

THE

**Pictorial Museum**

OF

**ANIMATED NATURE.**



VOLUME I.

MAMMALIA. BIRDS.

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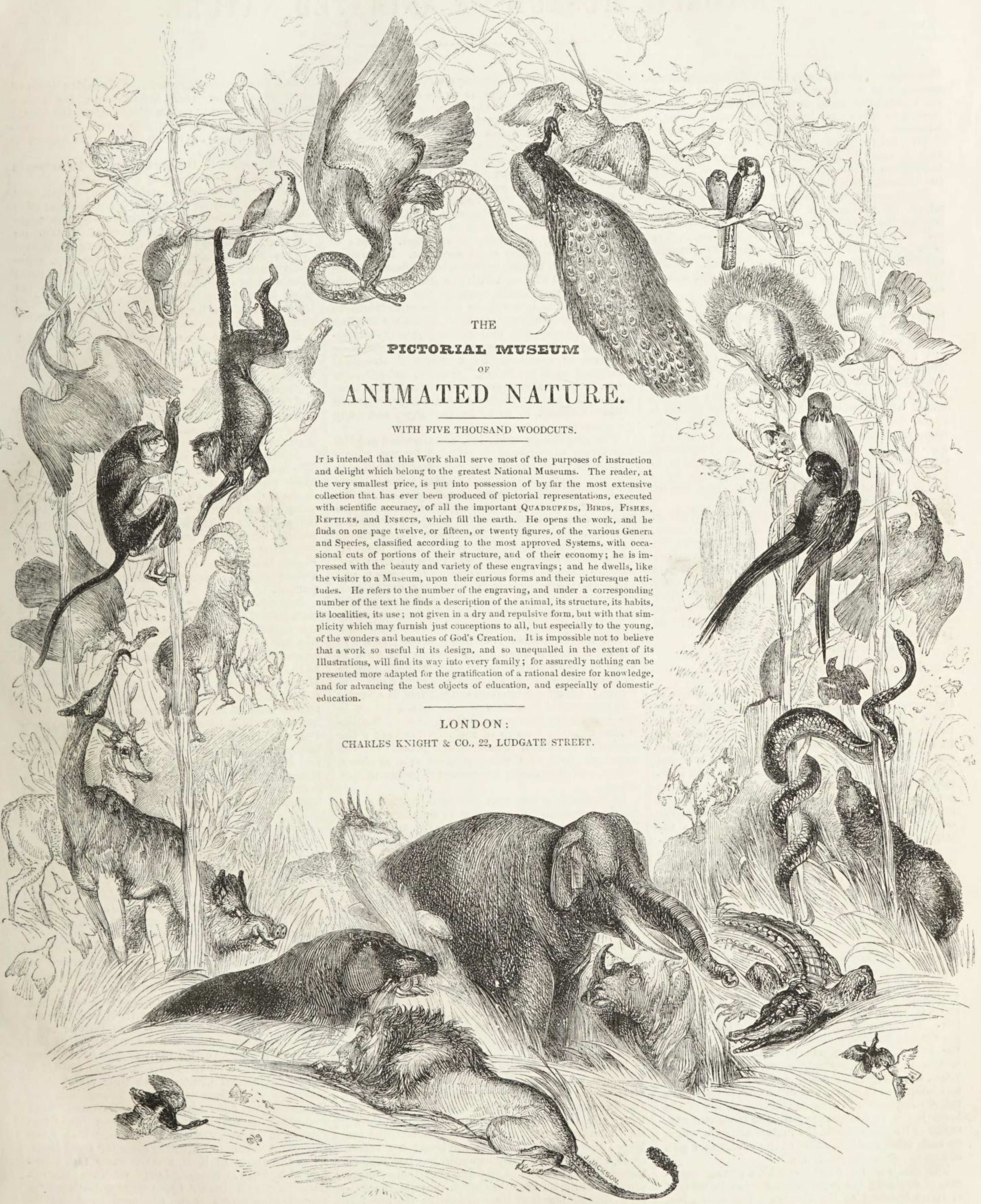
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THE  
PICTORIAL MUSEUM  
OF  
ANIMATED NATURE.

WITH FIVE THOUSAND WOODCUTS.

It is intended that this Work shall serve most of the purposes of instruction and delight which belong to the greatest National Museums. The reader, at the very smallest price, is put into possession of by far the most extensive collection that has ever been produced of pictorial representations, executed with scientific accuracy, of all the important QUADRUPEDS, BIRDS, FISHES, REPTILES, and INSECTS, which fill the earth. He opens the work, and he finds on one page twelve, or fifteen, or twenty figures, of the various Genera and Species, classified according to the most approved Systems, with occasional cuts of portions of their structure, and of their economy; he is impressed with the beauty and variety of these engravings; and he dwells, like the visitor to a Museum, upon their curious forms and their picturesque attitudes. He refers to the number of the engraving, and under a corresponding number of the text he finds a description of the animal, its structure, its habits, its localities, its use; not given in a dry and repulsive form, but with that simplicity which may furnish just conceptions to all, but especially to the young, of the wonders and beauties of God's Creation. It is impossible not to believe that a work so useful in its design, and so unequalled in the extent of its Illustrations, will find its way into every family; for assuredly nothing can be presented more adapted for the gratification of a rational desire for knowledge, and for advancing the best objects of education, and especially of domestic education.

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Plunges, swimming with great ease and quickness, little more than its nose appearing above the surface. If hard pressed or wounded, it dives in order to baffle its pursuers, and then endeavours to gain a more secure place of concealment. It is eagerly hunted for the sake of its flesh, which is accounted good, though of a musky flavour: the hind-quarters are made into hams. Of its natural enemies the terrible jaguar is the most formidable: this powerful beast steals upon the capybara by surprise, and destroys numbers. The food of the capybara consists exclusively of grass and vegetables, as water-melons, gourds, &c. Azara does not believe that these animals ever frequent salt-water: Mr. Darwin shot one in the Bay of Monte Video, an old female, measuring, from the tip of the snout to the end of the stump-like tail, three feet eight and a half inches, in girth three feet two inches, and weighing 98 lbs. Several also were seen by the officers of the Beagle on the island of Guritti, off Maldonado, where the water is nearly as salt as in the sea.

On the banks of the Apure Humboldt saw the capybara, which he calls Chiguira, in troops of fifty or sixty. He notices the ease of the capybara in the water; and states that he saw with surprise the animals, affrighted by the approach of a boat, dive and remain from eight to ten minutes under water. On the Apure, Arauco, &c., and in the vast savannahs of the Llanos, the animal is said to be often seen in droves of a hundred. They there browse upon a sort of grass called chiguirirero.

The common posture of the capybara when at rest is sitting up on the haunches, the soles of the hind-feet being applied flat to the ground, like the agouti, the viscacha, and many others of the Rodents. The female breeds once in a year, and brings forth from four to six or seven at a birth, having prepared a snug bed of dried herbs and grasses.

The Family *Leporidae* contains the hares and rabbits (*Lepus*), and the pikas (*Lagomys*). This family is well marked in its characters, comprehending only two genera, of which one, the genus *Lepus*, is widely distributed, though it has the most representatives in North America, where the number of species already discovered is equal to that of all the rest found in the other portions of the globe taken together.

#### 317.—THE COMMON HARE

(*Lepus timidus*). Λαγός (*Lagos*) of the Greeks; *Lepus* of the Latins; *Lepre* and *Lievora* of the modern Italians; *Liebre* and *Lebratello* of the Spaniards; *Lebre* and *Lebrimho* of the Portuguese; *Lievre*, French; *Has*, *Haas*, and *Hase* of the Germans; *Haas* and *Haze* of the Danes; *Hara* of the Swedes; *Hara* of the Anglo-Saxons; *Ysgyfarnog*, *Ceinach*, of the Ancient British.

In the genus *Lepus*, behind the ordinary incisors of the upper jaw are two more of a much smaller size: the molars, the small posterior one excepted, are composed of two vertical plates soldered together. Dental formula:—Incisors  $\frac{4}{2}$ , molars  $\frac{6-6}{5-5}$  (see Fig. 316). The ears are long; the eyes large; the tail short and turned upwards; five toes before, four behind; feet and toes hairy beneath.

Few animals are better known than our common hare, which is spread over the greater portion of Europe, and appears to be indigenous in our country; but the ancient Britons abstained from eating its flesh on religious grounds. This species probably extends into Asia. Mr. McClelland states that it occurs in Assam, but is of degenerate size, measuring only from seventeen to nineteen inches, instead of twenty-one. "It is not esteemed there an article of food. The ears are more uniformly grey than in the European variety" ('Proc. Zool. Soc.', 1839). We suspect the Assam hare to be a distinct species. Timid and defenceless, and surrounded by numerous enemies, the hare is yet well endowed with the means of self-preservation. It is watchful and swift; and its brown fur assimilates in colour with the russet herbage among which it most makes its form. All are acquainted with the external characters of the hare, and with its habits, of which it is useless to give minute details.

The hare swims well, and takes fearlessly to the water. We have known them cross a broad and rapid stream; and Mr. Yarold (see 'Loudon's Magazine,' vol. v.) gives an account of one which in the morning at high-water came down to the seashore, and crossed over to an island a mile distant from the mainland.

Wild and timid as the hare is, it is not unsusceptible of domestication. The poet Cowper, as is well known, kept tame hares; and many other instances might be enumerated.

The hare breeds when about a year old, and produces two or three broods in the course of the spring and summer; but the males and females do not form permanent associations. The female, after about thirty days' gestation, brings forth from three to five young. These are born covered with fur,

and with the eyes open; and in about a month they leave their parent and shift for themselves. The leverets, as the young are termed, are the prey of stoats, weasels, polecats, owls, and hawks.

Besides the common hare, the Alpine or varying hare inhabits certain districts of our island, namely, the northern parts of Scotland. This species (*Lepus variabilis*) is common in the mountain districts of Sweden, Norway, Lapland, and in the Alps. It is occasionally seen on the mountains of Cumberland.

The Alpine hare is intermediate in size between the rabbit and the English hare. In Sutherlandshire and other parts of the Scottish highlands it tenants the summits of the mountains, hiding in the clefts of rocks or among rocky fragments. During the winter lichen is its staple food. At this season it descends to a lower and less exposed station; and its fur, gradually losing the light fulvous-grey of summer, becomes of a snowy white, the tips of its ears (which are shorter than the head) remaining black.

The common hare of Ireland (*Lepus Hibernicus*) is again distinct from the common hare of England. The distinguishing characters between the two were first pointed out by Mr. Yarrell. (See 'Proc. Zool. Soc.' 1833, p. 88.)

Though somewhat larger than the English species, its head is shorter and more rounded; its ears still shorter than its head, and its limbs less lengthened. The fur also differs greatly in its quality from that of our common hare, and is useless as an article of trade.

#### 318.—THE RABBIT

(*Lepus Cuniculus*). Coney, Angliç; Coniglio of the Italians; Conejo, Spanish; Coelho, Portuguese; Koniglein and Kaninchen, German; Konin, Dutch; Kanin, Swedish; Kanine, Danish; and Cwningen of the Welsh.

Size excepted, the rabbit closely resembles the hare in all its principal characters. It may, however, be at once distinguished by the comparative shortness of the head and ears, as well as of the hinder limbs; the absence of a black tip to the ears; and by the brown colour of the upper surface of the tail. Its habits and general economy are totally opposite to those of the hare; and its flesh, instead of being dark and highly flavoured, is white, and, though delicate, somewhat insipid, especially that of the tame breed. The flesh of the latter is indeed preferred by some, but we agree with M. Ude in thinking it very inferior.

It would appear that the rabbit is not an aboriginal of our island, but the date of its introduction is unknown. In the year 1309, at the installation feast of the abbot of St. Austin's, six hundred of these animals were provided, at the then great cost of 15*l.*; the price of each, sixpence, being that of a pig. It is generally believed that the rabbit was first introduced into Spain from Africa by the Romans, whence it gradually spread, naturalising itself in temperate climates.

This animal is eminently gregarious; and, as is well known, makes extensive burrows, in which it habitually dwells and rears its young. Sandy soils, with a superficial layer of fine vegetable mould clothed with thyme, fine grass, and other herbage, which at the same time afford food and are easily mined, are favourable spots for the increase of the rabbit. They delight in steep sandbanks overhung with brushwood and furze; and we have remarked that when the old red sandstone crops out and is rendered friable, or somewhat decomposed by the action of the atmospheric elements, rabbits are very numerous, burrowing with great facility. They abound also in woods, especially such as clothe the declivities of hills, whence, like the hare, they make incursions into the adjacent corn-lands. A rabbit-warren, that is, a wide sandy heath, or extensive common, devoted to their increase and feeding, when visited at the close of day or by moonlight, affords an amusing spectacle. Hundreds may be seen of all sizes, gambolling and sporting, and chasing each other with astonishing rapidity. When alarmed, they take to their burrows, disappearing as if by magic.

The female is capable of breeding at six months old; and four or five litters, consisting each of about five young, are annually produced. We have stated that the hare produces her young clothed, capable of seeing, and soon in a condition to shift for themselves. With the rabbit circumstances are widely different. The young are born blind and naked, and totally helpless. The female forms a separate burrow, at the bottom of which she makes a nest of dried grass, lining it with fur taken from her own body. In this nest she deposits her young, carefully covering them over every time she leaves them. It is not until the tenth or twelfth day that the young are able to see; nor do they leave the burrow till four or five weeks old.

The wild rabbit is undoubtedly the origin of our various domestic breeds. Tame rabbits indeed easily

resume their natural state of freedom, and return to their instinctive habits. Albinoes are common in a state of domestication, and it often happens that one or two appear in a litter when neither of the parents are so.

#### 319.—THE SYRIAN HARE.

According to Desmarest the common hare of Europe exists in Greece, Asia Minor, and Syria. It is, however, very probable that the Egyptian hare (*Lepus Ægyptius*) extends into the latter region. It differs from the European species principally in the greater proportionate length of its hind-limbs and ears.

#### 320.—THE DWARF PIKA

(*Lagomys pusillus*). The Calling-Hare of Pennant; Semlanoi Saetshik, or Ground-Hare, of the Russians about the Volga; Tschatschat or Ittsitskan, Barking Mouse, of the Tartars; Rusla of the Calmucs.

