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A HISTORY OF THE EARTH
AND ANIMATED NATURE.

BY OLIVER GOLDSMITH.

WITH COPIOUS NOTES;

And an Appendix,

CONTAINING EXPLANATIONS OF TECHNICAL TERMS, AND AN OUTLINE OF
THE CUVIERIAN AND OTHER SYSTEMS,

BY

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F.L.S., M.W.S., M.K.S.

VOL. II.—PART I

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CHAP. III.

OF THE RHINOCEROS.

NEXT to the elephant, the rhinoceros is the most powerful of animals. It is usually found twelve feet long from the tip of

The mammoth described by Mr Adams, in the fifth volume of the *Memoire of the Academy of St Petersburg*, was first discovered by a Tongouse fisherman in the year 1799, on the banks of the Icy sea, near the mouth of the Lena, in a large misshapen block of ice. In the following year this became separated from the surrounding masses but in the subsequent summer, the ice having melted away one whole side, one tusk of the animal was distinctly visible. The gradual development of this remarkable creature continued from year to year till the fifth after its discovery, when, in consequence of the ice having broken up early, it was drifted ashore, and the fisherman, in the month of March 1804, despoiled it of its tusks, which he sold for fifty rubles. Two years after this, Mr Adams, who was travelling with Count Golovkin's embassy to China, hearing of this at Iakutsck, made a journey to the spot for the purpose of seeing it. He found the skeleton perfect, with the exception of one foot, but the flesh had been given by the natives of Iakutsck to their dogs, and the wild beasts in the neighbourhood had also assisted in consuming what had been left. The greater part of the skeleton was found connected by its natural ligaments, and those bones which were separated were collected in the neighbourhood. The head was covered with a dry skin, the ball of one eye was remaining, and one ear furnished with a tuft of hair. The brain was found dried up in the skull; the neck ornamented with a long mane; the skin covered with black hairs, and reddish kind of fur or wool; and the weight of the skin which remained so great as to require the hard labour of ten men to remove it; besides which, at least thirty pounds of hair were collected from the ground. The animal was a male, and its tusks were nine feet in length. It was purchased by the emperor of Russia for 8000 roubles, and placed by him in the Academy of St Petersburg.

The islands north of Siberia, opposite the coast separating the mouth of the Lerna from that of the Indigirska, are so remarkable for the immense quantity of these fossil bones, that the editor of Billing's Voyage states, "every island is formed of the bones of this extraordinary animal of the horns and skulls of buffaloes, or animals nearly resembling them, and of some rhinoceros' horns." "*Description*," says Cuvier, "*tres exageree sans doute, mais qui prouve a quel point ces os y sont abondans.*"

In America fossil elephant bones are found, particularly in the state of Kentucky, along the banks of the Ohio, and the most remarkable assemblage are found at Big Bone Lick, which was closely examined by Governor Clarke, and whence numerous specimens were sent by him to Washington. Humboldt also discovered part of a fossil tusk at Villa de Ibarra, in the province of Quito in Peru, a hundred and seventeen toises above the level of the sea.

the nose to the insertion of the tail; from six to seven feet high; and the circumference of its body is nearly equal to its length. It is, therefore, equal to the elephant in bulk: and if it appears much smaller to the eye, the reason is, that its legs

