head is not furnished with long turks or weapons, they are not supplied with a proboscis. The middle part of their upper lip, however, is elongated, and is capable of so much motion, and of being exerted with so much force, that the animals can employ it in breaking down shrubs or branches of trees for their nourishment.

The molar or grinding teeth are twenty-eight in number, and are very peculiar in their form. The crown of each of the lower ones represents a double crescent: the upper ones are squared, and present a prominent line along their edge, and two others perpendicular to this. The hollow betwixt these lines varies considerably, both in its shape and extent, according as the tooth is more or less worn away. The front teeth are not of the same number in all the species, and there is one that is entirely deprived of them.

The difficulty that there is of comparing the different species together, has greatly retarded a knowledge of their true discriminative characters.

These animals have been considered as very rare and uncommon in all ages. Aristotle does not even mention them. The first Rhinoceros spoken of in history was that which appeared at the celebrated fête of Ptolemæus Philadelphus, and which was made to walk after all the foreign animals, as the most curious and uncommon of

them all. (Athenæus, lib. v.) This was brought from Ethiopia.

The first that was seen in Europe, appeared in the games of Pompey. Pliny informs us that the latter animal had only one horn. (Pliny lib. viii. c. 20.) Augustus exhibited another, in his triumph over Cleopatra. Dion Cassius, who relates this fact, does not determine the species.

Strabo describes, very exactly, a single-horned Rhinoceros, which he saw alive at Alexandria: he even speaks of the folds of its skin. Pausanias has correctly described the two-horned Rhinoceros, under the name of *Ethiopian bull*. There were two of the latter species at Rome, in the reign of Domitian, the representations of which were engraven on some medals of this emperor; and which were the subject of some of the epigrams of Martial.

The modern naturalists, till within the last few years, were much perplexed by the accounts of these animals, from the circumstance of their being represented as having two horns. Antoninus, Gordius, Heliogabalus, and Heraclius, all speak of having seen Rhinoceroses. The ancients, consequently, had a knowledge, respecting the animals, of which the moderns were long ignorant. The first that was seen in Europe, during the last centuries, was that sent from the East Indies, in the year 1513, to Emanuel, king of Portugal: he

presented it to the Pope, but during the voyage it became so furious, that it sunk the vessel in which it was carried.

There was sent from Lisbon, to Albert Durer, the celebrated painter and engraver of Nuremberg, a figure of this animal, which, for many years, was copied into all the works of natural history. Its general shape is good; but the wrinkles, and tubercles or warts of the skin are made so large and prominent, that the animal appears to be covered with scales.

The second Rhinoceros was brought in 1685, to England; the third was carried, for exhibition, to most parts of Europe, in 1739; and a fourth, (which was a female), in 1741. That of 1739, was described and figured in the Philosophical Transactions, by Dr. Parsons, who likewise mentions that of 1741.

There is reason to suppose, that the latter was the animal which, in 1749, was exhibited at Paris, and figured by Oudri, and which Albinus has likewise figured in the fourth and eighth engravings of his history of the muscles.

The fifth and sixth Rhinoceroses, that were brought into Europe, were the two mentioned in Mr. Bingley's Animal Biography, as having been purchased by Mr. Pidcock, the proprietor of the menagerie at Exeter 'Change, London. The former was brought from the East Indies, in the



Melville Castle, East Indiaman, in the year 1790; and the latter, which was afterwards purchased for the Emperor of Germany, was landed in England, in 1799: it however died before it could be sent away. These were both males.

The seventh Rhinoceros is that described and figured in "*La Menagerie du Museum*," of La Cedepe and Cuvier, from which the principal part of the present account is translated. All these were of the single-horned or Indian species.

Two individuals described by travellers, namely, that which Chardin saw at Ispahan, and which was brought thither from Ethiopia, and that of which Piso has inserted a figure in the natural history of the Indies of Bontius, had also each only one horn.

The two-horned Rhinoceros has never hitherto been brought alive into Europe; and as it has only been reobserved by some of the latest travellers, naturalists began even to doubt its existence, and consequently were much embarrassed in attempting to comprehend what the ancients had asserted respecting it. Dr. Parsons, however, satisfied that there must be two distinct species, asserted his belief that the single-horned kind was exclusively an inhabitant of Asia, and the two-horned, of Africa.

Although Flaccourt says that he saw the latter, at some distance from him, in the bay of Saldag-

na, yet Colonel Gordon was the first who correctly described it, and his description was inserted by Allamand, in the supplements to the Natural History of M. de Buffon.