In the genus *Lagomys* the muzzle is acute; the ears short and somewhat rounded, and the soles of the feet hairy; the tail is wanting. The dental formula approaches that of the genus *Lepus*:—Incisors  $\frac{4}{2}$ , molars  $\frac{5-5}{5-5}$ . The genus *Lagomys* is

widely distributed, though the species described are not numerous. About five are known, and of these three are natives of the rocky deserts of Tartary and Siberia; the fourth is a native of the Himalaya mountains; a fifth of the Rocky Mountains in the high northern regions of America, from latitude 52 degrees to 60.

The pikas are pretty little animals, with something of the manners of our rabbits, and dwell in burrows, which are artfully concealed.

The dwarf pika, or calling-hare, measures little more than six inches in total length. It has the head longer than usual with hares, and thickly covered with fur, even to the tip of the nose; numerous hairs in the whiskers; ears large and rounded; legs very short; soles furred beneath; its whole coat very soft, long, and smooth, with a thick, long, fine down beneath, of a brownish lead colour; the hairs of the same colour, towards the ends of a light grey, and tipped with black; the lower part of the body hoary; the sides and ends of the fur yellowish. Weight from three and a quarter to four and a half ounces; in winter scarcely two and a half ounces.

The dwarf pika, or calling-hare, is found in the south-east parts of Russia, and about the mountain ridge spreading from the Ural chain to the south; it also frequents the borders of the Irtysh and the west part of the Altaic chain, but occurs nowhere in the east beyond the Oby.

These animals delight in sunny valleys and the declivities of hills, where food is plentiful, and especially where woods or forests afford them a refuge in time of danger. They dig deep and intricate burrows, the openings of which are not above two inches in diameter, and are usually formed beneath the concealment of a bush, in situations abounding with thickets and underwood, and with the various shrubs and grasses upon which they feed. They lead for the most part a solitary life, sleep during the day with unclosed eyelids, like the hare, and emerge from their retreats at night in search of food, which principally consists of the bark of the young bushes, flowers, buds, and grass. They form no winter store, but during the inclement portion of the year still continue to seek out, by excavating tracks beneath the snow, their accustomed fare, and they are frequently subjected to severe privations and even death, in consequence of a deficiency of their favourite plants. They drink often when they happen to be near water, but can exist with very little. The females produce at each litter five or six young, which are born blind, helpless, and without fur; but in eight days they acquire sight, are covered with hair, and begin to enjoy the use of their limbs.

The most obvious peculiarity of these pikas is their voice, from which they have acquired their trivial name. Its tone is so like that of a quail, that it is often mistaken for it even by the inhabitants of their native districts. It is heard only in the morning and evening, except in dark and cloudy weather, and is repeated five or six times by each animal at regular intervals, and is loud and sonorous. Both the male and female utter this note, but the latter is silent for some time after she has brought forth her young, which takes place in the month of May.

The pikas are exceedingly gentle. Pallas states that they will acquire confidence and become tame in the course of a day after captivity. They sit in a crouching posture, like the chinchilla, and are extremely cleanly, frequently rubbing their faces with their fore-paws after the manner of rabbits, and scratching their fur with their hinder claws. They run by short leaps; and sleep stretched out at full length.

## 368.—THE MASTODON.

Coexistent perhaps with the mammoth, a race of huge animals, now utterly extinct, once tenanted our globe: their remains, which are met with in the superficial strata, occur in some localities in great abundance; and, from the differences presented by the teeth and other parts, several species have been identified. To these animals Cuvier gave the title of Mastodon, in allusion to the principal character of the molars, which, instead of being formed, as in the elephant, of transverse laminæ, have the crown of simple structure, but exhibiting ranges of bold conical elevations, divided from each other by deep furrows (see Fig. 369). As the points of these elevations become worn down by use, the crown presents a series of lozenge-shaped lines of thick enamel (Fig. 370), but when these are quite obliterated the surface becomes uniform and concave.

Of the molars thus characterized there were two above and below on each side, but before these molars it would appear that in young individuals others had been situated, and had fallen in succession, as Cuvier satisfactorily ascertained from the examination of various specimens. With regard to the mode of succession in the grinders of the mastodon, it takes place, says Cuvier, by a movement from behind forwards. When the back tooth is in the act of piercing the gum, that anterior to it is worn and ready to fall, and they thus replace themselves one after the other. It does not appear that it is possible for more than two at a time on each side to be in full operation, and ultimately, as in the elephant, there is only one. That the mastodon had tusks like the elephant is proved by the large alveoli for their reception. As no perfect skull of the mastodon is known, it is impossible to define its contour: it must, however, have had a general resemblance to that of the elephant, inasmuch as the tables of the frontal bone are separated in a similar manner by extensive cells.

The neck is short, and the skeleton generally (Fig. 368) approximates to that of the elephant. The mastodon must have possessed a proboscis, as is evident from a consideration of the structure of the skull and skeleton,—and indeed it would appear that this proboscis has not in every instance been completely decomposed. The relics of the Mastodon giganteus, or “animal of the Ohio,” are found in North America, especially in saline morasses, and to this circumstance Barton thinks is to be attributed the occurrence of soft parts still capable of being made out. In 1762 (as he states) out of five skeletons which were seen by the natives, one skull still possessed what they called a “long nose” with the mouth under it. Kalm, speaking of a huge skeleton which, in accordance with the ideas of his time, he believed to be that of an elephant, and which was discovered by the savages in the country of the Illinois, says that “the form of the trunk (bec) was still apparent, though half decomposed.” Of the several species of this extinct genus, the Great Mastodon, or animal of the Ohio, is the most remarkable. Its relics appear to be confined to the American continent: they are distributed very generally, and are accumulated in some places in considerable abundance, but nowhere so much so as in that saline morass popularly termed the Big-bone Lick. They are found buried in the mud, and along the borders of the morass, at the depth of four feet and upwards, together with the bones of buffaloes, stags, &c. These relics have no appearance of having been rolled, and, in some places, as for example along the Great Osage river, they are found in a vertical position, as if the animals had sunk down into the mud, which had closed over them. The ferruginous matter with which the bones are impregnated, says Cuvier, is the main proof of their long repose in the earth.

The traditions which were rife among the Red Men concerning this gigantic animal and its destruction must not be passed over in silence. M. Fabri, a French officer, informed Buffon that the savages regarded these bones scattered in various parts of Canada and Louisiana as belonging to an animal which they named the Père aux Bœufs. The Shawnee Indians believed that with these enormous animals there existed men of proportionate development, and that the Great Being destroyed both with thunderbolts. Those of Virginia state that as a troop of these terrible quadrupeds were destroying the deer, the bison, and the other animals created for the use of the Indians, the Great Man slew them all with his thunder, except the Big Bull, who, nothing daunted, presented his enormous forehead to the bolts, and shook them off as they fell, till, being at last wounded in the side, he fled towards the great lakes, where he is to this day.

Besides the Mastodon giganteus, the following species are distinguished: *M. angustidens* (Europe, America?), *M. Andium* (Andes), *M. Humboldtii* (Concepcion—Chili), *M. minutus*, *M. Tapiroides*,

*M. Turicensis*, *M. Avernensis* (Epplesheim, Puy-de-Dôme), *M. elephantoides* (Irawaddi, Sewalik Mountains), *M. latidens* (Irawaddi, Sewalik Mountains), and *M. longirostris*, Kaup. Professor Owen has referred the teeth from the Norfolk crag to the last-named species.

## 371, 372, 373.—THE HIPPOPOTAMUS.

M. Desmoulins, from an examination of the skulls and skeletons of Hippopotami from Senegal and from South Africa, considers that there are two distinct species, which he names respectively *H. Senegalensis* and *H. Capensis*. Very probably M. Desmoulins is correct, but as the habits of both species are precisely the same, and as the distinctive characters are founded on osteological minutiae only, we shall not treat them as different, more especially as the point is rather assumed than absolutely proved.

The hippopotamus is a native exclusively of Africa, where, though much more limited than formerly in the range of its habitat, it tenants the banks and beds of the larger rivers, and of the inland lakes from the Gariép to the upper Nile and its tributary branches. It is, however, not restricted to these, for it is marine as well as fluviatile; and Dr. Smith thinks it difficult to decide whether it gives preference to the river or the sea for its abode during the day. When the opportunity of choosing the sea or the river existed, he found that some selected the one, and some the other.

Scarcely, if at all, inferior to the elephant in bulk, but much lower in stature from the shortness of the limbs, this massive animal presents us with the “ne plus ultra” of uncouth clumsiness and heavy solidity. Its body, like an enormous barrel supported on four thick pillars, almost touches the ground; the head is ponderous; the muzzle is swollen; and the great thick lips, studded with wire-like bristles, entirely conceal the projecting incisors of the lower jaw, and the huge curved tusks or canines; the mouth is wide; the nostrils open on the top of the swollen muzzle; and the eyes, which are very small, are situated high on the head; hence, when in the water, the animal by raising merely a small upper section of the head above the surface can both look around and breathe, the body remaining submerged. The ears are small and pointed; the tail is short, and furnished with a few wiry bristles. The toes, four on each foot, are tipped with small hoofs. The hide is naked, coarse, and of great thickness, being two inches deep or more on the back and sides. It is made into shields, whips, walking-sticks, &c. Between the skin and the flesh is a layer of fat, which is salted and eaten as a delicacy by the Dutch colonists of Southern Africa; indeed the epicures of Cape-Town, as Dr. Smith says, do not disdain to use their influence with the country farmers to obtain a preference in the matter of *Sea-cow's speck*, as this fat is termed when salted and dried. The flesh also is excellent and in much request. The general colour of the hippopotamus is dusky brownish red, passing on the sides and limbs into a light purple red or brown; the under parts, the lips, and the eyelids are light wood brown, with a tinge of flesh-colour; the hinder quarters and the under surface are freckled with spots of dusky brown; the hairs of the tail and ears are black, those on the muzzle yellowish brown. The male far exceeds the female in size. The hippopotamus is gregarious in its habits, sagacious, wary, and cautious. It has been long driven away from the rivers within the limits of the Cape colony; but in remoter districts, where the sound of the musket is seldom heard, it abounds in every large river, and is comparatively fearless of man. “To convey,” says Dr. Smith, “some idea of the numbers in which they were found in several of the rivers towards the tropic of Capricorn, it may suffice to state that in the course of an hour and a half a few members of the expedition party killed seven within gun-shot of their encampment. Several other individuals were in the same pool, and might also have been killed, had it been desirable. One of the survivors was observed to make his escape to an adjoining pool, and in accomplishing that he walked with considerable rapidity along the bottom of the river, and with his back covered with about a foot of water.”

The hippopotami, according to Dr. Smith, feed chiefly on grass, resorting to situations near the banks of rivers which supply that food. “In districts fully inhabited by man,” says Dr. Smith, “they generally pass the day in the water, and seek their nourishment during the night; but in localities differently circumstanced, they often pass a portion of the day as well as the night upon dry land. In countries in which the night-time constitutes the only safe period for their leaving the water, they are generally to be seen effecting their escape from it immediately before dark, or are to be heard doing so soon after the day has closed, and according to the state of the surrounding country; they then

either directly commence feeding, or begin a journey towards localities where food may exist. When, previous to nightfall, they may have been in pools or rivers, they are generally at once enabled to commence feeding on reaching the dry land; but when they may have passed the day in the sea, they require commonly to proceed some distance after leaving it, before they find the grass which appears congenial to their palate. It is not every description of grass that hippopotami seem to relish: they often pass over, in search of food, luxuriant green swards, which would strongly attract many other animals which feed upon grass. Besides having a peculiar relish for the grasses of certain situations, they appear to have a predilection for districts supporting brushwood; and owing to the latter peculiarity, they are often to be found wandering in localities on which but little grass exists, when they might have it in the neighbourhood in great abundance, but without the accompaniment of wood.”

We learn from Mr. Salt, that in the district of Abyssinia watered by the Tacazze, a tributary to the Nile, hippopotami are very numerous. The Abyssinians term the animal Gomari. As Mr. Salt travelled along the line of the river, he found it interrupted by frequent overfalls and shallow fords. Between these shallows are holes or pits of vast depth, resembling the lochs and tarns in the mountain districts of Scotland and England. It is to these depths that the hippopotami delight to resort; and here Mr. Salt and his companions observed their actions, which he compares to the rolling of a grampus in the sea.

“It appears,” observes the same traveller, “from what we have witnessed, that the hippopotamus cannot remain more than five or six minutes at a time under water, being obliged to come up to the surface at some such interval for the purpose of respiration.”

