



MADRAS GOVERNMENT MUSEUM

**GUIDE TO THE
GALLERIES OF FOREIGN ANIMALS,
GENERAL ZOOLOGY, SKELETAL
EXHIBITS AND AMPHIBIANS**

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during the earlier stages of their growth. A large male specimen of the Kangaroo (Fig. 4) the skin of which was obtained from the South Australian Museum on exchange basis, is exhibited. Its forelimbs are extremely short and are of no use to it in walking. Its hind limbs are disproportionately long and with these it is able to hop seven or eight feet at a time. kangaroos are purely vegetarian, feeding on fruits, berries, etc. The young are born in an imperfect condition, being small, naked and helpless. They attach themselves to one of the teats in the mother's pouch and undergo their development until they are large enough to fend for themselves.

THE DUCK-BILLED PLATYPUS (*Ornithorhynchus*) (Fig. 5) is a curious aquatic mammal inhabiting the Australian Region. It belongs to the most primitive among the existing orders of Mammals—the Monotremata. They are the only mammals that lay eggs, which are large-yolked and develop after the manner of the egg of a reptile. The Duck-billed Platypus is an aquatic mammal confined to the southern and eastern parts of Australia and to Tasmania. The animal excavates a burrow for itself in the bank of the slow streams which it frequents. It feeds on animal food, chiefly grubs, worms, snails and mussels. The food is stored at first in its cheek pouches, to be chewed and swallowed at leisure. It can dive very well, and possesses an acute sense of sight and hearing.

THE CASSOWARY (*Casuarus*) (Fig. 6) is a large flightless bird confined to the Australian Region, inhabiting densely wooded country. They are shy and retiring in their disposition, being extremely wary and running to cover at the least sign of danger. They generally keep to shady spots, emerging from cover only in the morning and evening and feeding chiefly on fallen fruits, berries and sometimes also on insects and crustaceans. The Cassowary can run with amazing speed leaping over obstacles as much as six feet high. In captivity they are almost omnivorous and become extremely tame. Old males become very fierce when cornered, kicking and striking with their beaks. Their plumage is used for making mats, rugs, head-ornaments, etc.

Apart from the bust of Gorilla mentioned earlier a few specimens relating to, or representative of, African fauna are exhibited in this gallery. These consist of a large front horn of the African Rhinoceros (*Rhinoceros bicornis*), the skull of the Hippopotamus (*Hippopotamus amphibius*), the skull and hoofs of the Giraffa (*Giraffa camelopardis*), the Ostrich (*Struthio camelus*) and the Great Bustard (*Otis tarda*) which, how-ever, is not confined only to Africa, but has a much wider distribution.

THE AFRICAN BLACK RHINOCEROS (*Rhinoceros bicornis*) is a large, heavily built animal with a thick, armour-like skin which is thrown into folds. It bears two powerful horns on the fore part of the head, the front one being much larger and curved backwards. The horns consist of an agglomeration of hair-like structures and are fixed upon a roughened patch of bone. The horn of the Rhinoceros is believed to possess medical and magical properties, and pieces of its are sometimes used as charms. It is even believed that a cup made out of rhino horn will split into two if poisoned wine is poured into it. The upper lip of the African Black Rhinoceros is prehensile, and projects beyond the lower, being thus adapted to feed principally upon the branches of trees. The specimen exhibited here is the front horn of the Black Rhinoceros. The position occupied by the hind horn, however, is indicated by a large, circular depression behind the front horn.

THE HIPPOPOTAMUS (*Hippopotamus amphibius*), the massive skull of which is exhibited in an adjoining case, is a large, powerfully built, thick-skinned and enormously heavy animal at present confined to the African continent. The males may weigh two or three tons, but the females are comparatively lighter. The strong incisors and canines

Apart from the entire mounted specimens and skeletons referred to above, there are several specimens of various isolated skeletal parts of animals in this gallery, which are exhibited to illustrate certain special features.

A wide range of skulls and horns of buffaloes and goats are exhibited on panels against the walls above the show cases on either side in this gallery to illustrate the extent of individual variation in the form and size of the horns in these animals. The skull and the short, massive horns of the remarkable Gaur or Indian Bison are mounted high on the wall near the rear end of the suspended skeleton of the whale.

In a small wall case adjoining the skeleton of the horse are exhibited a series of skeletons of the feet of a few selected mammals showing the gradual reduction in the number of digits in the limbs (Fig. 23). The case contains skeletons of (1) the Pentadactyl foot of man, where all the five toes are well developed; (2) the Tetradactyl foot of the pig, in which only four toes are present, the first being absent; (3) the Tridactyl foot of the Tapir, with only three toes, the first and fifth being absent; (4) the Didactyl foot of the Ox, in which only two functional toes are present the first toe being absent, while the fifth and second are much reduced; and (5) the Monodactyl foot of the horse, in which only one toe is well developed and functional. The first and fifth toes are entirely absent while the second and fourth are vestigial. From a study of these specimens, it will be noticed that the order of disappearance of the digits in Mammals is No. I, V, II, and IV, the third being the persistent digit in the one-toed horse.

