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# NATURAL HISTORY

OF THE

# MAMMALIA OF INDIA

AND CEYLON.

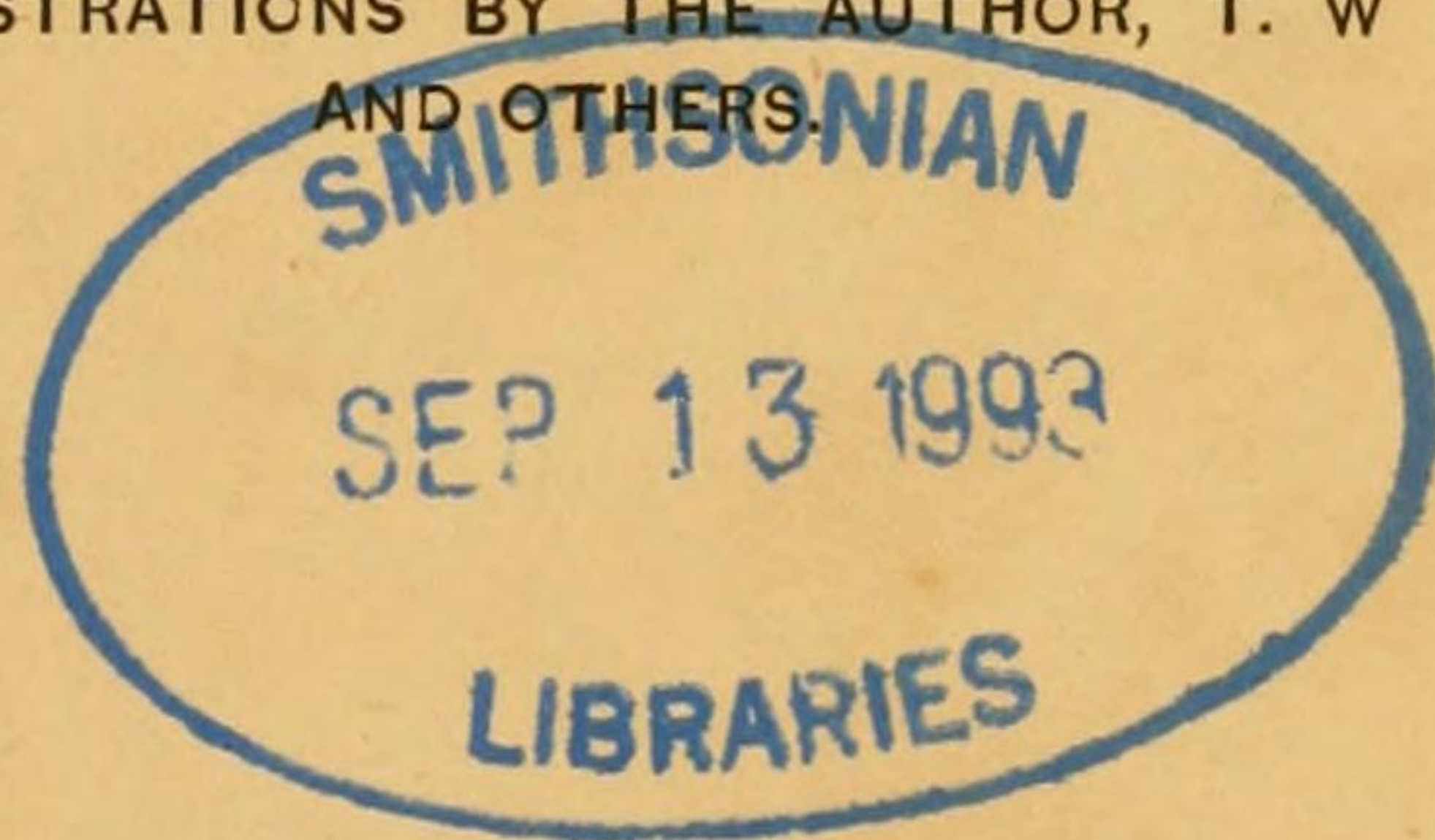
BY

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WITH 170 ILLUSTRATIONS BY THE AUTHOR, T. W. WOOD,  
AND OTHERS.



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## FAMILY RHINOCEROTIDÆ.

“The skeleton of the rhinoceros viewed generally has a resemblance to that of the little hyrax, the tapir, and the horse. The skull is very much elevated at the base, being somewhat of a pyramidal form, and the nasal bones curve upwards and downwards, and are of such a size and thickness, in order to support one or more immense horns, that they are quite unparalleled for their development in any other existing quadruped. The nasal bones, together with the premaxillary and maxillary bones, form the general contour for the external apertures of the nostrils. This is peculiar, and found in no other animal with the exception of the tapir.”—*Prof. W. Boyd Dawkins and Mr. Oakley.*

The external appearance of this animal is familiar to most—a large ungainly creature, with a long head, a massive horn on its nose, sometimes two horns; a round unwieldy body covered with an immensely thick hide arranged in heavy folds; short tail and short legs, with three toes covered with broad nails or hoofs.