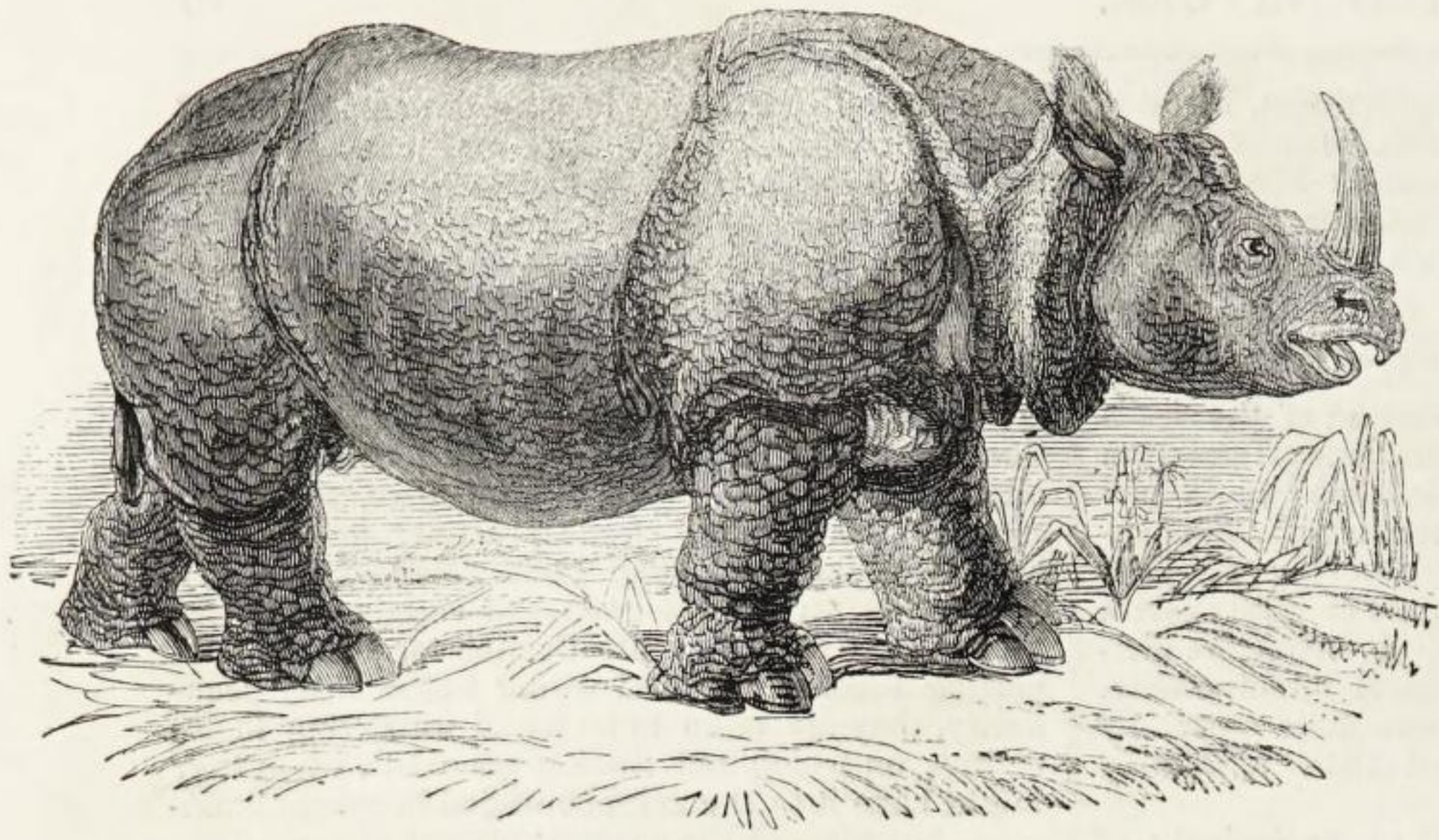
It has generally been asserted that this huge, powerful, and, it should seem, inoffensive animal, has no enemy in the brute creation audacious enough to contend with it. Some travellers, however, have attributed this boldness to the crocodile, describing combats between them, which in truth never take place, no enmity subsisting between the two animals. While Mr. Salt and his party were engaged shooting at the hippopotami, they frequently observed several crocodiles of an enormous size rise together to the surface of the same stream, apparently regardless of and disregarded by their still more enormous neighbours. Captain Tuckey, in his expedition to explore the Zaire or Congo, observed immense numbers of hippopotami and alligators in the same water—an association inconsistent with hostility.

Burckhardt (see his ‘Travels in Nubia’) informs us that lower down the Nile, in Dongola, where there are neither elephants nor rhinoceroses, the hippopotamus is very common. The Arabic name for it is Barnik. It is a dreadful scourge to the inhabitants, who lack the means of destroying it. Occasionally, but rarely, it is seen much farther north, even below the cataract of the Nile at Assouan.

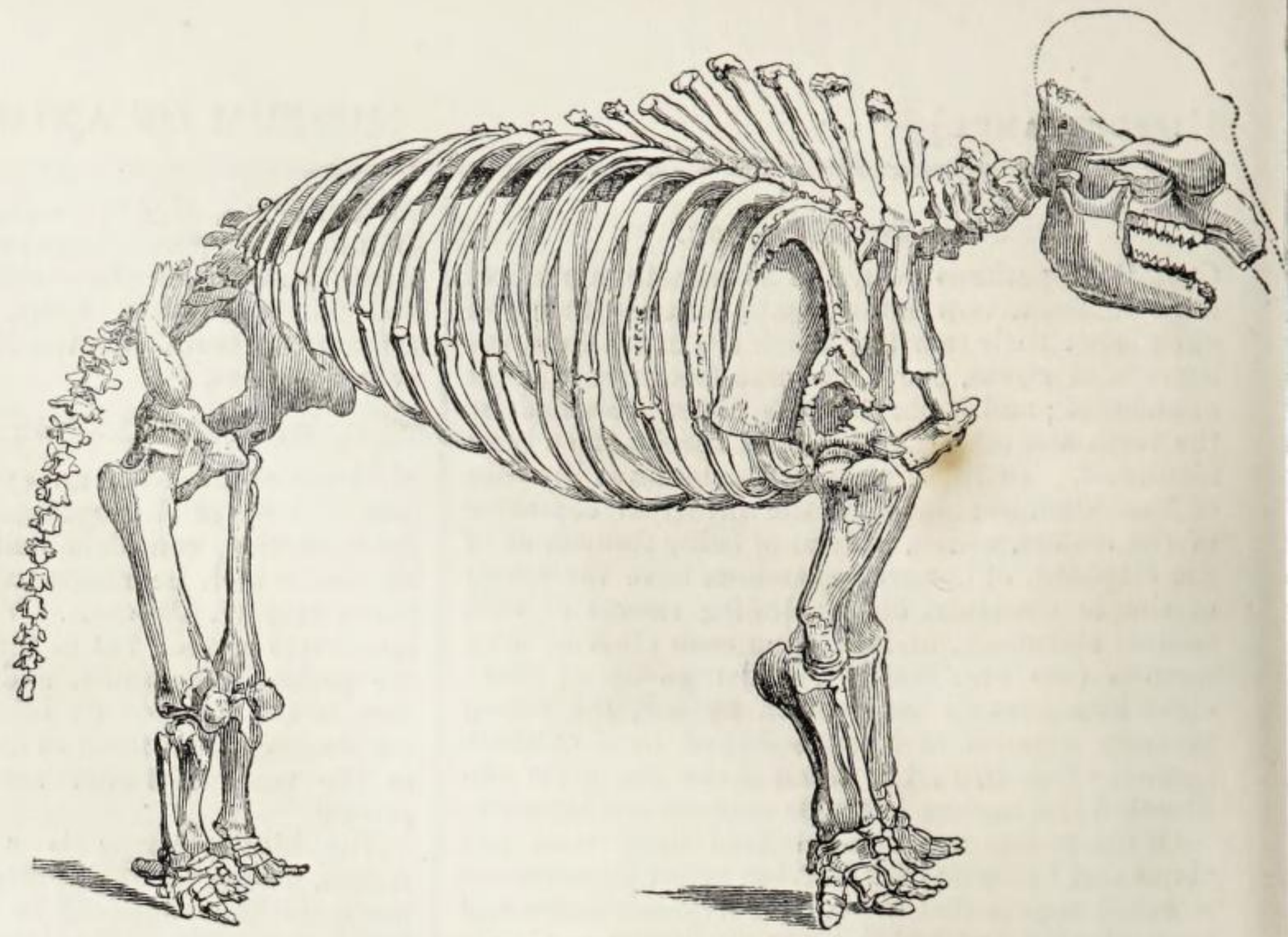
The hippopotamus abounds in the Niger, where it was seen by Richard and John Lander. Clapperton observed them in the lake Muggaby, Bornou, and in the great lake Tchad and its tributary rivers.

Quiet and inoffensive, it is only when attacked that the hippopotamus becomes furious, and if hard pressed on land, he rushes open-mouthed with the utmost desperation on his aggressor. If the party attacking the animal in his watery domicile be in a boat, their danger is extreme. Captain Owen (‘Narrative of Voyages to explore the shores of Africa, under Captain W. F. W. Owen’) had many encounters with these animals. While examining a branch of the Temby river, in Delagoa Bay, a violent shock was suddenly felt from underneath the boat, and “in another moment a monstrous hippopotamus reared itself up from the water, and in a most ferocious and menacing attitude rushed open-mouthed at the boat, with one grasp of its tremendous jaws seized and tore seven planks from her side; the creature disappeared for a few seconds, and then rose again, apparently intending to repeat the attack, but was fortunately deterred by the contents of a musket discharged in its face. The boat rapidly filled, but as she was not more than an oar’s length from the shore, they (the crew) succeeded in reaching it before she sank. The keel, in all probability, had touched the back of the animal, which, irritating him, occasioned this furious attack; and, had he got his upper-jaw above the gunwale, the whole broadside must have been torn out. The force of the shock from beneath, previously to the attack, was so violent, that her stern was almost lifted out of the water, and Mr. Tambs, the midshipman steering, was thrown overboard, but fortunately rescued before the irritated animal could seize him.

Figure 374 represents the skeleton of the hippopotamus, which is a ponderous frame-work in unison



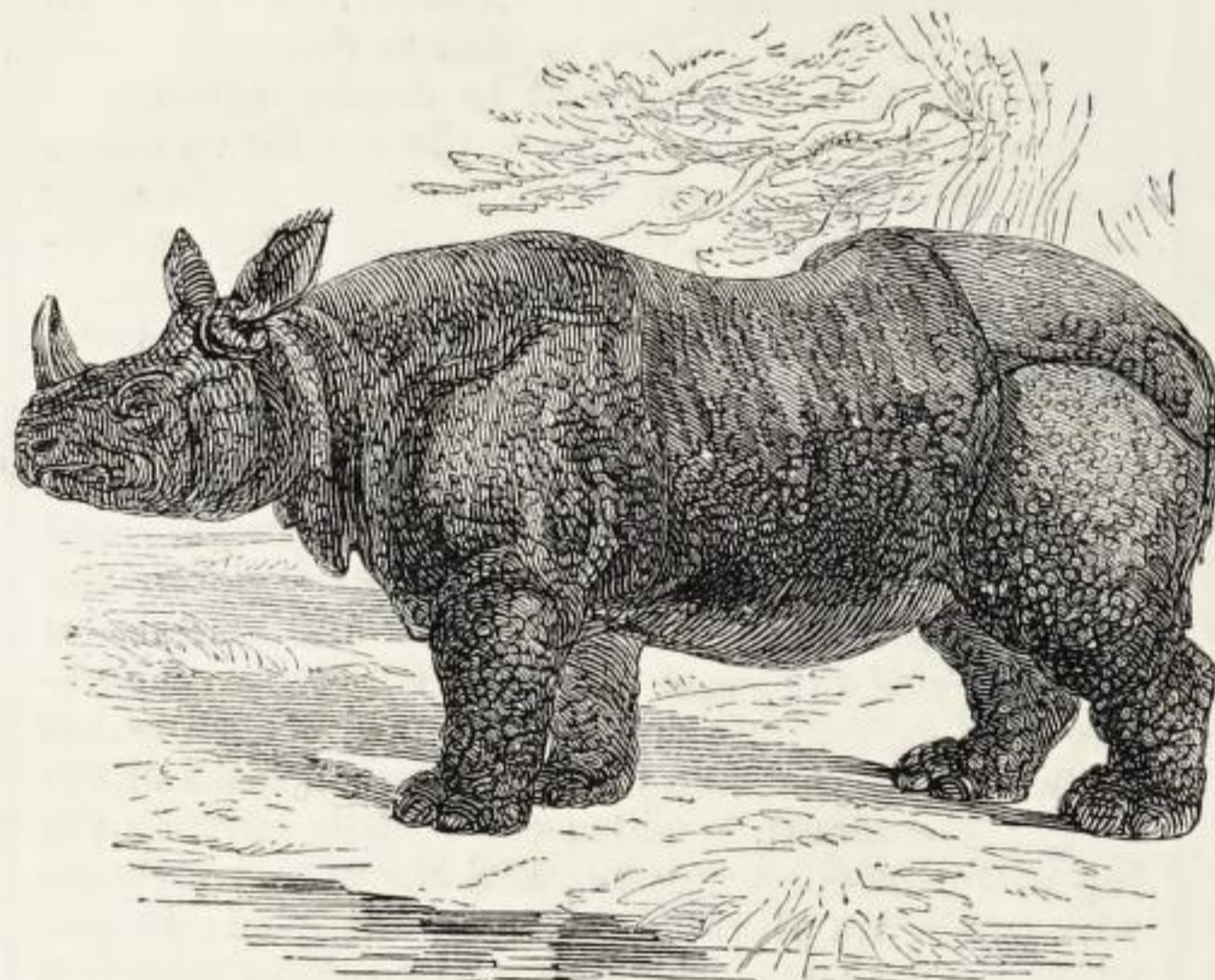
375.—Rhinoceros.



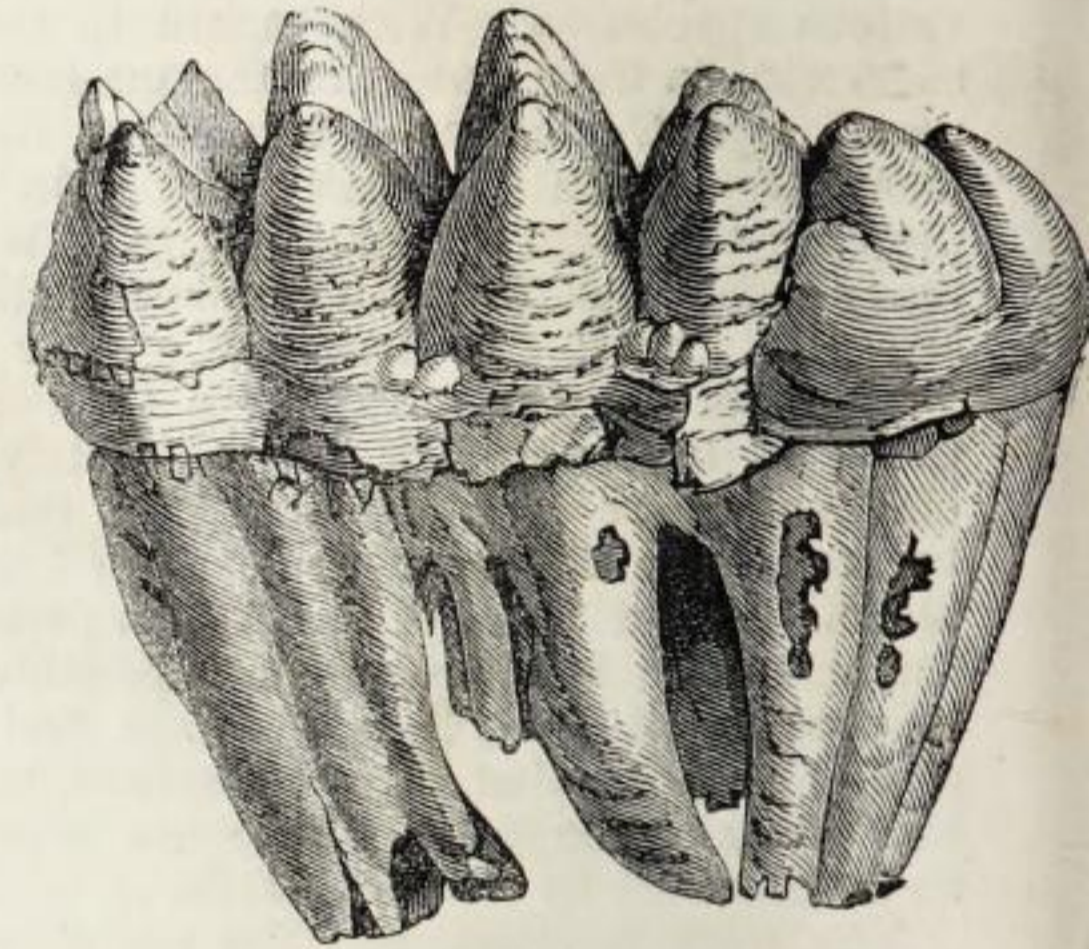
368.—Skeleton of Mastodon.