In examining these bones it is a remarkable circumstance, that they very nearly resemble each other in character, from whatever country or climate they may have been brought, and present sufficiently strong characters to determine a new species. Although in height they resemble the Indian or Asiatic elephant, they differ from it in the greater number of laminæ forming each molar tooth, and consequently an equal portion being employed in mastication, more laminæ are bared. Mr Corse says, that in the Indian elephant, ten or twelve laminæ are all which are exposed, but in the Mammoth often as many as twenty-four are seen, and the enamel is less wavyly disposed than in the former. The tusks generally are not more curved than in the Indian elephant, though occasionally they are found to assume an elliptical or semicircular figure; but this may have originated from accidental circumstances, which have caused their growth in such direction as to prevent their being used, and therefore they have by their natural growth acquired this curve; a circumstance frequently observed in our domestic animals, as rats, &c., in which the cuspid teeth having accidentally taken such direction as to prevent their use, continue to grow in a circular manner, so as to prevent the animal opening its mouth. One other and very striking peculiarity is the hair; in this, the Mammoth differs particularly from the Indian or African elephant, in having a strong mane, and in the body being covered with long and short hairs, the former of these from twelve to fifteen inches in length, as thick as a horse's mane, and of a brown colour, whilst the latter are about nine inches long, are finer, and of a yellowish colour, but the roots of both are embedded in a fine, softish, curly, bright yellow wool, which covers a deep grey skin. This covering of hair evidently proves that the animal was intended for a cold climate; and by what means its bones have been conveyed into the regions of South America, where such warm clothing was not required, save by allowing the occurrence of some great convulsion of nature, and that by water, it would be difficult to account.

In 1826, Mr Ranking published a very amusing and interesting work, entitled *Historical Researches on the Wars and Sports of the Mongols and Romans*, in which he has taken great pains to prove that the fossil bones of elephants, and other animals so frequently found, are the remains of those animals which were slaughtered in the grand hunting parties of the former, or the amphitheatrical exhibitions of the latter; and in support of that part of his opinion which relates to the Romans, he shows, that in almost every instance where the remains of a theatre have been found, there have been also discovered fossil bones in the neighbourhood. That to a certain extent this is true no one can doubt, and even Cuvier himself readily admits it, but with this difference, that such fossil bones are found in a more recent soil; whilst the remains of Blumenbach's *E. Primigenius* are deposited in a soil of much more ancient existence; and the bones themselves differ in many very remarkable points from those of the present known species. In the course of his work, Mr Ranking also speaks of the great collection of fossil

are much shorter. Words can convey but a very confused idea of this animal's shape; and yet there are few so remarkably formed: its head is furnished with a horn, growing from the snout, sometimes three feet and a half long; and but for this, that part would have the appearance of the head of a hog; the upper lip, however, is much longer in proportion, ends in a point, is very pliable, serves to collect its food, and deliver it into the mouth: the ears are large, erect, and pointed; the eyes are small and piercing; the skin is naked, rough, knotty, and lying upon the body in folds, after a very peculiar fashion: there are two folds very remarkable; one above the shoulders, and another over the rump: the skin, which is of a dirty brown colour, is so thick as to turn the edge of a scimitar, and to resist a musket-ball; the belly hangs low; the legs are short, strong, and thick, and the hoofs divided into three parts, each pointing forward.

Such is the general outline of an animal that appears chiefly formidable from the horn growing from its snout; and formed rather for war than with a propensity to engage. This horn is sometimes found from three to three feet and a half long, growing from the solid bone, and so disposed as to be managed to the greatest advantage. It is composed of the most solid substance; and pointed so as to inflict the most fatal wounds. The elephant, the boar, or the buffalo, are obliged to strike transversely with their weapons; but the rhinoceros employs all his force with every blow; so that the tiger will more willingly attack any other animal of the forest, than one whose strength is so justly employed. Indeed, there is no force which this terrible animal has to apprehend. defended on every side, by a thick horny hide, which the claws of the lion or the tiger are unable to pierce, and armed before with a weapon that even the elephant does not choose to oppose. The missionaries assure us, that the elephant is often found dead in the forests, pierced with the horn of a rhinoceros; and though it looks like wisdom

bones already mentioned as being found on the coasts of Siberia, which he unhesitatingly states to belong to the *Trichechus Rosmarus*, or *Walrus*, an animal which in every respect differs from the bones found there. And when he refers to the elephant discovered at the mouth of the Lerna, the authenticity of which, from its skeleton being found almost entirely connected, he cannot disallow, he states, that it was probably one of those which Genghis Khan sent to his Siberian relatives, and, not improbably, was destroyed by a sudden irruption of the sea.

to doubt whatever they tell us, yet I cannot help giving credit to what they relate on this occasion, particularly when confirmed by Pliny. The combat between these two, the most formidable animals of the forest, must be very dreadful. Emanuel, king of Portugal, willing to try their strength, actually opposed them to each other; and the elephant was defeated.