Sparmann, in the Memoirs of the Academy of Sweden, and in his Travels at the Cape of Good Hope, has given a correct account of the two-horned Rhinoceros. From these it was ascertained, that besides differing in the number of its horns, the Rhinoceros of the Cape differed from the Indian species, in its skin having none of those extraordinary folds which distinguish the latter. but Camper declared that there was also a difference betwixt the two species, in the number of their teeth, the Cape Rhinoceros having only molar teeth, whilst the Indian species has, besides these, four large, and two small incisors.

The history of the Rhinoceros tribe is not yet freed from difficulties. Gordon expressly asserts that the two-horned Rhinoceros which he examined, had four incisors in each jaw; and both Sparmann and Camper, that these are wanting, and they have been found wanting in several skins of this animal which have been brought into Europe. Bruce has inserted, in his Travels into Abyssinia, a figure of the two-horned Rhinoceros, in which the skin is represented as having folds

somewhat similar to those of the single-horned species.

But it is to be observed, that this figure is only a copy from that of Buffon, with the addition of another horn. But, in order to save the credit of this traveller, it is supposed that he was induced to this evident plagiarism, merely from the circumstance of that figure being, in other respects, an exact representation of the animal that he had seen.\* We must, therefore, either suppose that there are four distinct species, or that the number of teeth, and the folds, are merely accidental varieties. MR. JOHN BELL, the surgeon, has described, in the Philosophical Transactions, for 1793, a Rhinoceros from Sumatra, which appears to have been specifically distinct from all the others: it had two horns, a skin without any hair, and four large incisive teeth, of which those of the under jaw were long and pointed, but no small ones.

The single-horned species, (which shall now alone occupy our attention), has six incisive teeth. It sometimes attains the length of twelve,

\* There is some error in this assertion, since, on comparing Bruce's figure with that of Buffon's single-horned Rhinoceros, they appear to be essentially different. In Sonnini's edition of Buffon, the figure of Bruce is copied in tom. 28. pl. ix. fig. 2, under the appellation of "*Autre Rhinoceros.*"



and the height of seven feet, and weighs five thousand pounds and upwards. The individual here figured was nine feet long, four and a half high at the shoulder, and eleven and a half in girth. The head was two feet long, and eighteen inches thick at the occiput: the ears were each ten inches long; the eyes were an inch in diameter, and the nostrils three inches: the feet were eight inches across: the opening of the mouth was eight inches deep: the tail was ten inches in length. There were remarked on the head, ten large, hard, and prominent tubercles; namely, one in front of each ear; one above each of the eyes; one on each side of the head, ten inches behind the eyes; another on each side of the head, near the corner of the mouth; and two single ones, the first on the forehead, betwixt those which were in front of the ears, and the other at a little distance below this. The latter, which is longitudinal, compressed at the sides, and of considerable elevation, may be mistaken for the rudiment of a second horn, and in some individuals, may have induced the supposition that the animals varied in the number of their horns.

This Rhinoceros had so worn away its horn, that it scarcely projected more than an inch in height, and eight inches in breadth, above its base: if this had not been the case, it would,

probably, have been of considerable length.--- Many individuals have been seen, in which this weapon was some feet in length; and there is a horn in the museum of the menagerie at Paris, which, though it is broken, measures as much as three feet eight inches and a half. This is very thin; and those which continue short, are generally much thicker. It does not appear that these differences in size depend at all on difference of sex.

In the single-horned species, the horn is immovably fixed into the bones of the nose, these bones having a very unequal surface, of which the tubercles penetrate into the hollow of the skin to which the horn is attached; but in the Cape Rhinoceros, the bones of the nose are smooth, and there is nothing to prevent the horns from moving with the skin, if the muscle, denominated by anatomists the *occipito-frontalis*, has only sufficient strength to contract the latter.--- Sparmann has asserted that these horns were capable of being moved, and Bruce is certainly incorrect in his somewhat ill-natured criticism on Sparmann's remark.

The folds of the skin give to the single-horned Rhinoceros a strange and monstrous appearance. These somewhat vary in different individuals; but those on the neck are always most prominent. The animal above described, had a fold which

extended from the front of the ear to the posterior angle of the jaws; a very small one under the throat; a large one which descended under the neck, where it united with a corresponding fold, in a kind of transverse dew-lap; and another, one part of which ascended obliquely upon the shoulder. There was a small fold, which formed a triangle with this and the principal fold from which it arose.

The body presented two much-extended folds which formed a kind of girdle, the first behind the shoulders, and the other in front of the thighs. There was a transverse fold on each buttock, which rose from near the origin of the tail; and another oblique one, which sprang from the hind knee, and extended upward towards the side of the tail. There was, lastly, another which encircled each fore-knee. The skin betwixt these folds was reddish, and by no means so hard as that of the other parts of the body. It is said that there are in these hollows a kind of louse which is peculiar to the Rhinoceros; and that, when the animal wallows in the mud, there are frequently great numbers of millepedes and other insects collected in them.