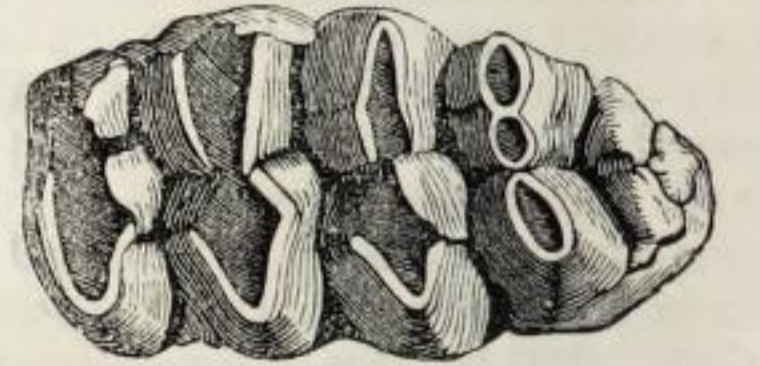
377.—African Rhinoceros.



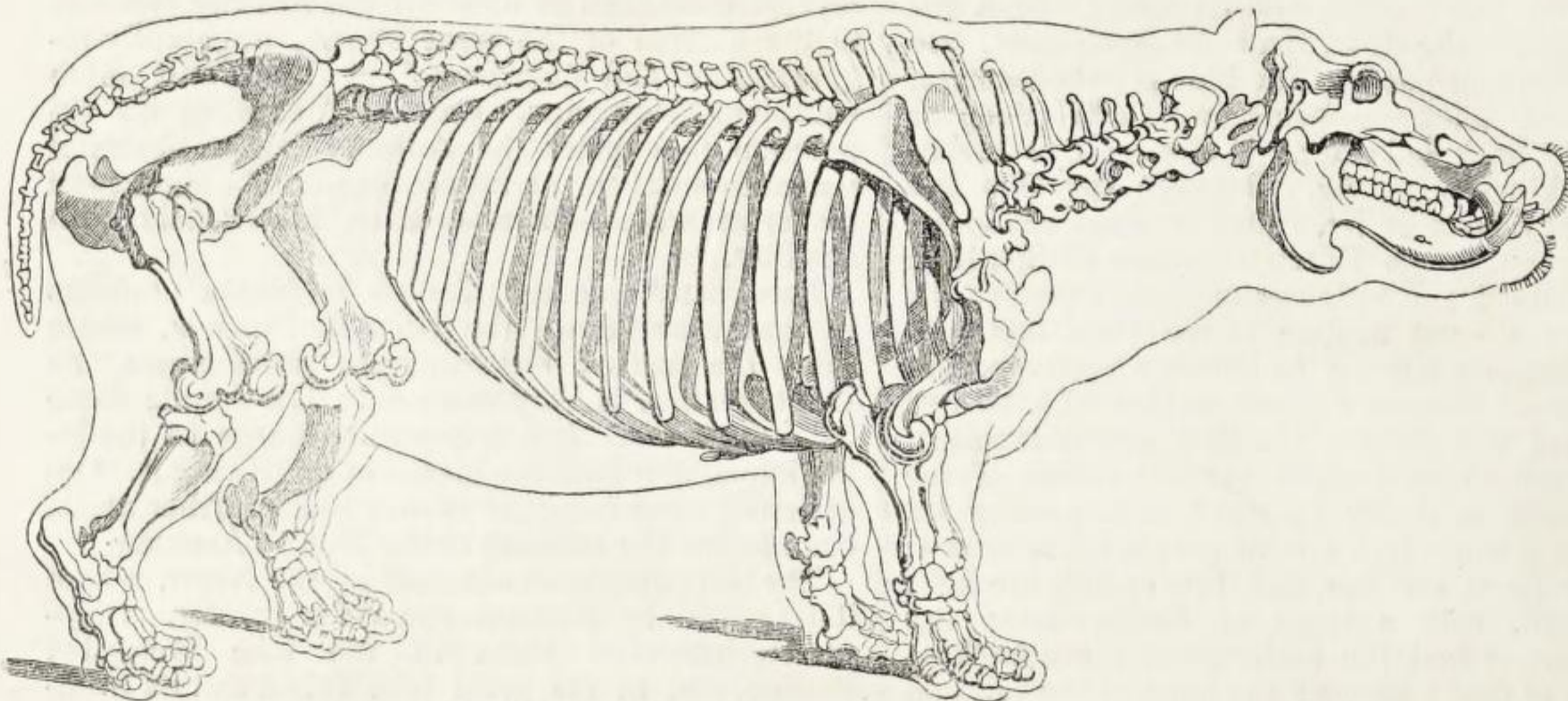
380.—Indian Rhinoceros.



369.—Molar of Mastodon, not worn.



370.—Molar of Mastodon, much worn.



374.—Skeleton of Hippopotamus.



372.—Female Hippopotamus and Young.



371.—Hippopotamus.



376.—Indian Rhinoceros.



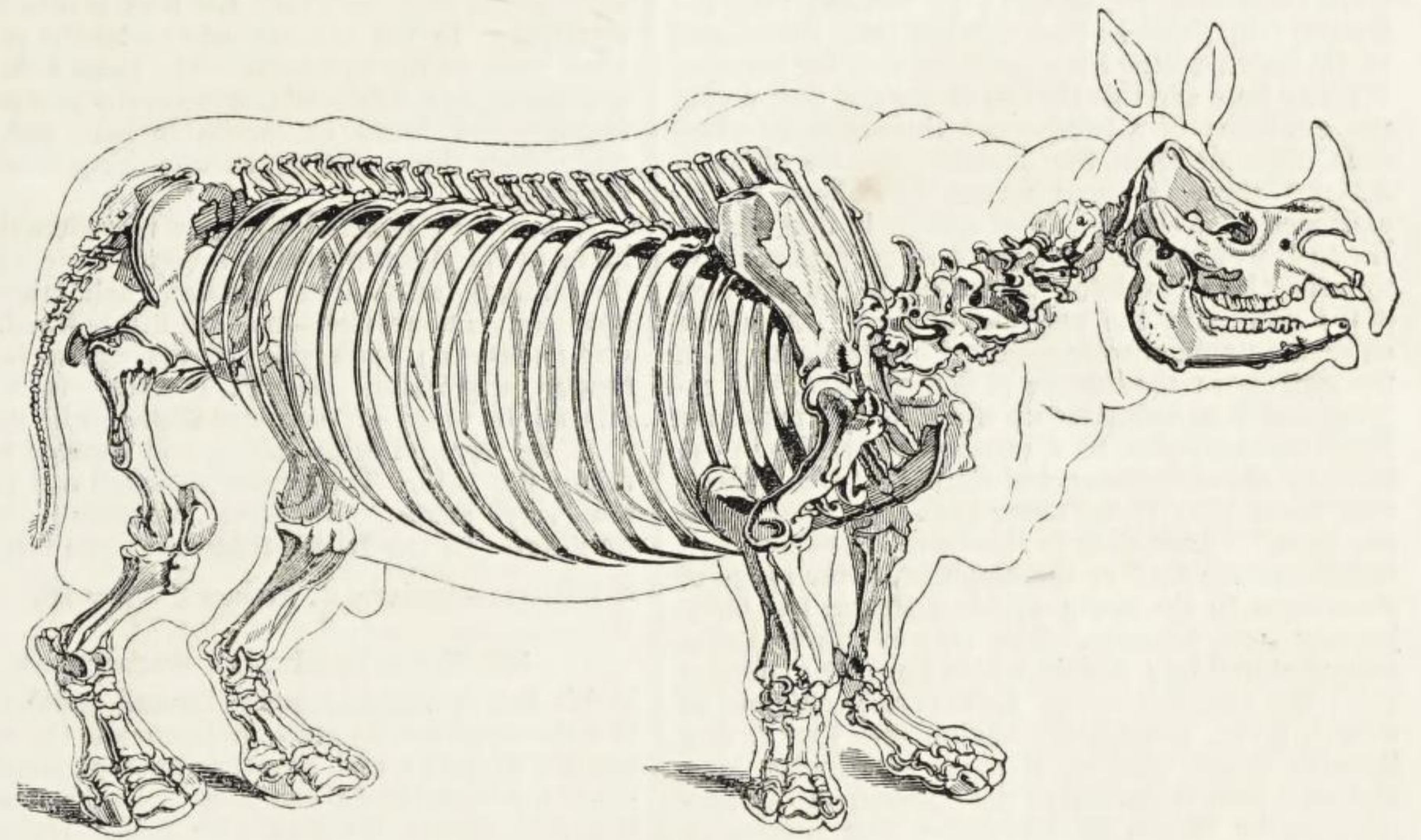
331.—Indian Rhinoceros.



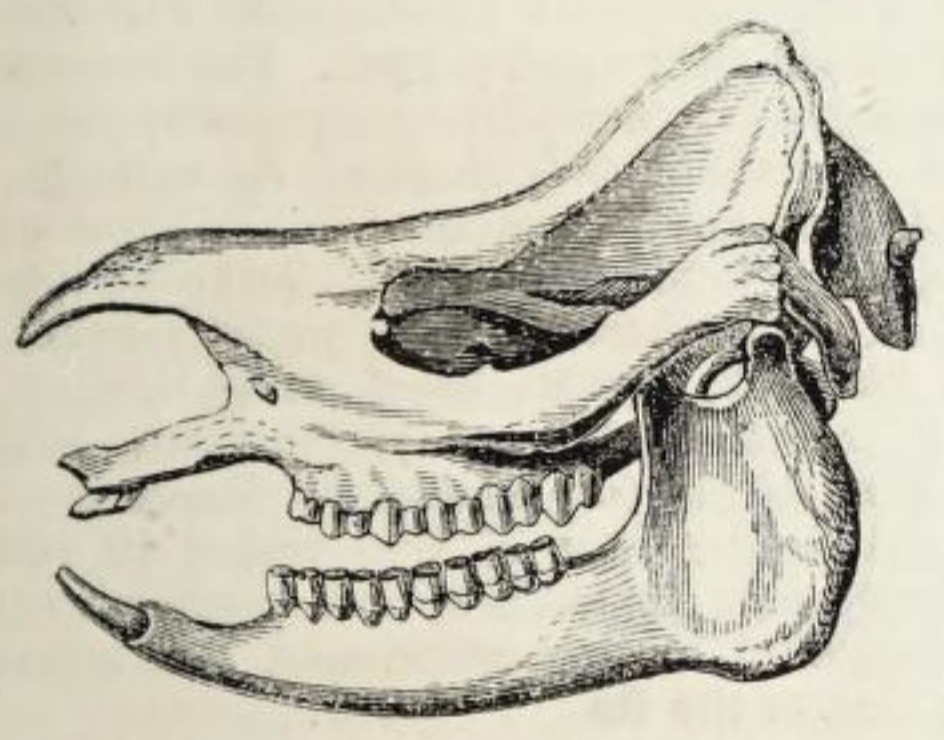
378.—Indian Rhinoceros.



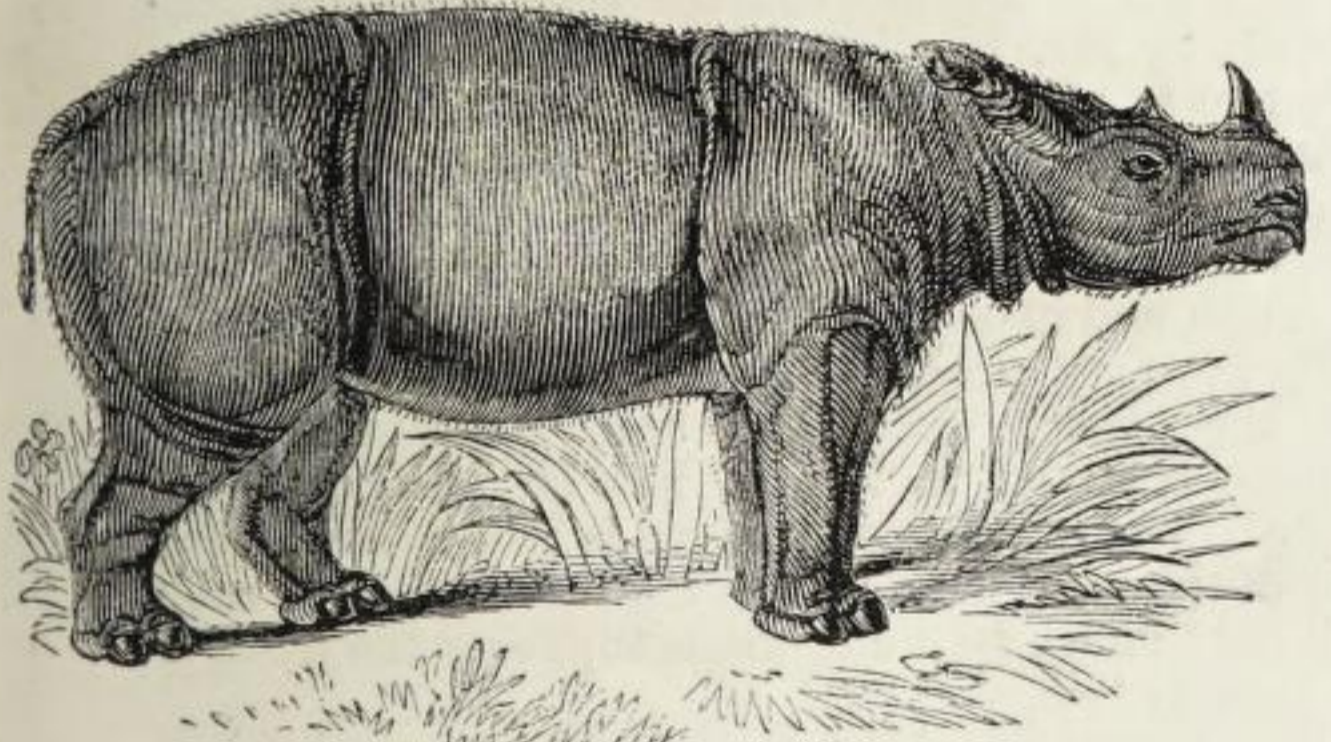
332.—Javanese Rhinoceros.