But though the rhinoceros is thus formidable by nature, yet imagination has not failed to exert itself, in adding to its terrors. The scent is said to be most exquisite; and it is affirmed that it consorts with the tiger. It is reported also, that when it has overturned a man, or any other animal, it continues to lick the flesh quite from the bone with its tongue, which is said to be extremely rough. All this, however, is fabulous: the scent, if we may judge from the expansion of the olfactory nerves, is not greater than that of a hog, which we know to be indifferent; it keeps company with the tiger, only because they both frequent watery places in the burning climates where they are bred; and as to its rough tongue, that is so far from the truth, that no animal of near its size has so soft a one. "I have often felt it myself," says Ladvocat, in his description of this animal; "it is smooth, soft, and small, like that of a dog; and to the feel it appears as if one passed the hand over velvet; I have often seen it lick a young man's face who kept it, and both seemed pleased with the action."

The rhinoceros which was shown at London in 1739, and described by Dr Parsons, had been sent from Bengal. Though it was very young, not being above two years old, yet the charge of its carriage and food from India cost near a thousand pounds. It was fed with rice, sugar, and hay: it was daily supplied with seven pounds of rice, mixed with three of sugar, divided into three portions; it was given great quantities of hay and grass, which it chiefly preferred; its drink was water, which it took in great quantities. It was of a gentle disposition, and permitted itself to be touched and handled by all visitors, never attempting mischief, except when abused, or when hungry; in such a case there was no method of appeasing its fury but by giving it something to eat. When angry, it would jump up against the walls of its room with great violence, and made many efforts to escape, but seldom attempted to attack its keeper, and was always submissive to his threats. It had a peculiar cry, somewhat a

mixture between the grunting of a hog and the bellowing of a calf.*

The age of these animals is not well known; it is said by some, that they bring forth at three years old; and if we may reason from analogy, it is probable they seldom live till above twenty. That which was shown in London was said by its keeper to be eighteen years old, and even at that age he pretend-

* The natural history of the rhinoceros has been rendered more complete by Mr Thomas's anatomical description of a male animal of this singular species, which had been brought to this country alive from the East Indies. This creature appeared to enjoy good health until a few days before his death, when he was attacked with difficulty of breathing. He had not probably arrived at full growth, for he was scarcely so high as a heifer of two years old, and the horn, which is affixed to the upper lip of the adult rhinoceros, was here just beginning to sprout. The disease had carried him off before he had attained his third year. In the course of this time he had become perfectly tame and docile; but did not manifest the smallest attachment to his keeper. His food was chiefly hay, oats, and potatoes, and also fresh vegetables; his consumption of which was greater than that of two or three working horses. Mr T. found that the general structure of this animal corresponded with what is observed in the horse, but that there were the following peculiarities:—The skin, it is well known, is extremely hard and tuberculated, though smoother, and easily cut through with a common knife on the under part of the body; a considerable deal of sliding motion was observable between it and the surface underneath. With respect to the teeth, the incisors were only four in number, two situated in each jaw, and these were placed at a great distance from each other. In the head of another rhinoceros (five years old) seen by Mr T. and where the soft parts had been removed, there were two smaller teeth placed, one on each side of those in the lower jaw. The *molars* were only eight in number. Their form had been noticed by Mr Horne in the *Philosophical Transactions* for 1799. But the most remarkable peculiarity in the anatomy of the animal is the connexion of four processes, arising by distinct tendons from the internal and posterior portion of the sclerotic coat, with the choroid coat of the one at its broadest diameter. These processes have a muscular appearance, and would seem to have the effect, when acting conjointly, of adapting the organ to the cognizance of more distinct objects; for at their terminations they completely encircle the eye, and may therefore, by contracting, shorten the axis of vision, and bring the retina nearer to the crystalline lens.