The stomach is simple; the intestines about eight times the length of the body, and the cæcum is large and sacculated. The horn is a mere agglutinated mass of hair or fibre superimposed on the skin, and has no bony core. The females have two inguinal mammæ.

The dentition is peculiar; “the grinders are implanted by distinct roots, and in the upper jaw their crowns are traversed by two deep folds of enamel which constitute open valleys. In the lower jaw they are composed of two crescent-shaped lobes, also open. The covering of cement is thin, and never fills up the valleys, as in the case of the more complex dental system in the horse. The normal number of grinders is seven in each jaw, while the incisors, as we have already remarked, vary not only in form but also are sometimes absent, and canines are not developed in any of the living or fossil members of the family.”—*Boyd Dawkins and Oakley.*

The Rhinocerotidæ are divided into two groups—the Asiatic and the African; and the former consist of two genera—RHINOCEROS and CERATORHINUS, the former with one and the latter with two horns.

It is a moot point whether the rhinoceros is or is not the unicorn of Scripture, though it is by no means clear that the animal in question was a one-horned creature, but according to some might have been the great wild ox or urus of Macedonia. An Indian single-horned rhinoceros was sent from India to the king of Portugal in 1513, and from it various most distorted pictures were disseminated throughout Europe. It was represented as covered with a wondrous suit of armour beautifully decorated, and with a second horn on its shoulders!

The first one brought alive to England was in 1685. Parsons

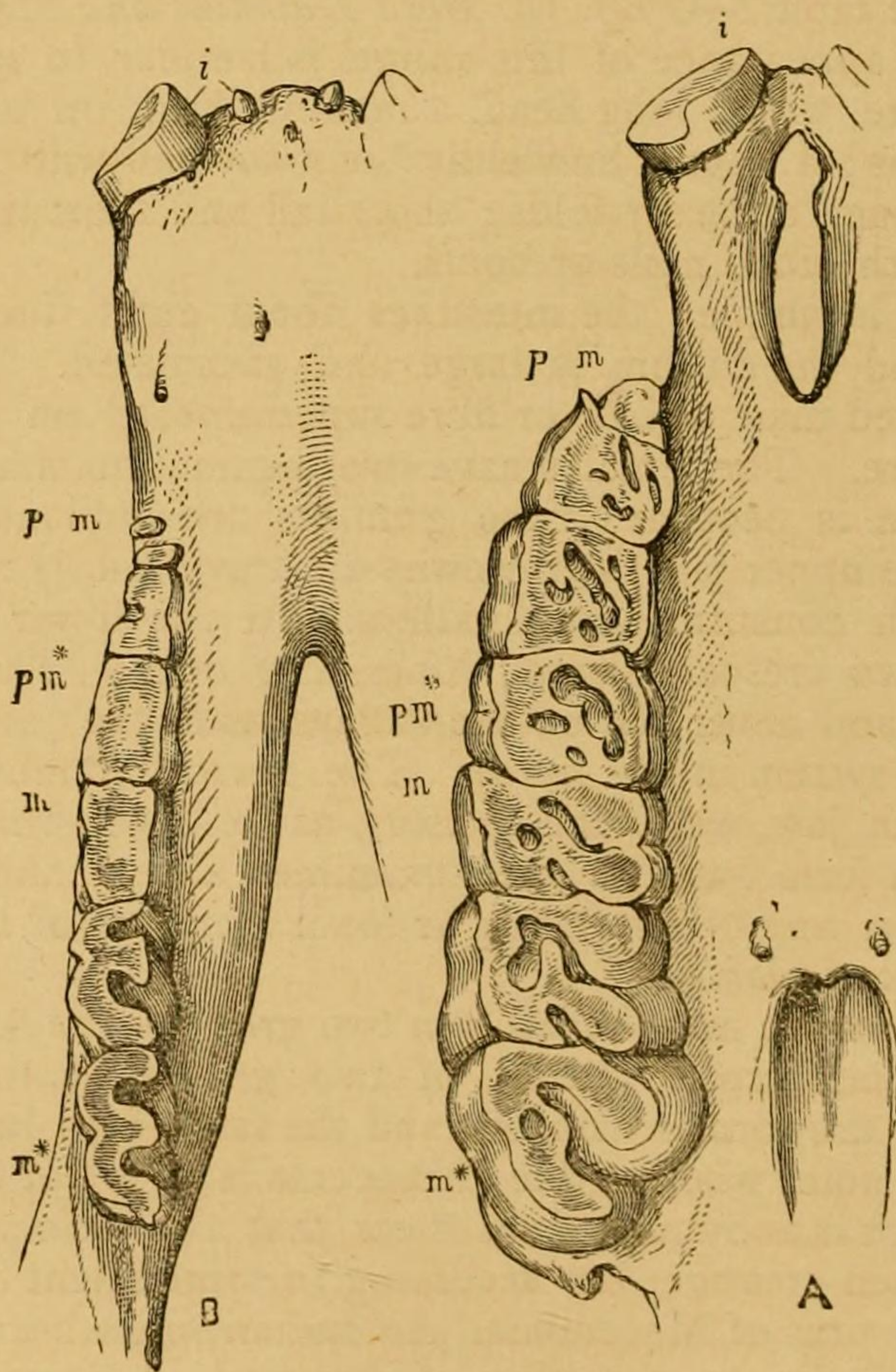


describes and figures one brought to Europe in 1739, and another in 1741 ('Philosophical Transactions,' xlii.).