The skin of the Rhinoceros is harder and much more dry than that of the elephant. There are, all over the skin, small protuberances of the breadth and thickness of a piece of money, which

in most of the figures of the animal, have been represented as a great deal larger than they really are. The skin is entirely naked of hair, except at the extremity of the tail, the edge of the ears, and about the base of the horn. With respect, indeed, to the latter, they are rather to be considered as fibres detached from the horn, than as true hairs. There are only two teats, and those are situated in the groin. The general colour of the animal is a dark greyish brown: the hoofs are much stronger than those of the elephant; they cover both the under and upper parts of the toes, and are attached to the phalanges by thin and parallel plates, larger than those which are observed in the horse. The large incisive teeth wear away, and become flat at their extremity: the two smaller ones of the under jaw are of a conical shape, and are concealed under the gum during the whole life of the animal. It is only in the skeleton that they are to be discovered.--- Some writers have asserted that the tongue of the Rhinoceros is covered with hard scales, which will tear off the skin of an animal by licking.--- Buffon has even related this circumstance of the individual animal here described, which is by no means true. Its tongue is soft. This had indeed on its anterior part, some slender oblique ridges; and on the palate there were twelve transverse prominences.



It has been ascertained, that the females of this species produce no more than one young one at a birth, which at its first appearance in the world, is about the size of a tolerably large Newfoundland dog. It has at this time only the first rudiment or bud of the horn. At the age of two years, this horn is not more than an inch in height, although the animal has attained the size of a heifer. When the animal is six years old, the horn is nine or ten inches long.

A female Rhinoceros ten years old, described by Daubenton, was ten feet in length, five feet high, and had a horn which measured about twelve inches. There is reason to suppose that this is about the time at which the Rhinoceros arrives at maturity. The animal here described, which died when it was somewhat more than twenty-five years old, with all the indications of advanced age, did not quite reach that size. We may therefore suppose that the natural duration of the life of the Rhinoceros does not approach that of the elephant, nor even equal that of a man; but it appears that the horn increases in size through the whole life of the animal.

The Rhinoceros has none of that docility and gentleness of disposition which so conspicuously marks the character of the elephant. It is always irritable and untractable. It is generally to be observed in a sluggish and indolent state, not unlike



that of the hog; but when its anger is roused, it sometimes becomes very terrible, since its size, strength, and the thickness of its skin, render almost all kinds of weapons of little avail against it. The individual here described and figured, killed two young persons, who were imprudent enough to enter its inclosure.

In a wild state, the Rhinoceros lives in solitude, in thick and secluded forests. If it perceives, at any time, the most distant approach of a man, it runs upon him with fury, throws him down, and tramples upon him, or else rips up his body with its horn. Its legs are very short, yet it is able to run so rapidly that a horse is not able to gallop away out of its reach.

A fact recorded by Bontius sufficiently proves that it is not wanting, in a certain degree, of instinctive sagacity towards the preservation of its offspring. A female, attacked on a plain by the hunters, for a while occupied their whole attention, whilst her young one escaped into an adjacent wood. During this time she sustained their attack without any attempt to defend herself; but when her young one had concealed itself, she turned upon her assailants with so much fury, that she soon compelled them all to seek for refuge behind the trees.

The ancients attributed to this animal a peculiar antipathy against the elephant, but it is pro-

bable this only originated in their being made to fight with each other in the public games, since in a state of nature they have no motives whatever for attacking each other, and no facts have been stated in proof of this natural antipathy.

Chardin asserts, that he had seen two elephants and a Rhinoceros live together in the most peaceable manner. The Indians attribute to the Rhinoceros, and doubtless without foundation, a peculiar affection for the tiger. As both these animals delight in marshy places, and the borders of rivers, they may have been frequently seen near each other; and it is probable, that from this circumstance alone, the fabulous opinion may have been raised. The Rhinoceros, like the hog, delights in refreshing itself by plunging into the water, and wallowing in mud. There are many other points of alliance betwixt the two animals. Its sight is weaker, from the eyes being smaller and more concealed in the head, but its power of smelling is so peculiarly acute, that it is impossible to surprize it but by approaching the places of its concealment against the wind. Its sense of hearing is likewise very acute. Its usual voice somewhat resembles the grunting of a hog, and is not very strong, but when the animal is enraged it utters a sharp kind of cry, which is audible to a great distance.