385.—Skeleton of Rhinoceros



334.—Skull of Javanese Rhinoceros.



335.—Sumatran Rhinoceros



379.—Rhinoceros Keitloa.



336.—Rhinoceros Keitloa.



with the vast weight of solid flesh to be sustained and the enormous strength of the muscles. The neck, though short, is longer in proportion than that of the elephant, and from the shortness of the limbs gives the animal the power of grazing the herbage.

Four fossil species of hippopotamus are described by Cuvier; of one (*H. antiquus*) the relics are widely distributed, and are particularly abundant in the Val d'Arno, Italy, intermixed with those of the elephant and rhinoceros.

### 375.—THE RHINOCEROS.

This genus contains six living and well-established species, as far as naturalists are at present able to determine, and several fossil species, of which the relics occur in the same strata as those of the fossil elephant.

The existing species are confined to the hotter regions of the Old World, and are divided between Africa and India, including the islands of Java and Sumatra. It is in the land of the elephant and the hippopotamus that the rhinoceros wanders in fearless confidence, as if aware of his enormous powers, and the advantage of his weapons of defence. One species (*Rh. Indicus*: Figs. 375, 376, 378, 380, and 381) is peculiar to continental India beyond the Ganges, Siam, and Cochin-China; one (*Rh. Javanus*: Fig. 382) is a native of Java; and one with two horns (*Rh. Sumatranus*: Fig. 383), of Sumatra. Three two-horned species are indigenous in Africa, viz.: the common two-horned or black rhinoceros (*Rh. bicornis*, Linn.; *Africanus*, Cuv.: Figs. 377, 387); the white rhinoceros (*Rh. simus*: Figs. 388, 389); and the Keitloa (*Rh. Keitloa*: Figs. 379 and 386), discovered by Dr. Smith during his expedition into the interior. We may here add that though Bruce and Salt notice the existence of a two-horned rhinoceros in Abyssinia different from the common species of South Africa,\* there is some reason to believe in the existence of a single-horned species in that region. Bruce states that a one-horned rhinoceros is found towards Cape Gardafui, according to the accounts of the natives in the kingdom of Adel. Accounts of such an animal were received by Dr. Smith from the natives in the interior of South Africa, who represented it as living far up the country; moreover Burekhardt alludes to a one-horned species in the territory above Sennaar, and states that the inhabitants there give it the name of the "mother of the one horn." According to this traveller, its northern boundary, like that of the elephant, is the range of mountains to the north of Abou Huaze, two days' journey from Sennaar. The hide of this animal is manufactured into shields, which have an extensive sale; the material of the horn is also sold, and at a high price, Burekhardt having seen four or five Spanish dollars paid for a piece four inches long and one inch thick. Was the one-horned rhinoceros seen by Strabo at Alexandria this species or the common Indian?—and the same question applies to the one-horned rhinoceros, which, with a hippopotamus, was given by Augustus, in the celebration of his triumph over Cleopatra, to be slain in the Circus; which animals, Dion Cassius says, were then first seen and killed at Rome—an assertion perfectly erroneous, as it respects the rhinoceros, if it was the common Indian species, for Pliny, in his eighth book, alluding to the games of Pompey, mentions the one-horned rhinoceros (Indian, it is presumed) as then exhibited ("Isdem ludis, et rhinoceros unius in nare cornu, qualis sæpè visus"). With respect to the two-horned African species, it was also exhibited in Rome; and had learned critics known anything of natural history, the line in Martial ("namque gravem gemino cornu sic extulit ursum") would not have given rise to so many futile disquisitions and attempted corrections. Pausanias describes a two-horned rhinoceros under the name of Æthiopian Bull. Two individuals of the same species appeared at Rome under the emperor Domitian, on some of whose medals was impressed their figure; others were exhibited under Antoninus, Heliogabalus, and Gordian III. Martial lived in the time of Domitian, and the rhinoceros "gemino cornu" was doubtless seen by him.

The animals of the present genus are all remarkable for the massiveness of their form and the clumsiness of their proportions; they are, however, more prompt and rapid than might be at first supposed, and when attacked they rush on their foes with headlong impetuosity. The body is of great bulk, and protuberant at the sides; the neck is short and deep; the shoulders are heavy, the limbs thick; the feet are divided into three toes incased in hoofs. The skin is thick and coarse, with a knotty or tuberculous surface, and destitute, or nearly so, of hairs.

\* A pair of horns brought by Salt from Abyssinia, and now in the museum of the Royal College of Surgeons, more nearly resemble those of the Keitloa than of the *R. bicornis*; and Dr. Smith considers a pair brought by Major Denham from North Africa to be different again, and unlike those of any other species. Clubs of rhinoceros-horn, of about three feet in length, have been brought from Dahomy, Western Africa. It is evident that there are two or three species in Africa with which naturalists are not acquainted.

In the common Indian species it is disposed in large folds, especially on the neck, shoulders, haunches, and thighs. The eyes are small, placed nearer the nose than in other quadrupeds, and high towards the upper surface of the skull; the ears are moderate and erect. The head is large and ponderous: it is elevated between the ears, whence it sweeps with a concave line to the nasal bones, which rise in the form of an arch to support the horn (see skeleton, Fig. 385). The upper lip is soft, flexible, sensitive, capable of being protruded, and used to a certain degree as an organ of prehension.

But that which gives most character to the head of the rhinoceros is its horn, single in some species, double in others. This organ is of an elongated, recurved, conical figure, arising from a broad, limpet-shaped base, seated on the nasal bones, which are of a thickness and solidity not to be found in other races of quadrupeds. They form a vaulted roof, elevated in a remarkable degree above the intermaxillary bones, containing the incisor teeth, and their upper arched surface is rough with numerous irregularities and depressions; and here we may pause, to reflect on the advantages gained by their form and structure. They have not merely to sustain the weight of the horn, no trifle in itself; but to resist the shock occasioned by the violent blows which the animal gives with the weapon upon various occasions. Hence, conjoined with their solidity, that form is given to the nasal bones which, of all others, is best calculated for sustaining a superincumbent weight or sudden jars; while the rugosities and depressions tend to the firmer adhesion of the skin, to which the horn is immediately attached. In the two-horned species the posterior horn rests on the os frontis. The nasal horn of the rhinoceros is a solid mass, structurally composed of agglutinated fibres analogous to hair, and much resembling those into which whalebone is so easily separable.

It has been asserted by some travellers that the horns of the African species are moveable, and that the animal rattles them against each other: this however, is a mistake—they are firmly fixed. The nostrils are on each side of the upper lip; the tongue is perfectly smooth, contrary to what is alleged by many of the older writers, who describe it to be covered with spines, and capable of lacerating the skin. The senses of smell and hearing are very acute. Dentition variable: canines wanting. In the Indian rhinoceros the formula is as follows:—Incisors  $\frac{4}{4}$ , Molars  $\frac{7-7}{7-7} = 36$ .

### 376, 378.—THE INDIAN RHINOCEROS

In his native regions leads a tranquil, indolent life: like the elephant, he gives preference to the marshy borders of lakes and rivers, or swampy woods and jungles, delighting to roll and wallow in the oozy soil, and plaster his skin with mud. He is also fond of the bath, and swims with ease and vigour. The splendid animal in the gardens of the Zoological Society may be often seen during the hot weather of summer enjoying the bath in the paddock appropriated for his exercise, or rolling and wallowing in the mud, or basking luxuriously, half in, half out of the water, like a huge hog, uttering every now and then a low grunt of self-complacent satisfaction.

Sluggish in his habitual movements, the rhinoceros wanders through his native plains with a heavy step, carrying his huge head so low that his nose almost touches the ground, and stopping at intervals to crop some favourite plant, or, in playful wantonness, to plough up the ground with his horn, throwing the mud and stones behind him. The jungle yields before his weight and strength, and his track is said to be often marked by a line of devastation. When roused the rhinoceros is a most formidable antagonist, and such is the keenness of his senses of smell and of hearing, that, unless by very cautiously approaching him against the direction of the wind, it is almost impossible to take him by surprise. On the appearance of danger the rhinoceros generally retreats to his covert in the tangled and almost impenetrable jungle, but not always, and instances are on record in which, snuffing up the air and throwing his head violently about, he has rushed with fury to the attack, without waiting for the assault. There are, in fact, seasons in which the rhinoceros is very dangerous, and attacks every animal with impetuosity that attracts his notice or ventures near his haunts, even the elephant himself.

From the earliest times the horn of the Indian rhinoceros (the observation applies to other species also) has been regarded either as an antidote against poison or as efficacious in detecting its presence, as well as useful in curing disease. The Indian kings made use of it at table, because, as was believed, "it sweats at the approach of any kind of poison whatever." Goblets made of it are in high estimation; these are often set with gold or silver, and sell for large sums: when poison is poured into them, the liquor, it is said, betrays its noxious quali-

ties by effervescing till it runs over the brim: water drank from them, or from the cup-like hollow at the base of the horn, is regarded as medicinal. In the latter case the water is to be stirred in the hollow with the point of an iron nail till it becomes discoloured, when the patient must drink it.

The strong deep folds into which the coarse skin is gathered in the cheeks, neck, shoulders, haunches, and thighs are distinguishing characters of the Indian rhinoceros. The general colour of the skin is dusky black, with a slight tint of purple. Mr. Hodgson ('Proceedings of the Zoological Society,' 1834) states that the female goes from 17 to 18 months with young, and produces one at a birth: he adds also, "It is believed that the animal lives for 100 years; one taken mature was kept at Katmandoo for 35 years without exhibiting any symptoms of approaching decline. The young continues to suck for nearly two years: it has for a month after birth a pink suffusion over the dark colour proper to the mature hide." The female is desperate in the protection of her young.

### 382.—THE JAVANESE RHINOCEROS

(*Rh. Javanus*). As far as is ascertained, this species is confined to the island of Java, where it is called Warak. In the character of the incisor teeth, and the horn being single, it agrees with the Indian species; but it is a less bulky animal, and, in proportion, more elevated in the limbs; the folds of the skin are both less numerous, less deep, and also differently arranged; the surface of the skin is divided into small polygonal tubercles with a slight central depression in each, from which arise a few short bristly hairs. In its habits this species is gregarious; its range on the island extends from the level of the ocean to the summits of mountains of considerable elevation—the latter situations are preferred; its retreats in these mountains are to be discovered by deeply excavated passages worked out on their declivities. When met with, or otherwise disturbed, it quietly retires, being very mild and peaceable. Night is the principal season of its activity, and it often commits considerable damage in the plantations of coffee and pepper. The horns and skin are employed for medicinal purposes by the natives. Dr. Horsfield ('Zoological Researches in Java') gives a detailed account of one of these animals which was kept at Surakarta, and which was very mild and tractable, allowing persons even to mount on its back. In its habit of wallowing in the mire it resembled the rest of the genus. The Javanese Rhinoceros was known to Bontius, who wrote on the productions of that island in 1629. Fig. 384 represents the skull of this species, which is more elongated in proportion and less heavily made than that of the Indian animal.

### 383.—THE SUMATRAN RHINOCEROS

(*Rh. Sumatranus*, Raffles) was first described by Mr. Bell, surgeon in the service of the East India Company at Bencoolen ('Philosophical Transactions,' 1793); but it appears to have been indicated previously by Mr. C. Miller, long resident in Sumatra (Pennant's 'History of Quadrupeds,' 3rd ed., vol. i.). The head is more elongated than in the other two species, and there are two horns on the nose; the neck is thick and short, the limbs massive; the skin is rough and black, and covered with short hair; the folds are very inconsiderable, but are most distinct on the neck, shoulders, and haunches. The female is stated to have a heavier head than the male. The number of incisors is four in each jaw, but of these the lateral ones are very small and soon fall out; hence Bell and others supposed the number to be only two.

The Sumatran rhinoceros is by no means bold or savage; one of the largest size has been seen to run away from a single wild dog. Its native name is Badak, whence the term Abadia, or Abath, applied to the Indian rhinoceros by our early navigators. Sir S. Raffles says that, besides this species, there is another animal in the forests of Sumatra, never noticed, which in size and character nearly resembles this rhinoceros, but which is said to have a single horn, and to be distinguished by a narrow white belt encircling the body. The natives of the interior term it Tenu, which, at Malacca, is the name of the Tapir; but in Sumatra the name of the tapir is Gindol and Babialu. In the interior, however, where different tribes shut out from general communication speak different dialects, it is probable that the term Tenu may be the name applied by some, as at Malacca, to the tapir, and hence would the confusion arise; for, from the description, notwithstanding the assertion that it possesses a horn, we cannot help regarding this Tenu of the forest of the interior as the tapir.

