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16. Horses, Rhinoceroses

THE UNGULATES OR hoofed animals of India may be divided into two natural orders : (1) the **Artiodactyla** or even-toed ungulates ; (2) the **Perissodactyla** or odd-toed ungulates. The salient feature which distinguishes the even-toed ungulate lies in the arrangement of its toes. The axis of the foot, a line drawn down its middle, passes between the third and fourth toes. These two toes are large and equal in size. The hooves which encase them appear like a single hoof cleft in two. This prominence of the third and fourth toe is accompanied by the diminishing in size of the second and fifth and the complete disappearance of the first toe. This is the general plan of structure in the feet of oxen, sheep, goats, deer, and pigs.

The feet of horses, rhinoceroses, and tapirs are built on a different plan. The number of toes varies. A tapir has four and a rhinoceros three toes on each forefoot. Both have only three on the hind. The foot of a horse has but one functional toe. But in all these animals it is the third or middle toe of the foot which is most prominent. It is always symmetrical in itself and always larger than other toes, when these are present. This pre-eminence of the third and middle digit of the foot gives this group of animals its name, Perissodactyla or odd-toed ungulates. With them, excepting in the case of the tapirs, the number of toes in each foot is usually odd, either one or three. **(Plate facing p. 212)**

The odd-toed ungulates are further marked by having their molar and premolar teeth in one unbroken series, the posterior molars resembling the premolars in shape and size.

The odd-toed ungulates are poorly represented at the present day. Horses, rhinoceroses, and tapirs are the only surviving members of a group of animals which flourished in great variety during the early Tertiary period. With the exception of the tapirs which are found also in Central and South America, all the existing odd-toed ungulates are Old World animals.

THE ASIATIC WILD ASS

Equus hemionus Pallas

Plate facing p. 213

[RACES IN INDIA : *khur* Lesson, *kiang* Moorcroft]

Local Names. Hindi *ghor khar.*

Size. Height at shoulder, 3 ft. 8 in. (110 cm.) to 4 ft. (120 cm.).

Distinctive Characters. The Horse family (**Equidae**) includes the horses, asses, and zebras. In all these animals each foot has a single complete toe encased in a large solid hoof. It is supported by a long bone known as the ' cannon ' bone. Small splint bones on each side of the ' cannon ' bone represent the vestiges of the second and fourth toes. The cheek teeth are large, quadrangular, and complex, the enamel foldings being numerous as compared with the simpler ones of the rhinoceroses and tapirs. In peninsular India the horse tribe is represented by the **Indian Wild Ass** (*E. h. khur*). The general colour of its coat varies from reddish grey to fawn or pale chestnut. The erect dark brown mane is continued as a dark brown stripe extending along the back to the root of the tail ; lower parts, white.

Distribution. The deserts of the Rann of Cutch and parts of the desert zone of north-west India and Baluchistan.

Habits. Dr. Sálim Ali writing of the wild ass in Cutch says that their headquarters lie in the Little Rann. Here they are attracted by the flat grass-covered expanses known as *bets*. These *bets* form ' islands ' or oases of coarse grasses which spring up vigorously with monsoon inundations. When the *bets* are so flooded, the herds keep to the higher and drier portions of the *bets*, wading freely from one ' island ' to another. As the grass in these *bets* withers in the dry weather, the asses shift to other *bets* in some of which there is a perennial supply of water and some green grass. In the dry weather, from March onwards, wild asses may concentrate in such places in enormous numbers. During this time the stallions are scattered about either solitary or in twos and threes. They graze between dusk and sunrise and spend the day roaming over the barren sun-scorched desert in troops of 10-30, or in twos and threes, or as solitary individuals. Sometimes the asses consort with straggling herds of blackbuck. As to speed, tested against a motor car it was found that the wild asses maintained a speed of 30-32 miles (48-51 km.) per hour over a considerable distance.