In the other adjoining wall cases in this part of the gallery are exhibited (1) a skull of the Jackal showing spurious horns; (2) a hair ball from the stomach of a buffalo; (3) skulls of the Rhinoceros and the Tapir; and (4) Sections of the skulls of man and the horse to show the comparative size of the brain cavity.

The skull of the Jackal bears two bony protuberances on the top near the hind end. These look like false horns and are known by the natives as "Nari kombu". These are used as charms by nomadic tribes in India.

The hair ball from the stomach of the buffalo is a pathological product. It is a solid concretion of undigested fibrous material, occasionally found in the stomach of ruminants and is amazingly hard and almost perfectly spherical and smooth.

The skulls of the Rhinoceros and the Tapir are exhibited individually in separate wall cases on account of their large size, to illustrate their dentition and other skull characters in these two members of the group of odd-toed Ungulates (*Perissodactyla*) to which the horse also belongs. The skull of the horse, however, is exhibited along with others in the case illustrating dentition in mammals.

In the Rhinoceros the incisors are variable and often fall out early, there are no upper canines, and the peculiar cutting teeth in the front of the lower jaw are probably canines. The grinders are well developed, and have thick walls and strong ridges.

The skull of the Tapir is more or less generalised in its dentition, almost the full complement of incisors, canines and grinders being present, although the animal is herbivorous. The grinding teeth possess two transverse ridges. There is a considerably wide gap between the canines and the premolars.

In a wall case directly above the one containing the skeleton of the Kangaroo are exhibited longitudinal sections of the skulls of man and horse. In spite of the comparatively large size of the skull of the horse its brain cavity is considerably smaller than that in the human skull, illustrating thereby the relatively greater development of the brain in man.

MAMMALS.

The succeeding cases contain selected specimens of Integumentary structures of mammals. Hair is the most characteristic and constant covering found on the skins of mammals. But in a number of mammals, other integumentary structures such as scales, bristles and spines are developed for additional protection. In the scaly ant-eater (Fig. 28), hard, plate-like overlapping scales are present, with hairs in between the scales. These scales can be erected and constitute an effective armour. The porcupine, the spiny anteater, *Echidna* (Fig. 29), (which is an Australian egg-laying mammal) and the hedgehog possess strong stiff quills and spines which can be erected and serve as efficient organs of defence. In the Bandicoot rat, the surface of the tail is covered with flat scales and the body with coarse hair. In some mammals hair is greatly reduced or absent altogether as in the whales and sea cows, where the skin is smooth and glistening. In the elephant, the skin is smooth for the most part, but the skin of the foot bears a coarse, papillated surface and the skin of the tail bears very strong, stiff, coarse hair. Sometimes hair is modified into special, stiff structures known as vibrissae or whiskers, which are endowed with special tactile powers, through abundant nerve supply. These are mostly highly developed in nocturnal beasts of prey. Specimens to illustrate all these different modifications are exhibited in the two cases set apart for the Integumentary structures of mammals.

Specimens of different types of horns, such as those of the Rhinoceros, sheep and goat, and the antlers of deer, form another interesting series among these epidermal structures. In the Rhinoceros, the horn appears like a mass of agglutinated hairs and is purely an epidermal structure without a bony core. The space between the horn and the bone is filled during life by a soft vesicular matrix, covered with fine papillae which penetrate the minute apertures in the concave surface of the base of the horn.

In the group of herbivores known as the *Cavicornia* (oxen, antelopes, sheep and goats), the horns consist of tapering, hollow caps of hardened epidermis, fitting on the growing from conical projections on the frontal bone, and are arranged in pairs. Specimens of the horn of the sheep and the Four-horned Antelope are exhibited to illustrate the cavity in the horn which fits over the projection of the frontal bone.

The horns and antlers of the deer tribe (*Cervidae*), however, are solid bony outgrowths, without a horny external part. A membrane bone becomes developed in the skin round each process of the frontal with which it fuses. This grows out to form the antler, and, after attaining its full development, the skin covering dries up owing to the development of the "burr" at its base; this constricts the blood vessels, and the antler being deprived of nutriment, falls off. This occurs periodically at the close of the breeding season. In the young animal, the antlers are simple, but year by year, they become more complicated and branched.

Except in the whales, the extremities of the digits of mammals are protected by hard horny epidermal structure known as hoofs, nails and claws. There is a wide variety in the shape and development of these horny sheaths; a few examples of hoofs, typical of herbivorous animals, and claws, characteristic of Carnivores, are exhibited. The foot of the Llama bears two digits with cushion-like pads, and its hoofs are almost claws in the sharpness of their tips. The feet of the leopard and the bear are exhibited to show the claw-bearing toes, adapted for grasping and tearing. The horny claws of the leopard are shown both in the retracted and protruded positions. When the claws are not required for use, they are retracted within the soft parts of the foot, the joints of the digits being strongly flexed on each other by the action of elastic ligaments. The capacity to retract and protrude the claws as will is well developed in the family *Felidae* (including the cats and their allies).