The Asiatic rhinoceroses differ from the African in having the skin divided into shields by well-marked folds, long upper cutting teeth, the African having none, and by the produced conical nasal bones of the skull instead of broad and rounded ones. There are one or two other minor yet well-marked differences which we need not mention here.

### GENUS RHINOCEROS.

"The skin divided into shields by well-marked folds, lumbar and neck-folds well developed ; horn single, anterior ; part of occipital bone



Lower Jaw.

Upper Jaw.

Dentition of Rhinoceros.

near the occipital condyle and the condyles themselves prominent."  
—Gray.



There are two species in India, viz. *Rhinoceros Indicus* and *R. Sondaicus*, the latter being the Javan species.

For the following description of the former I have to thank Mr. J. Cockburn, who, with most unselfish kindness, kept back the article he was about to publish, and gave it to me to incorporate in this work. The following remarks on dentition are also his :\*—

“The normal dentition of *R. Indicus* is : Inc.,  $\frac{1-1}{2-2}$  ; premolars,  $\frac{4-4}{4-4}$  ; molars,  $\frac{3-3}{3-3}$  ; but the dentition varies to a great extent ; for example, in a specimen of *R. Sondaicus* it stood : Inc.,  $\frac{1-1}{2-2}$  ; molars,  $\frac{6-7}{6-6}$ . The first premolar in both *Indicus* and *Sondaicus* is a deciduous tooth, which is not usually replaced, and gradually drops out with age, but it may be retained till extreme old age. In the majority of cases it is either lost or worn down before the last molar is in wear. The incisors also vary greatly in the adult animal ; they are  $\frac{1-1}{2-2}$ , the outer pair below being the formidable dagger-shaped tusches, with which they inflict the terrible gashes they can produce. The median pair lower are usually lost or absorbed by advancing age, having no functions, and the incisive tusks themselves are subject to very rapid wear, being often worn down before the animal has reached middle age. Occasionally *R. Indicus* has six incisors in the lower jaw (the normal number in other mammalia), and four in the upper, but this is very exceptional.”—*J. Cockburn*, MS.

#### NO. 429. RHINOCEROS INDICUS.

(*Jerdon's No. 212*).

NATIVE NAMES.—*Genda*, *Gonda*, *Ganda*, or *Genra*, Hindi ; *Gor*, Assamese.

HABITAT.—Himalayan Terai, from Central Nepal to the extreme eastern corner of the valley of Assam.

“About three centuries ago this animal existed on the banks of the Indus. The Indian rhinoceros inhabits by preference heavy grass jungle, rarely entering forest. In this respect it differs from its ally *Sondaicus*, which is a forest-loving species, and even frequents mountainous countries. It is still numerous in the mighty grass jungles which extend along the foot of the Eastern Himalayas from their slopes to the banks of the Brahmaputra. It is yearly becoming more scarce

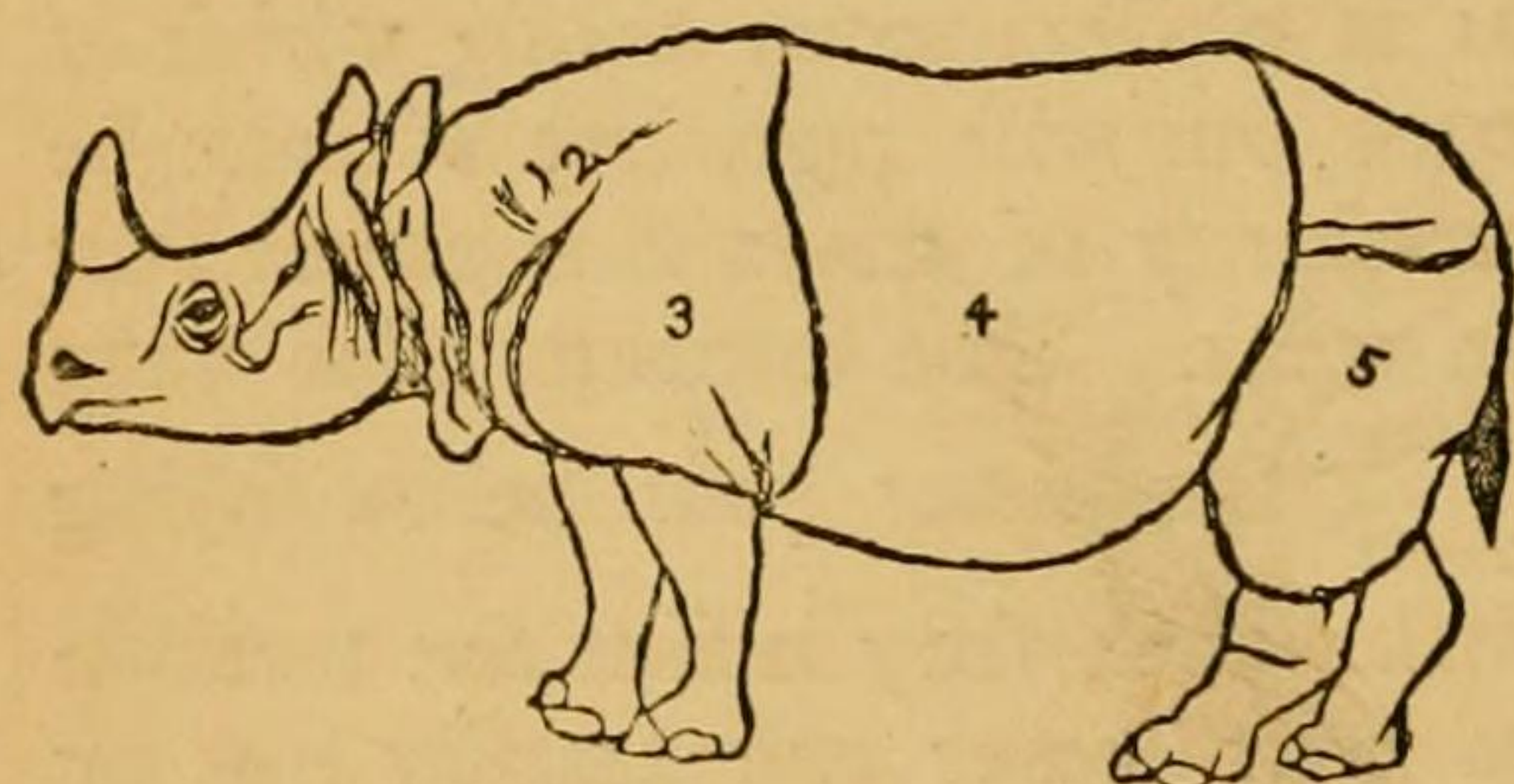
\* There are some interesting notes on the dentition of the rhinoceros, especially in abnormal conditions, by Mr. Lydekker in the ‘J. A. S. B.’ for 1880, vol. xlix., part ii.