The lens itself is of a singular form, being nearly spherical, with the anterior surface a little flattened.

The *pigmentum nigrum* was found to be confined to the inside of the choroid coat, without any structure similar to the *lapidum lundum*. Notwithstanding the opinion generally entertained, of the rhinoceros having bad sight, Mr T. is led to conclude from his examination of the several appendages of that organ, that the animal is not only not deficient in quickness of vision, but that he may perhaps be superior to other animals in that particular.

ed to consider it as a young one ; however, it died shortly after, and that probably in the course of nature.

The rhinoceros is a native of the deserts of Asia and Africa, and is usually found in those extensive forests that are frequented by the elephant and the lion. As it subsists entirely upon vegetable food, it is peaceful and harmless among its fellows of the brute creation ; but, though it never provokes to combat, it equally disdains to fly. It is every way fitted for war, but rests content in the consciousness of its security. It is particularly fond of the prickly branches of trees, and is seen to feed upon such thorny shrubs as would be dangerous to other animals, either to gather or to swallow. The prickly points of these, however, may only serve to give a poignant relish to this animal's palate, and may answer the same grateful ends in seasoning its banquet that spices do in heightening ours.

In some parts of the kingdom of Asia, where the natives are more desirous of appearing warlike than showing themselves brave, these animals are tamed, and led into the field to strike terror into the enemy ; but they are always an unmanageable and restive animal, and probably more dangerous to the employers than those whom they are brought to oppose.

The method of taking them is chiefly watching them, till they are found either in some moist or marshy place, where, like hogs, they are fond of sleeping and wallowing. They then destroy the old one with fire-arms ; for no weapons that are thrown by the force of men are capable of entering this animal's hide. If, when the old one is destroyed, there happens to be a cub, they seize and tame it : these animals are sometimes taken in pit-falls covered with green branches, laid in those paths which the rhinoceros makes in going from the forest to the river side.

There are some varieties in this animal, as in most others ; some of them are found in Africa with a double horn, one growing above the other.* This weapon, if considered in itself, is

* *The two horned rhinoceros.*—This species of the rhinoceros differs from the other in the appearance of its skin ; which instead of vast and regularly marked folds, resembling armour, has merely a slight wrinkle across the shoulders and the hinder parts, with a few fainter wrinkles on the sides ; so that, in comparison with the common rhinoceros, it appears almost smooth. The principal distinction, however, consists in the nose being furnished with two horns, one of which is smaller than the other, and situated above it. These horns are said to be loose when the animal is in a quiet state, but

one of the strongest and most dangerous that nature furnishes to any part of the animal creation. The horn is entirely solid, formed of the hardest bony substance, growing from the upper maxillary bone, by so strong an apophyse, as seemingly to make

when he is angry, they become firm and immoveable. Le Vaillant asserts, that when these animals are at rest, they always place themselves in the direction of the wind, with their noses towards it, in order to discover by their smell the approach of any enemies. When irritated they tear up the ground furiously with their horns, throwing the earth and stones to a vast distance over their heads.