Writing of their breeding habits Dr. Sálim Ali says : ' Mating takes place in August, September, October. A mare on heat separates from the troop with a stallion who fights viciously with interlopers for her possession ; the combatants, rearing up on their hindlegs, use hooves and jaws in attack. After a few (?) days of isolation the couple rejoin the herd, and thereafter the female actively resists advances by the other stallions. The period of gestation is eleven months. Foals (only one at a birth) are dropped in July, August, and September. Until the foal is about three months old the sexes live apart in separate herds or troops.' Such a herd, seen in the plains of north-west Afghanistan, was computed to number over a thousand animals.

Wild asses are readily tamed when young. Recalcitrant and vicious when grown, they ordinarily cannot be trained to harness. Their stature and sturdiness and speed suggest that an experiment to breed mules from these animals would be well worth consideration.

The **Tibetan Wild Ass** (*E. h. kiang*) is regarded by some as a distinct species, and by others as a race of the Asiatic Wild Ass. It is darker and redder than the Indian Wild Ass, and has a narrower dorsal stripe and larger horse-like hooves. It occurs in Ladak and Tibet and the high open plateaux of the regions further north.

RHINOCEROSES

The various species of rhinoceros, all now confined to the Old World, differ remarkably from one another in structure. As a result of migrations during past epochs into different habitats and climates, and into new feeding grounds to which they became adapted, the various species appear to have become distinct at a very early period of their history.

A comparison of the remains of numerous extinct forms with those now living indicates seven main lines of descent and evolution from which lesser branches have diverged. Though these animals are externally similar they are thus really very far apart both in history and anatomy : even the two living African rhinoceroses probably separated from each other and became distinct species a million years ago.

Three species of rhinoceros are found within our limits. The Great Indian Onehorned Rhinoceros (*Rhinoceros unicornis*) and its relative the Smaller Onehorned, or Javan Rhinoceros (*R. sondaicus*) have an obscure genealogical history. No representatives of these true and typical rhinoceroses have been discovered anywhere but in south-eastern Asia. Their remains are not found in the more ancient Siwalik beds. But they appear with relative suddenness in the uppermost and more recent beds in the form of two

species known as the Siwalik Rhinoceros (*R. sivalensis*) and *R. paloeindicus*, the ancient rhinoceros of India.

The Asiatic Twohorned Rhinoceros (*Didermocerus sumatrensis*) was on the other hand widely distributed in the past. It was quite abundant in the Siwalik Hills in Pliocene times. It was a geological period when these animals, favoured by a genial climate, inhabited a broad forest belt which stretched from the east coast of England southward and eastward across southern France and northern Italy to India.

All the living rhinoceroses are included in a single family. Their massive build, the thickness and solidity of their bones, their short stumpy legs each furnished with three toes are some of the family characters. The skin in all the living forms is either thinly clad with hair or naked, and in all the Indian species the heavy hide in places is thrown into deep folds. The nasal bones are enlarged to serve as a support for a single horn or double horns. When two horns are present they are situated one behind the other in the middle line of the snout. The horn is formed of a closely-matted mass of horny fibre issuing from the skin. It has no connection with the skull, although a boss of bone in the skull may serve as its foundation.

The horns grow throughout life and if lost are re-produced.

With the increase in the use of firearms, the exaggerated value attached to rhinoceros horn, and the superstitious beliefs entertained regarding the magical power of the blood and other parts, and even the urine, of the animal (see p. 230 below) all the three species stand in danger of extinction unless they are strictly protected and the duty of protection is entrusted to men equipped with the knowledge and zeal necessary for the successful performance of their duty.