in the Nepal Terai, but is found there from Rohilkund to the Bhootan Doars."

DESCRIPTION.—The accompanying outline sketch, taken from *Nature* for April 1874, will give a better idea of the animal than a mere verbal description :—

"For convenience of description I will divide the body into five segments—the head, the cervical, the scapular, the abdominal, and the gluteal. At the junction of the head with the neck is a large deep collar or ruff or fold of skin, which gives a very peculiar appearance to the animal. Behind this is a second similar but smaller ruff, which



*Rhinoceros Indicus.*

does not hang so low down from the throat as the first. On the dorsal surface it transversely crosses the nape. It is then continued down angularly to about the centre of the anterior edge of the scapular shield, where it forms an obtuse angle with its posterior but major half. It is at the point where it forms this angle that it gives off what I call the

cervical fold, which forms the boundary of the top front edge of the scapular shield, but is lost at a point in the shoulder nearly over the centre of the fore limb.

"The scapular shield is a thick cuirass-like plate of skin, studded with round projections about the size of a shilling, and bearing much resemblance to the heads of bolts by which the shield was riveted to the body, and hence called 'boiler-bolt tubercles.' This shield is often removed from the carcase of a slain rhinoceros as a trophy, 'and it is in its centre, but slightly low, that the fatal spot lies which will take him in the heart' (*Pollock*).

"Between the scapular and the gluteal shields lies the abdominal segment. It calls for no particular description, except that the tubercles here are very much flatter and smaller than on either segments three and four. They are here about the size of a four-anna piece, and they seem to be crowded along the centre line of the body, while the dorsal surface is nearly free from them, and smooth.