Of the African species of rhinoceros we may first notice the

377, 387.—BLACK OR COMMON AFRICAN RHINOCEROS (*Rh. bicornis*, Linn.; *Rh. Africanus*, Cuv.). This huge animal, though driven from the precincts of

the colony, is still extensively spread throughout the southern regions of Africa. When the Dutch first formed their settlement on the shores of Table Bay, this rhinoceros was a regular inhabitant of the thickets which clothed the lower slopes of the mountain; but it has retired, and continues to retire, before the advance of colonization and the gun of the hunter. This species differs from the Indian, not only in the possession of a double horn, but in the absence of massive folds of skin, and in wanting the incisor teeth. The skin is thick, coarse, scabrous, and forms a deep furrow round the short thick neck; the head is heavy; the eyes are small, and the skin round them, and on the muzzle, and before the ears, is wrinkled; the upper lip is slightly produced, and prehensile. The anterior horn is long, fibrous at the base, hard, and finely polished at the point; the posterior horn is short and conical. General colour yellowish brown, with tints of purple upon the sides of the head and muzzle; eyes dark brown. Length about eleven feet. A few black hairs fringe the edge of the ears and the tip of the tail. This animal feeds upon brushwood, and the smaller branches of dwarf trees, "from which circumstance," says Dr. Smith, "it is invariably found frequenting wooded districts, and in those situations its course may be often traced by the mutilations of the bushes. The mass of vegetable matter consumed does not appear to be in proportion to the bulk of the animal: indeed, as it feeds but slowly, and passes much of its time in idleness, it must be regarded as a very moderate eater, and, considering that it appears to be fastidious in the choice of its food, it is fortunate for its comfort that it does not require more nourishment." Of the senses of the rhinoceros, those of hearing and smell are very acute, and aid the animal more than his sight in the discovery of danger, the bulk of the body screening objects not immediately before the eyes. "As these animals depend much upon smell for their existence and safety, it is necessary to advance upon them from the leeward side, if the aim be to get close without being discovered. In pursuit they also trust for guidance to the same sense, and may be heard forcibly inspiring the air, when they have lost the scent of the object they are following. The ticks and other insects with which they are covered furnish for them another source of intelligence, inasmuch as they attract a number of birds, which sit quietly picking them off, when nothing strange is in sight, but fly away when any object excites their fear. So well does the rhinoceros understand this, that he proceeds feeding with the greatest confidence while the birds continue perched upon his back; but the moment they fly, the huge animal raises his head and turns it in all directions to catch the scent. Whether he accomplishes this or not, he generally feels so uncertain of his position, that he moves to some other locality." The same observations apply to the other African species. When disturbed or attacked, the rhinoceros becomes furious, and especially when wounded: he then rushes towards his foe, and if he can get the hunter once within his sight, the escape of the latter, unless he exert great presence of mind, or the well-directed shot of a companion stop the animal in his career, is very doubtful. The best plan is to wait till the enraged beast approaches, and then step aside suddenly, where some bush or inequality of the ground may afford a shelter, and give time to the hunter for reloading his gun before the rhinoceros gets sight of him again, which fortunately it does slowly and with difficulty. Travellers in the regions frequented by this animal are not safe during the night from its attacks. It appears to be excited by the glow of a fire, towards which it rushes with fury, overturning every obstacle. It has, indeed, been known to rush with such rapidity upon a military party lodged among the bush covering the banks of the Great Fish River, that before the men could be aroused it had severely injured two of them, tossed about and broken several guns, and completely scattered the burning wood. Le Vaillant, in an animated account of a rhinoceros hunt, describes the enraged and wounded animals as ploughing up the ground with their horns, and throwing a shower of pebbles and stones around them; and Dr. Smith says that they are sometimes seen to plough up the earth for several paces with the front horn when not enraged, but for what object he could not discover. The native (Bechuana) name of this species is Borili.

## 379, 386.—THE KEITLOA

(*Rh. Keitloa*, Smith). In general figure this savage species resembles most nearly the common African rhinoceros. There are, however, he observes, many marked differences between them, of which the following are a few of the external and more palpable. In *Rhinoceros Keitloa* the two horns are of equal or nearly equal length; in *Rhinoceros Africanus* the posterior in neither sex is ever much beyond a third of the length of the anterior horn; the length

of the head in proportion to the depth is very different in the two. The neck of *Rhinoceros Keitloa* is much longer than that of the other, and the position and character of the cuticular furrows destined to facilitate the lateral motions of the head are very different. Besides these, Dr. Smith states that many other diagnostic characters might be instanced; such as the black mark on the inside of the thigh of the *Keitloa*, the distinctly produced tip of the upper lip, and the comparatively few wrinkles on the snout and parts around the eyes.

The first example of this animal which Dr. Smith met with, during his expedition, was shot about 180 miles N.E. of Lattakoo, but considerably south of the country to which the species appears directly to belong, and from which it might be considered as a wanderer. On the expedition penetrating to the northward of Kurrichane, every one was found conversant with the name and able to direct to situations where the animal was found. Few mentioned the *Keitloa* without alluding to its vindictive temper and ferocity; and those, says Dr. Smith, who had sufficient confidence in the party, compared to it a chief, then awfully oppressing that part of the country, and spoke of the man and the animal as alike to be feared. As the party advanced, the *Keitloa* became more common, though it never occurred in such numbers as the other two species.

"The interest," says Dr. Smith, "which the discovery of this species excited, led to the making of minute inquiries as to the animals of this genus; and the expedition had sufficient reason to believe, from the replies to constant questions, that two other undescribed species existed farther in the interior, one of which was described as being something like the *Keitloa*, and having two horns—the other as differing in many respects, and having only one horn. The *keitloa* browses on shrubs and the slender branches of brushwood, using the upper lip as an organ of prehension."

## 388, 389.—THE WHITE OR BLUNT-NOSED

## RHINOCEROS

(*Rh. simus*), termed Mohoohoo by the Bechuana, is larger than the two former species, being upwards of twelve feet in length, and nearly six feet in height. It is a huge, massive animal, with the neck longer than in the other African species, having three deep wrinkles running from the nape down the sides; the muzzle is truncate, the mouth shaped like that of an ox, the upper lip perfectly square, and destitute of the mobility and power of protrusion, which it exhibits in the other species. Hence, instead of browsing upon shrubs, it feeds principally upon grass, and therefore frequents open plains where such herbage abounds, wandering very extensively in search of pasturage. This animal was first described by Mr. Burchell, who when at Lattakoo found it in abundance there, and Mr. Campbell brought the head of one to England. In the Mohoohoo the horns are situated close to the extremity of the nose: the first is very long, tapered to a point, and slightly curved back; the second is short, conical, and obtuse. The general colour is pale brocoli-brown; the buttocks, shoulders, and under parts shaded with brownish purple; tail clothed with stiff black hair. According to Dr. Smith, the introduction of fire-arms among the Bechuana has rendered this animal rare in the district where Mr. Burchell found it numerous: higher up the country, however, it still maintains its ground. In disposition it differs from the other two species, being much more gentle, and is therefore regarded with less fear than either the *Keitloa* or the *Borili*.

The flesh of all three species is esteemed wholesome food by the natives, who dig pit-falls for them in situations to which they are known to resort; and sometimes, though rarely with success, attempt to kill them with the assagai, or spear. In style of motion they are all alike, and so awkward, that their swiftness is to be appreciated not by directly watching the animal itself, but by fixing the eye upon some two points between which it takes its course. To revert to the one-horned rhinoceros, of which Dr. Smith heard in the interior of South Africa, and of which Bruce and Burchardt received accounts as existing in Adel and the country south of Sennaar, it may be added that Dr. Smith adduces the testimony of Mr. Freeman respecting an animal by no means rare in Makooa, north of the Mosambique Channel, which, overlooking the absurdities and exaggeration of the description, he suspects to be a one-horned rhinoceros, and probably that of which he heard, and which may extend to the countries mentioned by Bruce and Burchardt.

Among the fossil relics of animals which at some former period have tenanted this globe, and after a quiet possession, generation succeeding generation, of their pasture-lands, have become as it were blotted out of the book of creation, those of the rhinoceros are extremely abundant, little less so, if at all, than those of the fossil elephant or mammoth, as widely distributed, and occurring in the same

strata and the same localities. Several species have been distinctly made out, among which the most remarkable is that with a bony partition between the nostrils, and supporting the nasal bones: it is termed by Cuvier *Rh. tichorhinus*. Fig. 390 represents the skull in two views: *a*, profile; *b*, seen from below.

It was of this species that Pallas in 1771 discovered an entire frozen carcass buried in the sand on the banks of the Wilouji or Vilouji, which joins the Lena, in Siberia. Happily, therefore, we know the form and true proportions of the living animal. The skin was smooth and destitute of folds, and, like the common African rhinoceros, the animal had two horns. The feet had three toes, as in all extant species, but the hoofs were lost. Like the mammoth of Siberia, this animal was originally covered with hair: in many parts of the skin this hair still remained, especially over the feet, where it was very abundant, measuring from one to three inches in length, of a stiff quality, and of a dusky grey. The head was invested with a similar clothing. The head and feet are preserved in their natural state in the museum of St. Petersburg.

The skull of this species differs from that of the two-horned African rhinoceros, not only in the presence of the osseous nasal partition, but in general form and proportions. The length and narrowness of the skull are very remarkable, as is also the space between the orbits, which is much more contracted than in the common two-horned species, and the nasal bones are far more elongated. In the two-horned rhinoceros the disc which bears the anterior horn is a semi-sphere, in this an oblong ellipse, and a disc of similar figure supports the second horn, whence it may be safely concluded that the horns of this fossil species were strongly compressed at the sides. The occipital ridge is elevated and drawn out backwards, so that from the highest point the occipital bone slopes at a very acute angle inwards to the condyles.

About nine fossil species of rhinoceros are described. Almost every bone-cavern in England, France, and Germany has afforded them in abundance; and Dr. Buckland proves that there must have been a long succession of years in which the elephant, hippopotamus, and rhinoceros, with the hyæna, inhabited our island; and that the former, as the bones testify, became the prey of the latter, or were devoured after natural or accidental death.

## 391, 392, 393.—THE DAMAN, OR HYRAX.

When we look at the rabbit-like hyrax, it does not surprise us to find that all the older naturalists regarded it as a Rodent, and placed it in that order. It was reserved for Cuvier to point out its true situation. "There is no quadruped," says this great man, "which proves more forcibly than the daman the necessity of having recourse to anatomy, as a test by which to determine the true relationship of animals." This fur-covered active creature is a true Pachydermatous animal, and notwithstanding the smallness of its size, it is to be regarded as "intermediate between the rhinoceros and tapir." The resemblance which the hyrax bears to the former may be traced in its osseous system and internal anatomy (see 'Proceeds. Zool. Soc.' 1832 and 1835). On these points it would here be out of place to dwell; we have, however, figured the skeleton (Fig. 394) and the skull (Fig. 395), which to many will be of interest. With respect to the latter, the singular depth of the lower jaw cannot but strike every attentive observer; and it may be added that in the convexity of the posterior edge of the ascending portion it surpasses that even of the tapir, which, in this respect, is the nearest among all animals to the hyrax. In other particulars the skull approaches that of the rhinoceros; the molar teeth, in fact, are those of the rhinoceros in miniature, both as to form and number. There are, as in the rhinoceros, no canines. The upper incisors, two in number, are long, triangular, pointed, stout, and separated from each other by a small interval. The lower incisors are four in number, set in close array, flat, and directed forwards. At first their edges are notched, but they become smooth by use. The molars are seven on each side, above and below: but the first, which is small, falls out, being worn down as soon as the last molar on each side has arisen; and, in old individuals, the next is frequently wanting also.

With respect to the skeleton, it may be remarked that there are 21 ribs on each side, a number greater than in any other quadruped, except the two-toed sloth, which has 23. The elephant and tapir follow the Hyrax. The fore-feet are divided into four toes, tipped with hoof-life nails; the hind-feet into three, of which the innermost is furnished with a long claw-like nail. The toes are all buried in the skin, as far as the little hoofs, precisely as in the rhinoceros.

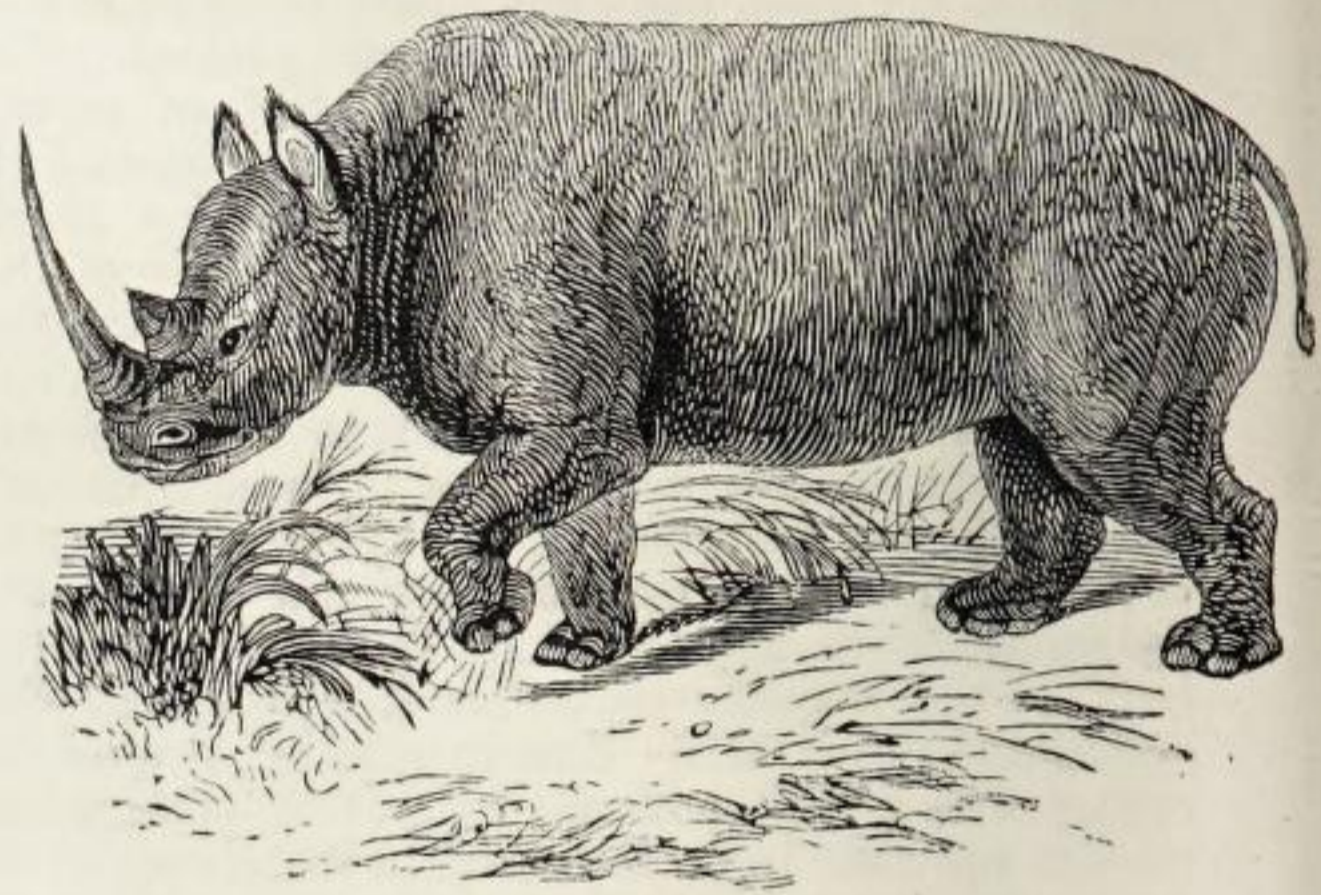
Several species belong to the present genus: we have figured the Cape Hyrax or Daman (Fig. 391),