THE GREAT INDIAN ONEHORNED RHINOCEROS

Rhinoceros unicornis Linnaeus

Plate facing p. 220

Local Names. Hindi *gainda, gargadan* ; Mar. *genda.*

Size. One of the largest of all existing rhinoceroses. A male may reach over 6 ft. (180 cm.) at the shoulder. The average height is about 5 ft. 8 in. (170 cm.) with a girth of 11 ft. (335 cm.) behind the withers. It is smaller than the African White Rhinoceros but larger than the African Black. The horns do not compare in length with the African species. The record from Assam measures 24 in. (61 cm.) ; 15-16 in. (38-41 cm.) is a good average.

Distinctive Characters. The skin of this massive creature is divided into great shields by heavy folds before and behind the shoulders and in front of the thighs. The fold in front of the shoulders is not continued right across the back, a distinctive character of this rhinoceros. On the flanks, shoulders, and hindquarters, the skin is studded with masses of rounded tubercles. With its grotesque build, long boat-shaped head, its folds of armour, and its tuberculated hide, the animal looks like a monster of some bygone age.

Distribution. Formerly extensively distributed in the Gangetic plain today it is restricted to parts of Nepal and West Bengal in the north, the Dooars, and Assam. In Nepal it is found only in the country to the east of Gandak River known as Chitawan, in Assam in isolated areas of the plains.

Habits. Though it prefers swamp and grass the Great Indian Onehorned Rhinoceros is also found in wood jungle up ravines and low hills.

The animal is solitary as a rule, though several may occupy the same patch of jungle. Its food consists chiefly of grass. In Nepal during the rains they frequently enter cultivation. Along the numerous rivers which flow through the jungles of the Nepal Terai the rhino has particular places for dropping its excreta ; so mounds accumulate in places. In approaching these spots a rhinoceros walks backwards and falls an easy victim to poachers. Breeding takes place at all times of the year. From observation of animals in zoos it would appear that the male undergoes a period of ' heat ' as does the female, and these periods must coincide before mating can take place. Mr. E. P. Gee gives four records of these animals observed mating in the wild state. All four incidents occurred between the end of February and the end of April. He also records the instance of a newly born female found dead on the 22nd of April. The period of gestation is 19 months. In Nepal it is generally believed to be one year. A fully developed calf taken from the uterus measured 4 ft. 1 in. (124 cm.) and scaled 120 lb. (54 kg.).

Many legends and beliefs are attached to this animal. In Europe, during the Middle Ages, its horn was generally believed to have peculiar medicinal virtues.

In Nepal the flesh and the blood of the rhinoceros is considered highly acceptable to the *manes*. High caste Hindus and most Gurkhas offer libation of the animal's blood after entering its disembowelled body. On ordinary Sraddh days the libation of water and milk is poured from a cup carved from its horn. The urine is considered antiseptic and is hung in a vessel at the principal door as a charm against ghosts, evil spirits, and diseases. These beliefs connected with the rhinoceros are prevalent in varying forms in Burma, Siam, and China. They set a great value upon the animal and provide the main reason for its persecution.

THE SMALLER ONEHORNED, OR JAVAN RHINOCEROS

Rhinoceros sondaicus Desmarest

Plates facing pp. 221, 224

Local Names. Hindi *gainda* ; Mar. *genda*.

Size. Smaller than the Great Indian Onehorned Rhinoceros but still very bulky. Old bulls measure about 5 ft. 10 in. (180 cm.) at the shoulder. The single horn is never very long ; 10¾ in. (27.3 cm.) is the record.

Distinctive Characters. In distinction to the Great Indian Onehorned Rhinoceros the fold of skin before the shoulder is carried right across the back in this animal. The hide is marked all over with a curious mosaic-like pattern. The horn does not appear to be developed in the females or, if developed at all, it is only a low boss.

Distribution. The Smaller Onehorned Rhinoceros was once believed to range from Bengal and Assam, south of the Brahmaputra, through Burma and the Malay Peninsula to Sumatra. As far as can be ascertained the Javan Rhinoceros is now extinct in India and Burma. What was believed to be the last surviving animal in Malaya was shot for the preservation of its entire remains in a museum in America. It is possible though not very likely that the species may still exist in some of the more remote and ill-explored tracts of the Malay Peninsula.