The Rhinoceros does not consume so much

food as the elephant. In a state of nature, it feeds on the young branches of nearly all kinds of trees, and on the larger species of herbs. It sometimes approaches and lays waste the plantations in the neighbourhood of its residence, and particularly those of the sugar canes. The Rhinoceros that was brought into Europe in the year 1749, ate sixty pounds weight of hay, and twenty pounds of bread every day.

That described by Dr. Parsons, consumed seven pounds of rice mixed with sugar, and a great quantity of hay and green vegetables. The Rhinoceros in the Menagerie of the museum at Paris, ate about a hundred and fifty pounds weight of hay; and the animal that was brought to Exeter 'Change, London, in the year 1790, was allowed every day about twenty-eight pounds of clover, the same weight of ship-biscuit, and a considerable quantity of vegetables; and likewise about five pails full of water, which was given to him at two or three different times. The sleep of the Rhinoceros is very profound.

The first of the two Rhinoceroses that was brought to Exeter 'Change, came from Laknaow in Bengal, and on his arrival in England, is supposed to have been about five years old. He had none of that ferociousness which most of these animals possess, but would suffer himself to be led or driven by the keeper, about the exhibi-

tion room, and would allow even persons that were perfect strangers to him, to approach and touch him. He died at Corsham, near Portsmouth, in the month of October, 1792, in consequence of his having, about nine months before, slipped the joint of one of his forelegs, by suddenly rising up from his bed.

The other of these animals was likewise brought from the East-Indies. The proprietor had possessed him only a few months, when an agent of the Emperor of Germany, purchased him for the royal menagerie at Vienna. It is probable that this Rhinoceros had, by no means, attained his full growth, since he was scarcely so high as an heifer of two years old, and his horn was only beginning to sprout. He was tame and docile, but did not manifest any peculiar attachment for his keeper. His usual food was hay, oats, and potatoes, with a considerable portion of fresh vegetables. The skin was extremely hard and much tuberculated on the upper parts of his body, but on the under parts so soft as easily to be cut through with a knife. He died in the beginning of the year 1800, before he could be sent off to Germany. Till within a few days of his death, he appeared to be in every respect in good health; and the first symptom of his approaching dissolution was a difficulty of breathing, with



which he was suddenly attacked. The Emperor paid for him a thousand pounds sterling.

The skin of the Rhinoceros is of no great use ; though, from its extreme hardness, it is sometimes cut into stocks for whips. The horn is valuable in eastern countries, for the purpose of making cups and vases, since the Indians and the Arabs all believe that no poisonous liquid can be put into these without its being immediately discovered. This prejudice is of very ancient date, since Arrian in his *Peryplus of the Red Sea*, says, that the horns of the Rhinoceros were, at that time, a considerable article of commerce.

The limits of country assigned by nature to the Single-horned Rhinoceros are not perfectly known. Some writers assert, that it is only to be found in India, but from the relations of travellers, there is reason to believe, that it is occasionally seen in some of the districts of Abyssinia. The individual that was seen by Chardin, at Is-pahan, had been brought thither from Ethiopia, and Bruce informs us, that he saw some of these animals near the Cape Gardefan. But all the Rhinoceroses in the interior of the country, he says, have two horns, like those that are found near the Cape of Good Hope.

The Rhinoceros of the menagerie at Versailles, which has been the principal subject of the pre-



sent article, was drowned in the bason of his inclosure, in the month of July, 1793. In spite of the heat of that season of the year, the body was conveyed to Paris, and the two celebrated anatomists, Metrad and Vic-d'Azir, were occupied for several days in dissecting it. From their manuscript remarks, the following notes have been taken. The drawings, 36 in number, were made under their inspection, by Maréchal and Redouté, and are now deposited in the library of the museum at Paris.

As soon as the abdomen was opened, there was presented to the view three coils of intestines, each somewhat more than a foot in diameter.--- The two first were united through their whole length by a thick cellular membrane, which at first sight made them appear only like a single gut; but on carefully dividing this membrane, it was immediately seen that they were only two folds of the same intestine. The third of these portions was the *cæcum*. In front of these was observed a small part of the stomach covered by the *epiploon*: this was folded above the *colon*, but it was so large as entirely to cover it if it had been extended. Behind the *cæcum*, and in front of the pubis, was seen a small part of the *ileum*. The stomach was elongated, rounded at both extremities, and almost equal in diameter

through its whole length, except in the part opposite to the *cardia*, where it was somewhat thicker than elsewhere, and at the distance of about two-thirds betwixt the *pylorus* and the *cardia*, where there was a remarkable contraction. It was about four feet from right to left, and about fourteen inches in diameter. The *cardia* was fifteen inches from the left extremity, and the *pylorus* seven from the right. These two orifices were both on the side of the small curvature. The spleen was attached to nearly the whole of the great curvature of the stomach. It was of an elliptical shape, and about four feet in length, and one foot broad. The liver had only two lobes, and a small lobule: the right lobe was larger than the left, which was divided by a scissure of considerable depth; there was another small scissure on the base, and towards the interior edge of the right lobe. The liver, when extended, measured from right to left, four feet eight inches: there was no gall bladder, but an enormous hepatic duct.