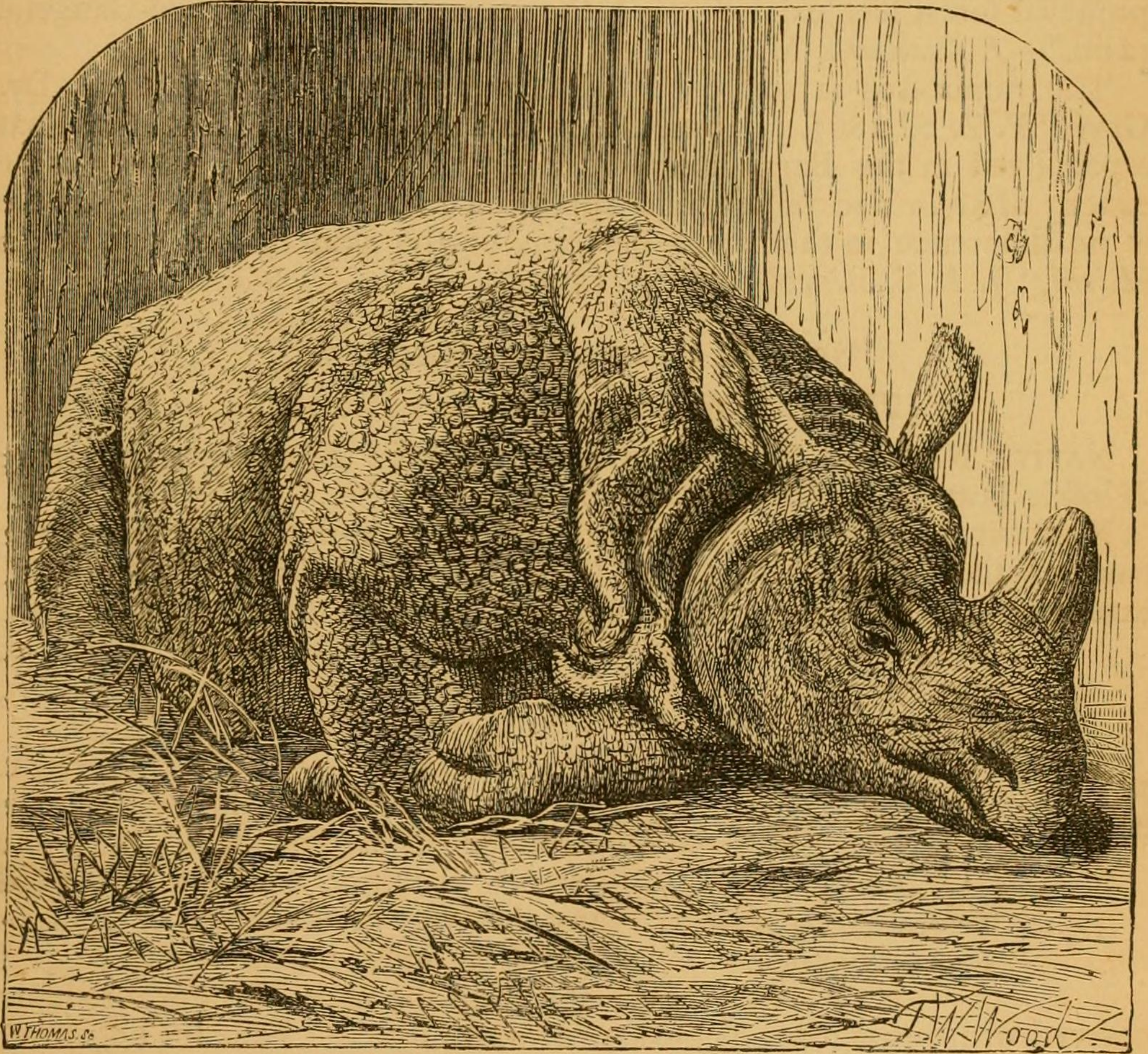
"We next come to the gluteal segment. It is in this portion that the boiler-bolt tubercles attain their greatest development, some of them being perhaps three-tenths of an inch high.

"The gluteal segment is laterally crossed by three ridges of skin. The first, which is the only one indicated in the drawing, goes right across the buttock. In some animals there is an indication of a second below this, and about fourteen inches lower down a third, which only goes about a quarter of the way across. The tail is almost concealed in



a deep groove, in which lie the perineum, &c. Both the front and hind limbs from the point at which they project from the body are finely covered with reticulated skin, forming pentagonal and hexagonal scales, very much as in *R. Sondaicus*, only much finer and less prominent.

“The Indian rhinoceros has the same habit as the African species of depositing its droppings in one spot till they form huge mounds, which



*Rhinoceros Indicus.*

the animal levels with its horns. It is probable that this rhinoceros was found throughout the plains of the N.W. Provinces in unreclaimed spots as late as the fifth or sixth century. According to the observation of Dr. Andrew Smith in South Africa these huge pachyderms do not absolutely require for their support the dense tropical vegetation we should think necessary to supply food to such huge beasts. This gentleman saw over fifty of them in one day in an open country covered



with short grass and thorn-bushes about four feet high. From the affinities of the fauna of the N.W. Provinces, which are strongly African, it is probable that the plains of the N.W. Provinces were rather covered with scrubby open jungles and grass than with tropical primeval forests.

"Here and there belts of Dhak (*Butea frondosa*) were found, and in favoured spots doubtless other tree jungle, but it is improbable that primeval forest has existed since the depression of the Indo-Gangetic plain."—*J. Cockburn*, M.S.