Today, the Udjung Kulon Sanctuary in the western extremity of Java is the main place where this species exists. As the animals hide so well and the forest is so dense it is difficult to take a census. In 1960 the number of animals living in this Sanctuary was estimated at ' between two dozen and four dozen'.

Habits. The Smaller Onehorned Rhinoceros is more an inhabitant of tree forest than of grass land. Its low-crowned grinding teeth indicate that it is a browser, indulging less in grazing than the Great Indian Onehorned Rhinoceros, whose armoury of high-crowned grinding teeth are peculiarly adapted to the mastication of grass. Its usual habitat is forested hill country where it has been found at elevations as high as 7000 ft. (2135 cm.) above sea-level.

The feeding habits of this rhinoceros and of the twohorned rhinoceros described below have profoundly affected their distribution. Being able to live on a great variety of forest trees and shrubs these animals have extended their range through the great forest tract reaching from Assam and Bengal through Burma and the Malay countries. The Great Indian Onehorned Rhinoceros is

on the other hand limited by the nature of its food to living in the grass jungles of the alluvial plains of north India. Similar factors have limited the range of the grazing White Rhinoceros and facilitated the distribution of the browsing Black Rhinoceros on the African Continent.

THE ASIATIC TWOHORNED RHINOCEROS

Didermocerus sumatrensis (Fischer)

Plate facing p. 225

[RACE IN INDIA : *lasiotis* (Buckland)]

Local Names. Burmese *kyan, kyan-shaw.*

Size. Male: height at shoulder, 4 ft. 4½ in. (135 cm.) : girth behind the withers, a little over 7 ft. (215 cm.).

Distinctive Characters. This rhinoceros differs from the two other Asiatic rhinoceroses in possessing two horns. On this account it is considered to represent a distinct genus. It is further distinguished by having a single pair of lower front teeth instead of two pairs as in the Great Indian Onehorned and the Javan Rhinoceroses. Other distinctions are seen in the structure of the skull and in the anatomy of the intestines. The greater part of the body is covered with bristles varying from red-brown to black. The hairy fringes of the ears and the body are lost with age.

Distribution. Till the end of the last century the range of this species extended from the hill tracts of Assam, through the hill ranges of Tippera and Chittagong, into Arakan and Burma ; and thence into French Indo-China, Siam, Malaya, Sumatra, and Borneo, but not Java. At the present time its survival in India is doubtful. The upheaval of the war and the unrest which followed it have left a few survivors in Burma, in Shwe-U-Daung, Arakan, the Pegu Yomas, Kahilu, Yuzal in the Uyu drainage, and the Tenasserim peninsula. The estimated number of these is given as between twenty-one and forty-five.

Habits. The Twohorned Rhinoceros, like the Smaller Onehorned has a preference for forested hill tracts where it wanders up to considerable elevations. A sufficiency of shade and a good supply of water are essential to its habitat. A pair will frequent a given area for a time and then move off, their movements being affected by the water supply. They enter streams by night and also during the hot hours of the day. In suitable spots there are regular wallows or mud-baths in which the huge creatures roll much as buffaloes and pigs do. As a result of this habit their bodies are always well coated with mud. Tracks lead off in all directions from these wallows. They present the appearance of large tunnels hollowed through the dense undergrowth. Unlike the elephant, a rhinoceros does not break through the jungle but burrows its way through the dense tangle. They visit the wallows singly, or a bull and a cow may be found together. The night and early morning are spent in wandering about and feeding, the hot hours of the day in rest in some cool and shaded spot. In the cold weather and rains they visit the low country coming down in search of particular foods. They are not grazers but browse on twigs and shoots, and are very partial to fallen fruit, wild mangoes, citrous fruits, and figs.