Mr Bruce's account of these animals is interesting.—“ Besides the trees capable of most resistance,” says this traveller, “ there are in the vast forests within the rains, trees of a softer consistence, and of a very succulent quality, which seem to be destined for the principal food of this animal. For the purpose of gaining the highest branches of these trees, his upper lip is capable of being lengthened out so as to increase his power of laying hold of it, in the same manner as the elephant does with his trunk.—With this lip, and the assistance of his tongue, he pulls down the upper branches, which have most leaves, and these he devours first. Having stripped the tree of its branches, he does not immediately abandon it; but, placing his snout as low in the trunk as he finds his horns will enter, he rips up the body of the tree, and reduces it to thin pieces like so many laths; and when he has thus prepared it, he embraces as much of it as he can in his monstrous jaws, and twists it round with as much ease as an ox would a root of celery, or any small plant. When pursued, and in fear, he possesses an astonishing degree of swiftness, considering his size, the apparent unwieldiness of his body, his great weight before, and the shortness of his legs. He has a kind of trot, which, after a few minutes, increases in a great proportion, and takes in a considerable distance; but this is to be understood with a degree of moderation. It is not true, that in a plain he beats the horse in swiftness. I have passed him with ease, and seen many worse mounted do the same: and though it is certainly true that a horse can very seldom come up with him, this is owing to his cunning, and not to his swiftness. He makes constantly from wood to wood, and forces himself into the thickest parts of them. The trees that are dead or dry, are broken down, as with a cannon shot, and fall behind him and on his sides in all directions. Others that are more pliable, greener, or fuller of sap, are bent back by his weight and the velocity of his motions. And after he has passed, restoring themselves like a green branch to their natural position, they often sweep the incautious pursuer and his horse from the ground, and dash them in pieces against the surrounding trees. The eyes of the rhinoceros are very small; he seldom turns his head, and therefore sees nothing but what is before him. To this he owes his death, and never escapes if there is so much plain as to enable the horse to get before him. His pride and fury then make him lay aside all thoughts of escaping, but by victory over his enemy. He stands for a moment at bay, then, at a start, runs straight forward at the horse, like the wild boar, which, in his manner of action, he very much resembles. The horse, however, easily avoids him by turning short to one side, and this is the fatal instant: the naked man, with the sword, drops from behind the principal horseman, and,

but one part with it. Many are the medicinal virtues that are ascribed to this horn, when taken in powder; but these qualities have been attributed to it without any real foundation, and make only a small part of the many fables which this extraordinary animal has given rise to.*

unseen by the rhinoceros, who is seeking his enemy the horse, he gives him a stroke across the tendon of the heel, which renders him incapable of further flight or resistance."

The double horned rhinoceros has a formidable adversary in a fly; and this insect persecutes him so unremittingly, that it must eventually subdue him, were it not for a stratagem which he practises for his preservation. In the night, when the fly is at rest, the rhinoceros chooses a convenient place, and there rolling in the mud, clothes himself with a kind of case, which defends him against his adversary the following day. The wrinkles and plaits of his skin serve to keep this plaster firm upon him, all but about the hips, shoulders, and legs, where it cracks and falls off, by motion, and leaves him exposed in those parts. The itching and pain which follow, occasion him to rub himself in those parts against the roughest trees; and this is probably one cause of the numerous pustules or tubercles that are perceivable upon his skin. The pleasure he receives from this employment, and the darkness of the night, deprive him of his usual vigilance and attention; and the noise he makes is heard at so considerable a distance, that the hunters, guided by this sound, steal secretly upon him; and while lying on the ground, wound him with their javelins in the belly, where the wound is mortal.

The assertion that the skin of this rhinoceros is hard or impenetrable, like a board, is very incorrect. In his wild state he is slain by javelins thrown from the hand, some of which enter his body to a great depth. A musket shot will go through him, unless interrupted by a bone; and the Abyssinians kill him with the clumsiest arrows that ever were formed, and cut him to pieces afterwards with the most wretched knives.

Mr Sparrman informs us, that having opened one of these animals, he found the stomach to be four feet in length and two in diameter, to which was annexed a tube or canal, twenty-eight feet long, and six inches diameter; the heart was eighteen inches in length, and the kidneys the same in breadth: the liver, when measured from right to left, was three feet and a half in breadth, and about thirty inches deep, as it hangs in the animal's body when in a standing position. The cavity in the skull, which contained the brains, was, however, but small, being only six inches long and four deep.

The Hottentots ascribe many medicinal virtues to the dried blood of the rhinoceros; and some of them appear remarkably fond of its flesh, though it is hard and full of sinews.

* *The Sukotyro*—Is an animal of a new genus; only one species has been yet discovered, and is termed by naturalists the Javan Sukotyro. It has a horn on each side of the head close to the orbits, and is furnished with a short, narrow, upright mane, along the back; which extends from the back of the head to the rump.

The sukotyro is an inhabitant of the island of JAVA; it is thus named by