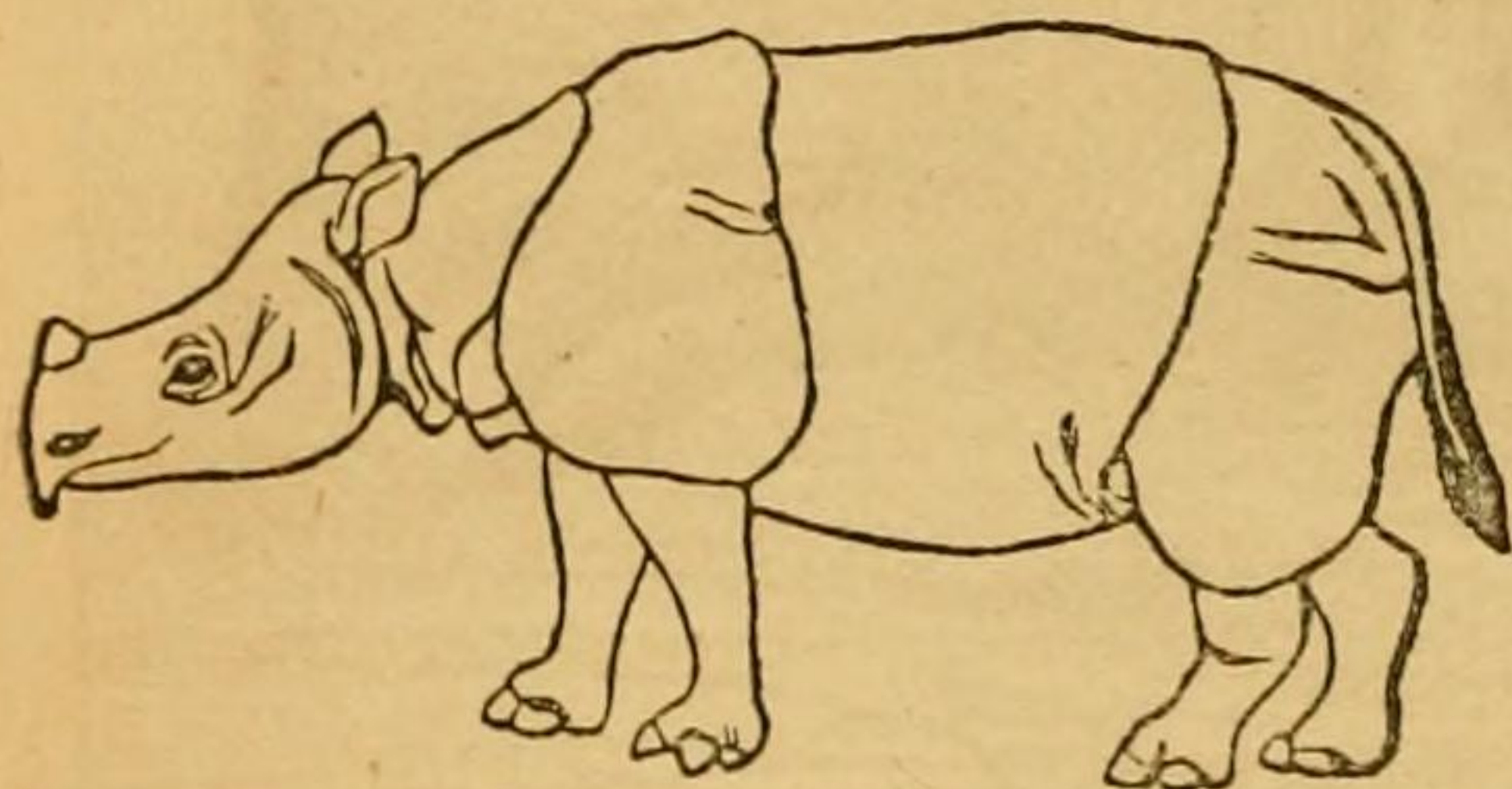
The rhinoceros is supposed to be a very long-lived animal. Dr. Gray ('P. Z. S.' 1867, p. 1011) states on the authority of Mr. Blyth that a pair lived in the Barrackpore Park for forty-five years. They were exactly alike in size and general appearance; they never bred. There is no difference in the horns or form of the skull in the two sexes (*Blyth*, 'J. A. S. B.' vol. xxxi. p. 155).

#### NO. 430. RHINOCEROS SONDAICUS.

*The Javan Rhinoceros (Jerdon's No. 213).*

NATIVE NAMES.—The same as last in Hindi; *Khyen-hsen*, Burmese; *Warak*, Javanese; *Badak*, Malayan.

HABITAT.—"The Bengal Sunderbunds, Tipperah, the swamps at the base of the Garo, Khasia, and Naga Hills" (*Pollock*). "Munipur, extending into the western provinces of China, southward into Burmah, the Malayan peninsula, Sumatra, Java, and Borneo" (*J. Cockburn*, MS.).



*Rhinoceros Sondaicus.*

DESCRIPTION.—"Folds somewhat on the same plan as in *Indicus*, one marked distinction being that the lateral shoulder fold is continued upward over the back of the neck to form an independent saddle-shaped shield on the nape. The whole body

covered with pentagonal or hexagonal warty insulæ. Females hornless" (*J. Cockburn*, MS.). Males with one horn.

SIZE.—Mr. Cockburn gives the following measurements of a female, which he states is the largest recorded specimen: "Length of body (head and body?), 12 feet 3 inches; tail, 2 feet 4½ inches; height, 5 feet 6 inches." Dr. Jerdon gives: "Length 7 to 8 feet; height, 3½ to 3¾ feet;" and he calls the animal "the lesser Indian rhinoceros," whereas Mr. Cockburn's measurement gives an animal somewhat longer, though not so high as the largest recorded specimen of *Indicus*. Blyth again writes ('Mammals of Burmah,' see 'J. A. S. B.' vol. xlv. part ii. 1875, p. 50):



"It is about a third smaller than *R. Indicus*, from which it is readily distinguished by having the tubercles of the hide uniformly of the same small size, and also by having a fold or plait of the skin crossing the nape in addition to that behind the shoulder-blades."