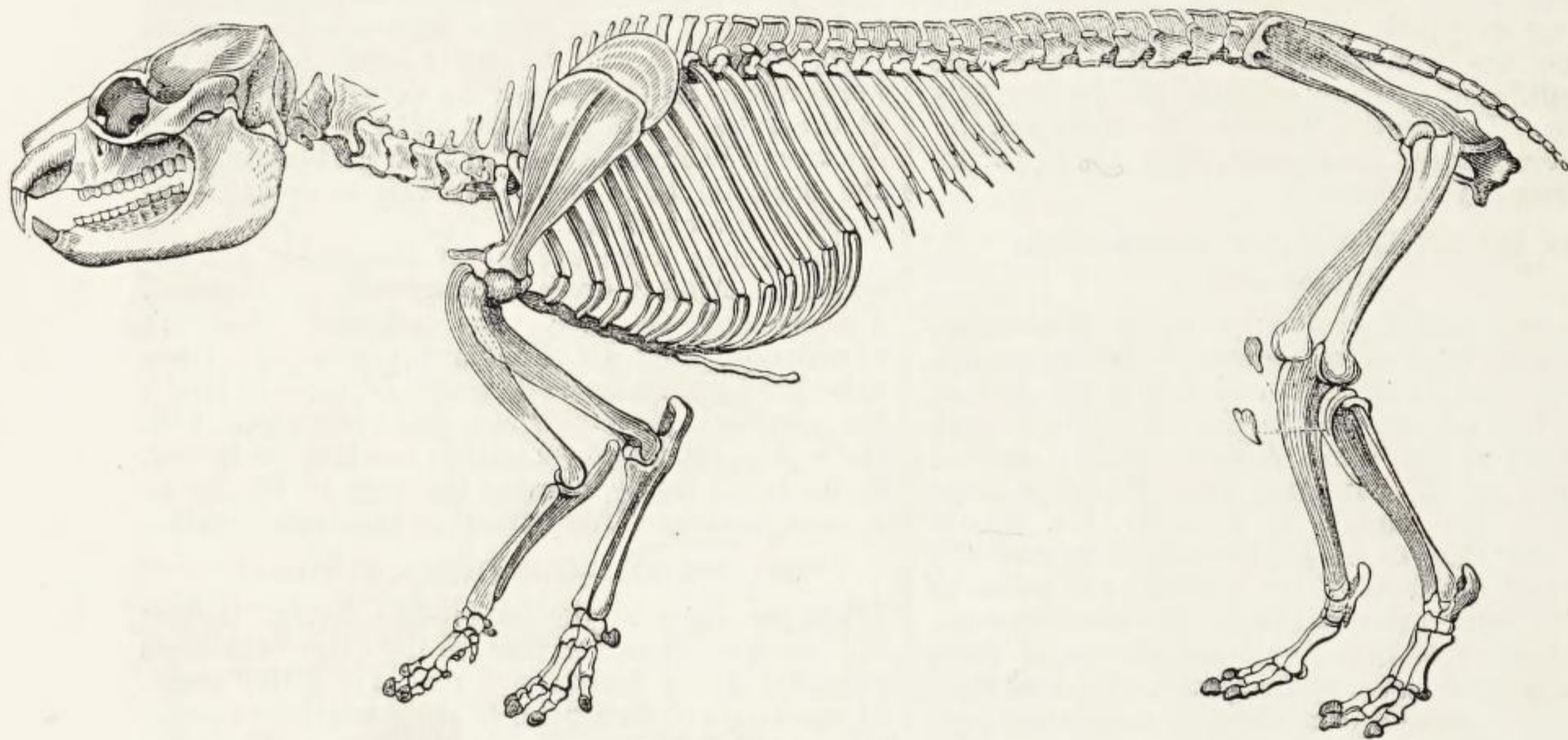
393.—Syrian Hyrax.



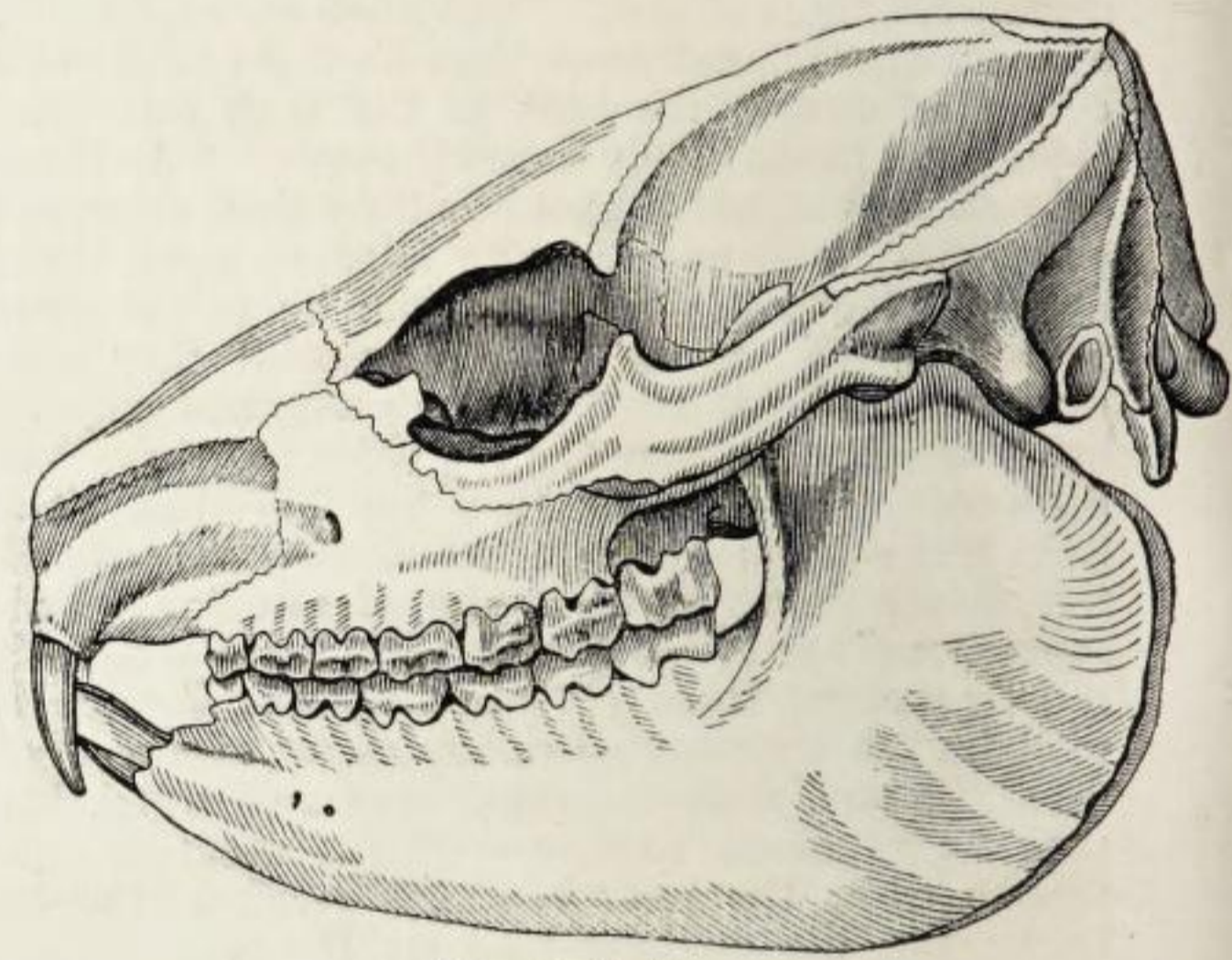
387.—Black Rhinoceros and Young.



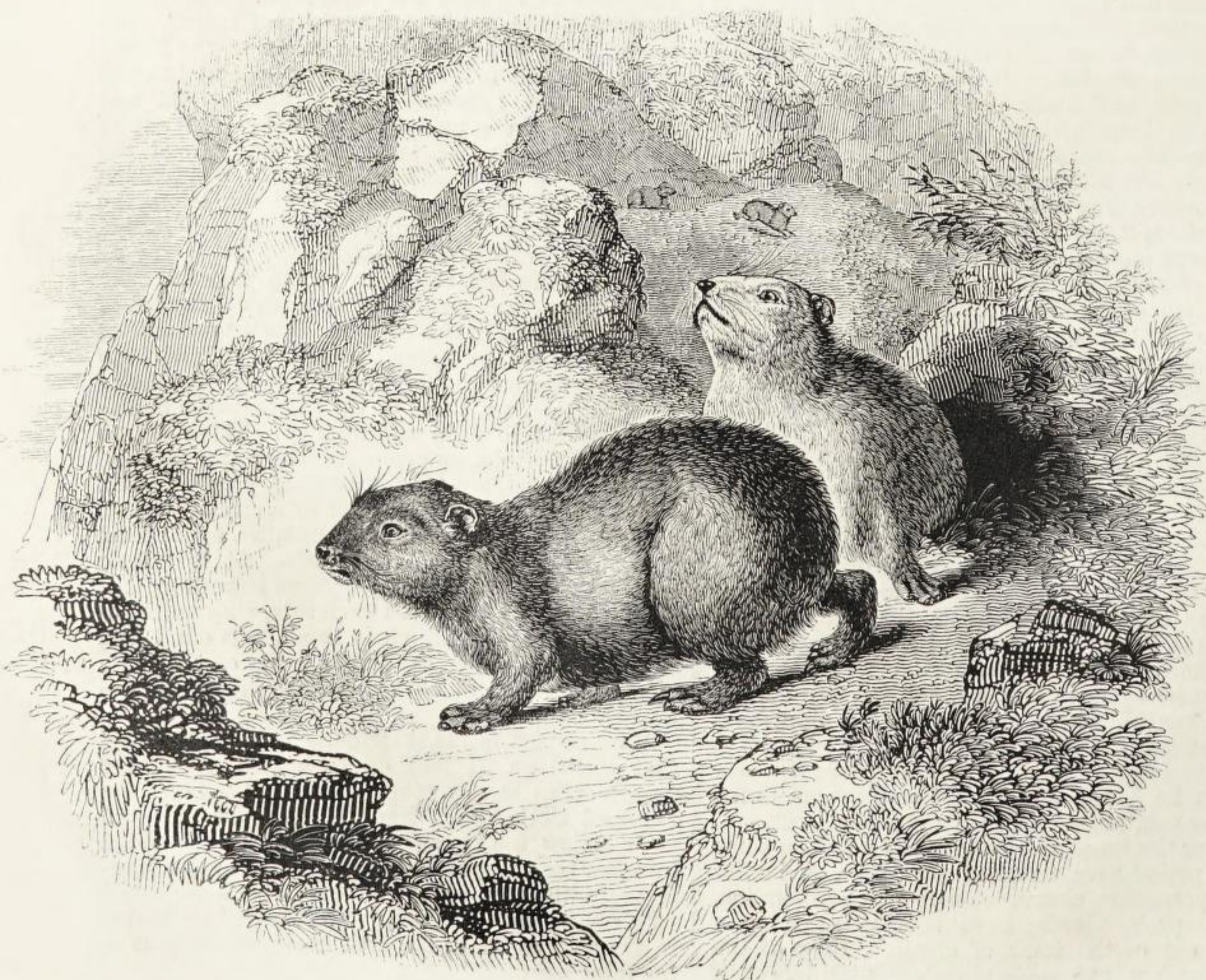
388.—Two-horned Rhinoceros.



394.—Skeleton of Daman.



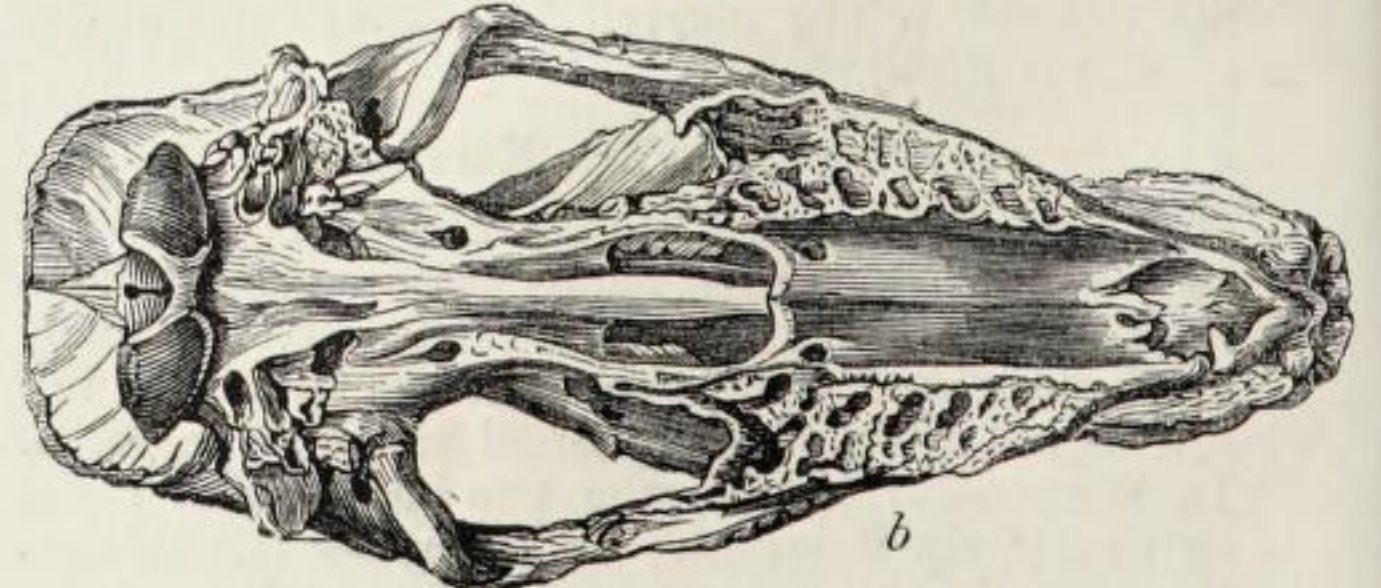
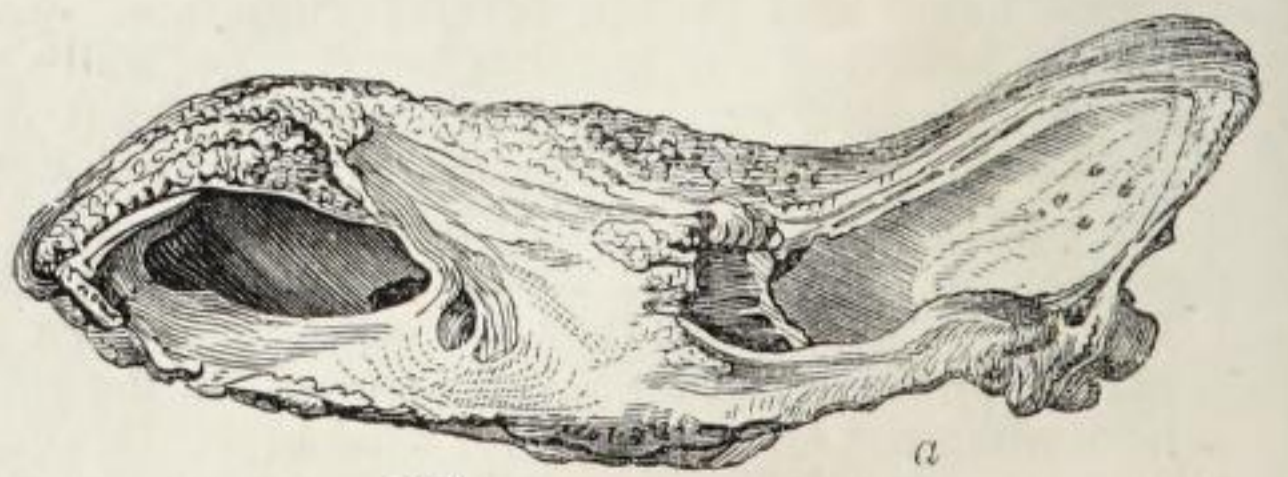
395.—Skull of Daman.