This account contains no indication of the precise length of the intestinal canal. Besides the two arcs of the *colon*, already mentioned, this intestine had other portions less voluminous, and in which the inflations and tendinous bands were more distinguishable. The *cæcum* was more than

two feet long, and fifteen inches in diameter; its surface was somewhat smooth in front, and its inflations were chiefly behind.

The internal surface of the intestines presented to the observation some things which were extremely curious. In the first third part of the duodenum, situated betwixt the pylorus and the insertion of the hepatic and pancreatic ducts, the internal membrane had numerous small longitudinal folds, arranged somewhat in the segment of a circle. Towards the last third of the duodenum, these folds gradually took a triangular form, and a somewhat transverse direction; and at last were changed into a sort of pyramidal papillæ. At the distance of six inches from the insertion of these ducts, the papillæ, or folds, became much more numerous, and took a compressed form, rounded, and irregularly lobed or cleft.

Beyond the insertion of the hepatic and pancreatic ducts, the papillæ were elongated into cylindrical filaments, which for size and shape might be compared to small earth worms. These filaments were so closed together towards the middle of the length of the canal, as entirely to cover the internal surface of the intestine; some of them were six lines in width; and several were forked or cleft at their extremity. They were continued almost to the insertion of the *ileum* into

the *cæcum*, but there they suddenly ended. The valve of the *cæcum* was circular, and furnished on its concave surface with many small connivent valves. The interior of the *cæcum* presented only the wrinkles and inequalities that are usual in most other quadrupeds: but in the interior of the colon there were found a great number of prominent folds in a transverse direction. Near the *rectum*, these folds became extended in width, and they occupied the whole circumference of the canal. The largest of these folds exactly divided the cavity of the colon from that of the rectum: there were scarcely any of these folds in the latter intestine.

The two lungs were not divided into lobes; and they were each about two feet in length, and sixteen inches in breadth. The heart was fifteen inches long, and about a foot in diameter. The *epiglottis* had nearly the shape of an equilateral triangle. In front of each of the ventricles of the *glottis*, there was a small opening in form of the arc of a vertical circle, of which the concavity was backwards: each of these openings communicated with a small excavation at the base of the *epiglottis*. The tongue, which was nearly two feet long, may be considered as composed of three parts: the anterior part, terminated by a semi-circular curve, was furnished with the small filaments already mentioned: the middle part was



perfectly smooth; and the posterior part had a great number of papillæ arranged in quincunx order. Somewhat further back, towards the base of the epiglottis, the papillæ became like small nipples, and on the sides of the epiglottis and the larynx, each of the tubercles was pierced with a small hole.

Mr. Thomas, in the account of his dissection of the young Rhinoceros, bought in London, in 1800, for the Emperor of Germany, already mentioned, says that the small intestines were very short. He likewise asserts, that the skin of the body moved loosely on the flesh, from the circumstance of its being attached by a very loose cellulosity; that it had no *panniculus*, which he considered the animal to have no need of, since the thickness of its skin rendered it insensible to the punctures of insects, and likewise, since its hardness would have prevented it from yielding to so weak a muscle.

This animal, which was very young, had only four molar teeth on each side.

Mr. Thomas, as well as Sparmann, speaks of the great resemblance which there is betwixt the intestines of the Rhinoceros and the horse; he however remarks, that the cœcum was much more voluminous.

He describes the internal villosities of the small



intestines; but only towards the upper part where they are pyramidal.

He speaks of a remarkable structure in the eye of the Rhinoceros, which consists in four apparently muscular loops which are attached to the internal surface of the *sclerotica*, and which Mr. Thomas supposes to have been of use in changing the form of the eye, and shortening the visual axis, when the animal was about to look at distant objects. When M. Cuvier read this remark of Mr. Thomas, he examined the eyes of a Rhinoceros which had been preserved in spirit of wine, to ascertain how far it might be correct; and it appeared to him that these supposed loops were no other than ciliary nerves, surrounded by a somewhat greater cellulosity than usual. As, however, the former gentleman had examined the eye in its recent state, M. Cuvier, with great candour says, that he may have been able to form a better judgment respecting them than himself.