This rhinoceros seems to be found at all elevations, like the Sumatran one which was found by General Fytche at an altitude of 4000 feet; it is much more of a forester than the last. Blyth and Jerdon suppose it to be the same as the species hunted by the Moghul Emperor Baber on the banks of the Indus.

### GENUS CERATORHINUS.

"The skin divided into shields by deep folds; the lumbar fold rudimentary, short, only occupying the middle of the space between the groin and the back; horns two, the front longer, curved backward, the hinder small; conical skull; forehead narrow, flat; the upper part of the nose on each side of the horns narrow, rounded, sub-cylindrical; the occipital region erect, the part near the condyles rather concave; the occipital condyle short, broad, oblong, placed obliquely inferior, scarcely prominent; lachrymal bone very large, irregular shaped."—*Dr. Gray*, 'P. Z. S.' 1867, p. 1021.

#### NO. 431. RHINOCEROS *vel* CERATORHINUS (CROSSI?) LASIOTIS.

##### *The Ear-fringed Rhinoceros.*

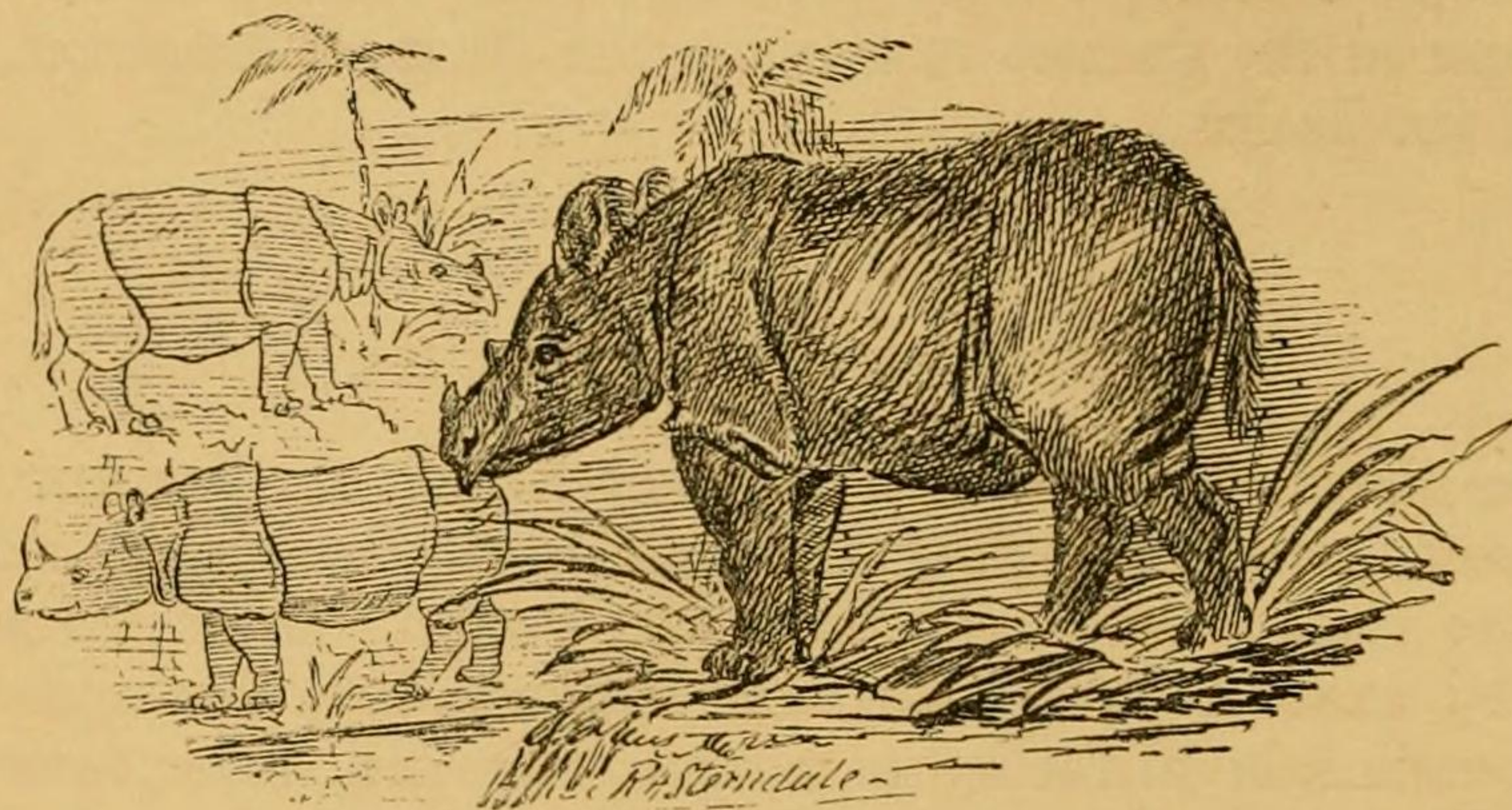
HABITAT.—Arakan, Tenasserim provinces; one was caught near Chittagong in 1868.