391.—Cape Hyrax.



389.—White Rhinoceros.



390.—Skull of Fossil Rhinoceros.

and the Syrian Hyrax, or Coney of the Scriptures (Fig. 393).

391.—THE CAPE HYRAX, OR DASSIE OF THE COLONISTS

(*Hyrax Capensis*), is common in the rocky and mountain districts of South Africa, taking up its abode in the fissures of the rugged crags, which afford it an asylum. It abounds on the sides of Table Mountain, but is so wary, quick, and active, that it is not to be approached without much difficulty. It often, however, falls a prey to the eagle and falcon, which pounce upon it while feeding in apparent security. The Vulturine Eagle (*Aquila Vulturina*), which makes the mountain precipices its abode, destroys it in great numbers. This timid little animal is gregarious in its habits, like the rabbit, which it somewhat exceeds in size. The fur is soft and deep, and of a dark greyish brown, becoming of a paler tint beneath. There is no tail. The following communication, by Mr. W. R. Read, (see 'Proceedings of the Zoological Society,' 1835, p. 13), needs no apology for its insertion:—

"The Hyrax *Capensis* is found inhabiting the hollows and crevices of rocks, both on the summits and sides of hills, as well as near the sea-shore, even a little above high-water mark. It appears to live in families, and is remarkably shy in its wild state. In winter it is fond of coming out of its hole, and sunning itself on the lee side of a rock, and in summer of enjoying the breeze on the top; but in both instances, as well as when it feeds, a sentinel is on the look-out (generally an old male), which gives notice, usually by a shrill prolonged cry, of the approach of danger, or even the least movement of any suspicious object. It lives on the young shoots of shrubs, the tops of flowers, herbs and grass, particularly of all those which are aromatic."

393.—THE SYRIAN HYRAX

(*H. Syriacus*). This species, according to Bruce, is found in Abyssinia, where it haunts the deep caverns and clefts in the rocks. By the natives of Amhara it is termed Ashkoko, or Askoko. It also tenants the mountains of Syria and Arabia; and, as in days of old, the rocks of Horeb and of Sinai are still "a refuge for the Coney." By the Arabs, according to Dr. Shaw, it is called Daman Israël, that is, Lamb of Israel, or rather Ganam or Gannim Israël, as Bruce contends, the word Daman being mistaken for the latter. Most authorities agree that it is the Shaphan (translated Coney) of the Scriptures. The Syrian Hyrax agrees in habits with its Cape relative. It tenants the acclivities of the rocks, sheltering itself under projecting ledges, in deep fissures, and caves: it is gregarious, and dozens may be often seen either sitting upon the great stones at the mouth of the caves, to warm themselves in the sun, or playfully skipping about in the enjoyment of the freshness of the evening. When captured, they inflict severe wounds with their formidable incisors, but are soon rendered tame and familiar. Cuvier and many naturalists have hesitated as to the distinctness of the Syrian and the Cape Hyrax. They are, as we think, undoubtedly different, and the Syrian species may be distinguished by the presence of long bristle-like, but slender, black hairs, dispersed not very thinly over its body and considerably exceeding the fur: such at least was the case with the specimen which we examined; while in the numerous specimens from the Cape, of all ages, in the Museum of the Zoological Society, nothing of the kind is to be perceived. Bruce, indeed, noticed this peculiarity, and he considered the Amharic name Ashkoko "as derived from the singularity of those long herinaceous hairs which, like small thorns, grow about his back, and which in Amhara are called Ashok."

A fossil form closely allied to the Hyrax, the skull of which has been discovered in the clay near Herne Bay, has been described by Professor Owen.

Genus *Tapirus*.—This genus comprehends, as far as known, only three species, of which two are natives of South America, the other of Sumatra and Malacca.

The geographical distribution of the existing species of pachydermatous animals is so partial, that we are surprised to find the islands of Sumatra and the peninsula of Malacca dividing with South America this limited genus between them. America, compared with Asia and Africa, is deficient in living forms of the Pachydermata: two only are indigenous to that vast continent, viz., the peccary and tapir; and, reasoning from analogy, we should not expect to find either of these forms in any portion of the Old World, and more especially in the islands of the Indian Archipelago. The great mass of the Pachydermata are peculiar to the warmer regions of Asia and the continent of Africa; and many genera, as Elephas, Rhinoceros, Sus, and Equus, give species to each, but not to America: so that the existence of cognate species in one of the Indian islands and in South America appears as if

it were an exception to a general rule, at least if we limit our views to the races now extant on the earth. Once, indeed, America was replete with animals of this order; and why so few should now appear as their representatives is a point not easy of solution. In their general form and contour the tapirs remind us of the hog; but the snout consists of a flexible proboscis, not, indeed, elongated like that of the elephant, but still sufficiently developed to serve as a hook by which the animal is capable of drawing down twigs to the mouth, of grasping fruit or bunches of herbage. The nostrils open at its extremity in the form of two transverse fissures, but there is no finger-like appendage. (For anatomy, see 'Proceed. Zool. Soc.,' 1830, p. 163.)

The tapir is a massive, powerful animal; the limbs are thick and moderately long; the head is large, compressed, and, in the American species, elevated at the occiput (see Fig. 402), whence the thick neck rises with a prominent upper crest or ridge, along which runs a mane of stiff thinly-set hairs. The eyes are small and deep set; the ears are rather short; the tail is rudimentary. The anterior feet are divided into four toes, the hinder into three, the tips only being cased in hoofs. The skin, which is thick, tough, and solid, is sparsely covered, excepting in one species, with very short close hair. The dentition (see Fig. 403) consists of six incisors in each jaw; the canines are small, especially those of the upper jaw, and are separated from the molars by a considerable interval; the molars are seven on each side above, and six below, and, until worn down by attrition, the crowns present two transverse ridges. Fig. 401 represents the skeleton of the ordinary American Tapir; in general details it approaches that of the rhinoceros. Of the two species of tapir peculiar to America, one has been only recently discovered. It was found by Dr. Roulin in the most elevated regions of the Cordillera of the Andes, and is covered with long, thick, black hair. The bones of the nose are more elongated than in the other species, and Cuvier regards it as approaching in some respects to the fossil genus *Palæotherium*.

398, 399.—THE COMMON AMERICAN TAPIR

(*Tapirus Americanus*). This species is very extensively spread throughout the warmer regions of South America, but especially between the tropics, where it inhabits the deep forests, leading a solitary life, and seldom stirring from its retreat during the day, which it passes in a state of tranquil slumber. During the night, its season of activity, it wanders forth in quest of food, which consists of water-melons, gourds, young shoots of brushwood, &c. Its choice of food is not very limited; and, indeed, it appears to be as omnivorous as the hog. Azara, who states that the Guarani term this animal Mborebi, and the Portuguese of Brazil, Anta, affirms that it devours the barrero, or nitrous earth of Paraguay, and that he has found a quantity of this substance in the stomach. Its senses of smell and hearing are extremely acute, and serve to give notice of the approach of enemies. Its voice, which it seldom utters, is a shrill kind of whistle, in strange contrast with the massive bulk of the animal. Of enormous muscular power, and defended with a tough, thick hide, the tapir is capable of tearing its way through the underwood in whatsoever direction it pleases: when thus driving onwards, it carries its head low, and, as it were, ploughs its course.

Its fondness for the water is almost as strong as that evinced by the hippopotamus. It swims and dives admirably, and will remain, as we have seen while observing the specimens in the gardens of the Zool. Soc., submerged for many minutes, rise to the surface for breath, and plunge again. When hunted or wounded it always, if possible, makes for the water, and in its nightly wanderings will traverse rivers and lakes in search of food, or for pleasure. The female is very attentive to her young one, leading it about on the land, and accustoming it at an early period to enter the water, where it plunges and plays before its parent, who seems to act as its instructress. The male takes no share in this work, and does not constantly associate with the female.

In its disposition the tapir is peaceful and quiet, and, unless hard pressed, never attempts to attack either man or beast; when, however, the hunter's dogs surround it, it defends itself very vigorously with its teeth, inflicting terrible wounds. We have witnessed those in confinement in the gardens of the Zool. Soc. occasionally break out into fits of irritation, plunging about, lunging violently with their heads, and snapping with their teeth like a hog. The most formidable enemy of this animal (if we except man) is the jaguar; and it is asserted that when that tiger of the American forest throws itself upon the tapir, the latter rushes through the most dense and tangled underwood, bruising its enemy, and endeavouring thus to dislodge him, and sometimes succeeds in the attempt.

In Cayenne the Tapir is occasionally domesticated,

and is harmless and quiet: it becomes indeed familiar, and often proves troublesome to those who caress it, as may be imagined would be the case with a pet hog under similar circumstances. The adult Tapir measures from 5 to 6 feet in length, and between three and four in height; its colour is uniform deep blackish brown; the young are longitudinally marked with spots and six or eight bands of fawn-colour along the body, and with numerous spots of the same tint on the cheeks. (See Fig. 400.)

396, 397.—THE MALAY OR INDIAN TAPIR

(*Tapirus Indicus*, Farquhar). This species was first introduced to science by Major Farquhar in 1816. It is a native of Sumatra and the Malay Peninsula, where it is called *tannoh* or *tenu*; and is as well known in Malacca as the elephant or rhinoceros. In disposition it resembles its American relative. It feeds on vegetables, and is very partial to the sugar-cane. Though the natives have not domesticated it, this species is as easily tamed as the Tapir of America, and becomes as gentle and familiar. Major Farquhar possessed one which was completely domesticated, and as much at home as any of the dogs: it fed indiscriminately on all kinds of vegetables, and was very fond of attending at table to receive bread, cakes, and the like. This Tapir was procured in the Malay Peninsula. (See 'Trans. Asiat. Soc.,' vol. xv., 1820.) A Sumatran tapir was about the same time presented alive to the Asiatic Society by G. J. Siddons, Esq., resident at Bencoolen. It was of a lazy habit, very familiar, and delighted in being rubbed or scratched; and this favour it solicited from the people about him, by throwing itself down on its side, and making sundry movements. It is distinctly stated of this Sumatran specimen, that another of its great delights was to bathe,—also "that it remained a very considerable time under water." The living specimen, says Sir S. Raffles, sent from Bencoolen to Bengal, "was allowed to roam occasionally in the park at Barrackpore. The man who had the charge of it informed me that it frequently entered the pond, and appeared to walk along the bottom under the water, and not make any attempt to swim." This characteristic habit of the animal was not observed by Major Farquhar in his Malacca specimen. That gentleman says, indeed, that he thought he might venture to affirm that the Malacca tapir is not, like the American species, amphibious in its nature. He adds, that the one he reared showed rather an antipathy to water, and that in the peninsula of Malacca these animals are found to frequent high grounds. As, however, it is admitted on all sides that the Malacca and the Sumatran tapirs are the same, and as these creatures differ in no material points of conformation from the American tapir, it is not easy to imagine that, while the American animal and that from Sumatra are so aquatic in their habits, the animal from Malacca should exhibit contrary propensities. In Sumatra the tapir inhabits the dense forests of the interior, and is, therefore, seldom seen: hence it has been considered rare in that island: it must, however, be observed, that after the loss of the ship *Fame* by fire, when a living Sumatran tapir with other animals perished, Sir S. Raffles, during the short period of his stay in Sumatra, was enabled to procure other specimens, one of which is in the museum of the Zoological Society, and another in the museum of the East India Company.

The Indian tapir exceeds the American in size: it has no mane, and the snout is longer and more proboscis-like. The most striking external difference between the eastern and western animal, however, is in colour. Instead of being of the uniform dusky-bay tint of the American, the Indian tapir is strangely parti-coloured. The head, neck, fore-limbs, and fore-quarters are quite black: the body then becomes suddenly white or greyish-white, and so continues to about half way over the hind-quarters, when the black again commences abruptly, and is spread over the legs. The abruptness and contrast of the marking of this animal make it look precisely as if it were covered round the body with a white horse-cloth, leaving the fore and hind quarters exposed. The young, until the age of four months, are black, beautifully marked with spots and stripes of fawn colour above, and white below.

According to Sir S. Raffles, the Indian tapir receives various names in different districts. By the people of Limun it is called *Saladang*: in the interior of Manna, *Gindol*; at Bencoolen, *Babi Ala*; and at Malacca, *Tenu*. Marsden states that it is denominated by the Malays in many districts *Kudayer*, or river-horse. Though the flesh of the Indian Tapir, like that of the American, is dry and disagreeable, and therefore of little value as an article of food, still the animal might be domesticated with advantage (and the same observation applies to the western species), and employed as a beast of draught or burden, its docility and great strength being strong recommendations. Its skin would prove, from its toughness, useful for various purposes.