The sense of smell and hearing is acute, but sight is poor. Collections of dung found in particular places reveal a habit similar to that noticed with the Great Indian Onehorned Rhinoceros.

Little is known about their breeding habits but it is known that the young remain with the mother to a fairly advanced age.

Smaller One-horned Rhinoceros (*Rhinoceros sondaicus*)

Photo: L. Hoogerwerf

PLATE 55

Asiatic Two-horned Rhinoceros (*Didermocerus sumatrensis*)

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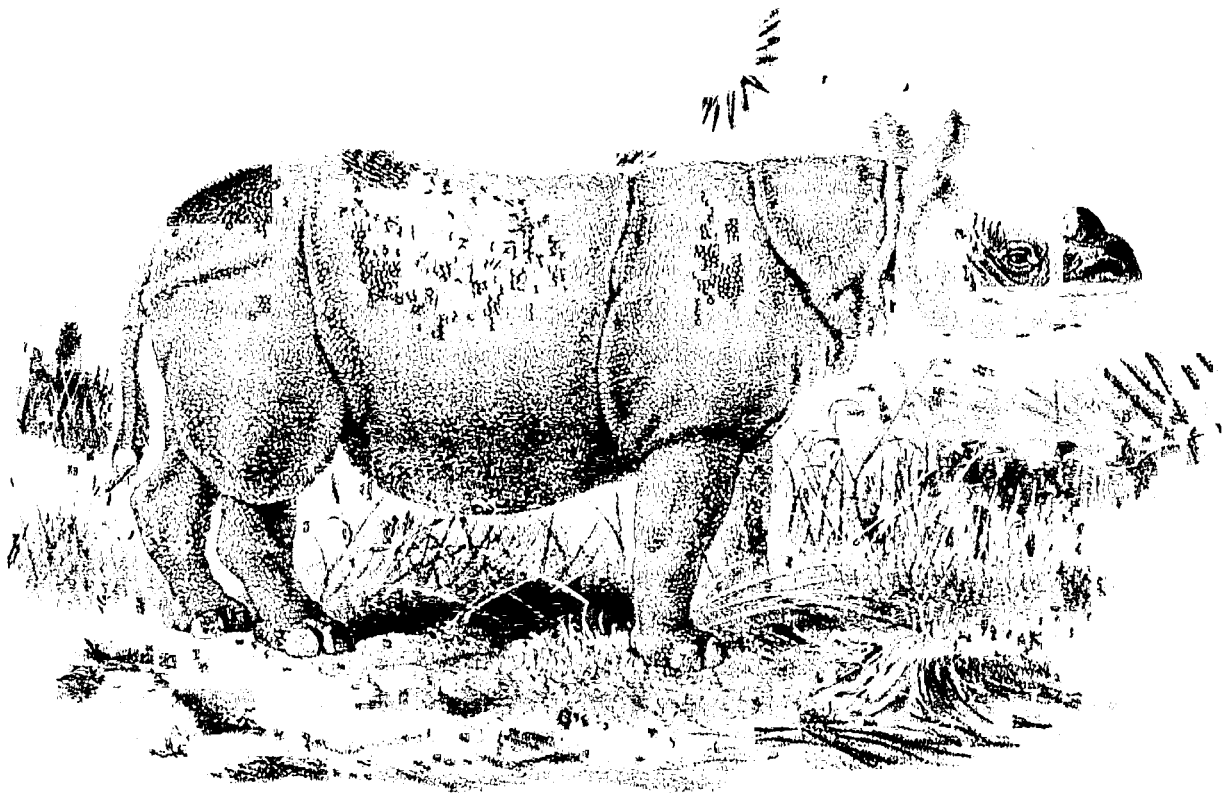

Smaller One-horned Rhinoceros (*Rhinoceros sondaicus*)

Courtesy Zoological Society of London

PLATE 52

Great Indian One-horned Rhinoceros (*Rhinoceros unicornis*)

Photo: E. P. Gee