DESCRIPTION.—A thinner hide than with the preceding, and not tuberculated; the folds also are fewer in number; there is one great groove behind the shoulder-blades, and a less conspicuous one on the flank, and some slight folds about the neck and top of the limbs; the horns are two in number, the posterior one being the centre of the nose behind the anterior one, and almost over the anterior corner of the eye; the body (of a young specimen) is covered with long, fine, reddish hair, and the posterior margins of the ears have very long fringes of the same; the tail is short and hairy.

A young specimen of this animal (of which there is an excellent coloured plate in 'P. Z. S.' 1872, p. 494) was captured in 1868 in Chittagong. She had got into a quicksand, and had exhausted herself by floundering about. The natives contrived to attach two ropes to her neck, and, hauling her out, managed to make her fast to a tree. Next morning they found her so refreshed and vigorous that they were afraid to do anything more to her, and so sent messengers to the magistrate



of Chittagong to report the capture. The same evening Captain Hood and Mr. Wickes started with eight elephants to secure the prize, and after a march of sixteen hours to the south of Chittagong, they came up to the animal. The elephants at first sight bolted, but were brought back by considerable exertion, and the rhinoceros was made fast to one by a rope. The poor creature roared with fright, and a second



*Rhinoceros lasiotis.*

(*R. Indicus* and *R. Sondaicus* in the distance.)

stampede ensued, in which luckily the rope slipped off the leg of the rhinoceros to which it was attached. Ultimately she was secured between two elephants and marched into Chittagong, where she soon got very tame. Eventually she was sent to England, and was purchased by the Zoological Society for £1250—a very handsome price, owing doubtless to the rarity of the specimen.

#### NO. 432. RHINOCEROS *vel* CERATORHINUS SUMATRENSIS.

##### *The Sumatran Rhinoceros.*

NATIVE NAMES.—*Kyen-shan*, Burmese ; *Bodok*, Malayan.

HABITAT.—Tenasserim provinces ; Burmah, extending into Siam ; the Malayan peninsula and Sumatra.

DESCRIPTION.—A smaller animal than the preceding, with a hard, black, rough, bristly skin ; a deep fold behind the shoulder ; ears set closer than in the last species, and filled with black hair internally ; the muzzle in front of the first horn is broader ; the horns are two in number, and attain a good size, curving, but slightly, backward ; the tail is conspicuously longer than in *R. lasiotis*, and is tapering and not tufted. There is a well drawn and coloured plate of this species in the 'Proceedings of the Zoological Society' for 1872, p. 794, as also several engravings showing the heads of the two animals in juxtaposition.

SIZE.—About 3 feet 8 inches in height at the shoulder.

At first it was considered that *R. lasiotis* was of this species, and as



such it was described and sent to England; but on the subsequent arrival of a genuine *R. Sumatrensis* from Malacca it was apparent that *R. lasiotis* was quite distinct. The latter is of larger size, lighter colour, with wide-set ears and a tufted tail. The former is smaller, darker, with narrow-set ears and a long tapering semi-nude tail.\* The Society paid Mr. Jamrach £600 in 1872 for the female specimen from Malacca, which settled the question of separate species. A young *R. Sumatrensis* was born in the Victoria Docks in London on December 7th, 1872, on board the steamship *Orchis*. There is a coloured sketch of the little one in the 'P. Z. S.' for 1873, and an interesting account of it and the mother by Mr. Bartlett, the Superintendent of the Society's Gardens. From the circumstances of the capture of the mother it appears that the period of gestation of the rhinoceros is about the same as that of the hippopotamus, viz. seven months.

Although the number of species of living rhinoceros is but few, there are a great many fossil species which show that the animal was more plentiful and in greater variety in prehistoric times.

Remains of the woolly rhinoceros (*R. trichorhinus*) have been found, like those of the mammoth, imbedded in ice; it was about eleven and a-half feet in length, and its body was covered with woolly hair. A specimen found in 1771 or 1772 was entire, and clothed with skin, but so far decomposed as to prevent more than the head and feet being preserved; remains of other fossil species are found throughout Europe, including Great Britain, and also in India. In 'A Sketch of the History of the Fossil Vertebrata of India' by Mr. R. Lydekker, published in the 'Journal of the Asiatic Society of Bengal,' vol. xlix., 1880, will be found the names of eight species of fossil rhinoceros, inclusive of *R. Indicus*, which is found in *recent alluvia*—it is found with two others in the Pleistocene formation, and five others are from the Pleistocene.

### SUB-ORDER ARTIODACTYLA.

We now come to the second division, and a very large one, of the UNGULATA, which in itself is again subdivided into non-ruminants and ruminants. The former comprises the pigs of the Old and the peccaries of the New World and the hippopotami; the latter contains the camels, llamas, deerlets, oxen, antelope, and deer. In the *Artiodactyla* the toes are even on all feet, being normally four (perfect and rudimentary) with the exception of the camel, giraffe and a few antelope, in which two only are present. To understand the subject thoroughly one must

\* There is a very interesting letter in *The Asian* for July 20, 1880, p. 109, from Mr. J. Cockburn, about *R. Sumatrensis*, of which he considers *R. lasiotis* merely a variety. He says it has been shot in Cachar.—R. A. S.