

CHAPTER V.

ZOOLOGY.

I. Introduction.

Introduction. THE plateau of Mysore, surrounded practically on three sides by mountain ranges, is diversified by certain well-known physical characteristics. The Malnād tract which includes Shimoga, Kadur and Hassan Districts, is an undulating country with open valleys, covered by heavy forests and hills which now and then rise into bare crags in the higher altitudes. The level plains, which constitute at any rate the greater part of the Maidān, derive their character from the means of water-supply and the nature of the soil determining the cultivation. The fauna of the country lying west of the line drawn roughly from Shikarpur to Periyapatna which fairly comprises the Malnād, is both in richness and variety, comparable with that met with in Malabar and Travancore. In fact, the Western Ghats and the parallel ranges in South Kanara and Mysore, together with those picturesque forest-clad spurs, harbour practically all the animal life that is of interest to the sportsman and the scientist in South India. There are many points of similarity between the animals occurring in these parts and those found in the south-western regions of Ceylon and they both differ considerably from those found in the northern portions of the Peninsula. It must be remarked, however, that even in the southern parts of India, animal life is by no means uniform and in a tract of country like Mysore, with its sharply contrasted physical features, the difference in the occurrence and abundance of animal life is greatly emphasized. It would be impracticable, were it even

desirable, to deal in great detail with even the known forms in a chapter such as this and therefore nothing more is attempted here than to offer a few brief remarks on the vertebrate fauna of Mysore.

II. *Mammals.*

Mammals are warm-blooded hairy animals whose main characteristic is the possession by the female of milk glands. They occupy the highest place in the animal kingdom, chiefly by the superior organization and complexity of their brain structure. The occurrence of a delicate series of bonelets for transmission of sound to the internal ear at once marks them out from birds and reptiles. The small number of bones which make up the lower jaw and its more compact attachment to the skull, giving greater biting power, would be other distinguishing qualities. The classification adopted by W. T. Blanford as revised by R. C. Wroughton, Thomas and Hinton is followed in this chapter.

The monkeys occurring in Mysore belong to the two genera, *Macaca* and *Pithecus* and perhaps number about half a dozen species. The Lion-tailed Monkey (*M. ferox* Schr., the lion-tailed monkey of Jerdon and the Wanderoo of Buffon) is an inhabitant of the unfrequented parts of the dense jungles, reaching considerable elevations on the Ghats. Its savage disposition, an elongated snout, great power of teeth and tufted tail, which account for its popular name, make it resemble the Baboon, from which it differs, however, externally by its black coat and a grey beard and ruff. The Bonnet Monkey (*M. sinica* L.) frequents not only the dense jungles, but also populous towns and villages, where it raids fruit and grain shops. This monkey which is easily distinguished by its flesh-coloured face and ears and radiating hair on the crown, is frequently trained by itinerant beggars to perform various

Family *Cercopithecidae*.

tricks. For general intelligence and power of mimicry, it is excelled only by its northern congener, the Bengal Monkey (*M. rhesus* And.) which has not been reported south of Bombay and the Godavari. The members of the next genus (*Pithecus*) which constitute the Langurs or Hanuman Monkeys, are easily distinguished from the foregoing by their slender build and absence of cheek-pouches. The common South Indian Langurs or Hanuman Monkeys (*P. entellus anchises* Blyth.) have a black face, ears and soles—characteristics somewhat inconsistent with the sanctity in which they are held. It is interesting that very young babies have a flesh-coloured face which darkens with increasing age. Their favourite haunts are the far-off groves near villages, high trees on the banks of streams and rocky hills. They are looked upon by sportsmen like friends as they give a warning cry on the approach of tigers and panthers. The other Langurs reported to occur in the State are the Madras (*P. priam* Blyth.), Malabar (*P. hypoleucos* Blyth.) and the Nilgiri (*P. johnii* Fischer) Hanuman Monkeys. In the case of the first species, the hair on the hind part of the crown is drawn out into a crest and the hairs on the brow form a fringe; these characters are lacking in the Malabar Langur. The Nilgiri Hanuman Monkey has a black silky coat except on the head and nape, which are fulvous. All of them, as a rule, are extremely wary and shy and are confined to the higher altitudes in the dense woody districts bordering on the Western Ghats and the Nilgiris.

Family
Lemuridæ.

The *prosimiæ* or Lemurs are represented in Mysore by the *Loris*, which is peculiar to South India and Ceylon. The members of this family are distinguished from the true monkeys by certain well-known anatomical peculiarities, all of which indicate a low grade of organization among the primates. The upper incisors in all Lemurs are

divided by a toothless gap and there is a claw instead of a flat nail on the second digit of the foot. The tail is usually wanting. The Mysore Slender Loris (*Loris lydekkerianus* Cabr.) known from the maidan districts also extends into Coorg. This little animal is entirely nocturnal and arboreal in its habits and its food consists of insects, birds' eggs and small reptiles and in confinement, takes cooked rice and bananas. The Mysore Lemurs are said to mimic the spotted owl (*Athene brama*) in so far as their cry resembles the screechings of the latter. The Slender Loris (*L. ma'abaricus* Wrought.) has been known from S. Coorg and its occurrence in Mysore is more than probable.

The cats are the most specialized among the carnivora, possessing a rounded head, retractile claws and a flesh tooth in the jaws. Among the larger cats are the lion and the tiger. There is no record of the lion ever having been found in the State, though if Mysore architecture is to be believed, it should have been familiar to people in it. The tiger, at one time, must have been more largely found. The killing of a tiger by Sala, the founder of the Hoysala dynasty, by thrusting a rod in its mouth is, perhaps, the most popular tale in all Mysore. The fact that every Hoysala temple has this feat represented on it and every Hoysala coin had it on its obverse shows that the figure of the tiger as an emblem was thoroughly appreciated. Man-eaters are even now to be met with occasionally in the districts of Mysore, Shimoga and Tumkur. The indiscriminate slaughter of the tiger (*Felis tigris* L.) by sportsmen is causing its disappearance from the Indian jungles and for fear of total extinction the animal is now protected by law. The improved means of communication and the clearance of jungles around villages, no less than the decline in the population of tigers within recent times, must account for the

Family
Felidae.

comparative immunity now enjoyed by the country side from the attentions of the man-eaters. There is a mass of fact and legend inseparably mixed up about the habits of tigers in general. Cattle-lifters and man-eaters which are the boldest and most cunning of their race, must have nearly depopulated villages in the backwoods before the introduction of fire-arms, and from the view-point of dwellers in such localities, the game-killers are the real friends and helpers of man, in so far as they keep down herds of deer and wild pig which would otherwise destroy much crop. The panthers or leopards (*F. pardus L.*) are very common in Mysore, more especially in the districts of Mysore, Shimoga and Kadur, and certainly come after the tiger in point of power of offence or relative proportions. As regards cunning and courage, or excitability of temper and destructiveness, they easily occupy the first rank among the beasts of prey. They come more frequently in collision with man as they live in close vicinity to his habitations, to sally forth in the dark to seize cattle and other animals. The number of cattle killed by tigers and panthers is perhaps heaviest in the districts of Shimoga, Kadur and Mysore.

The panther varies between wide limits, some at any rate of the differentiating characters being due to age. It is not uncommon among Indian naturalists to recognize two forms, the larger with a shorter tail, a longer head and broad rosettes on a paler ground colour; the smaller possessing the opposite characteristics. In addition to these varieties, if they are really so, we have the black panther in Mysore, where it is confined mostly to the wooded tracts. In the Mysore menagerie, the black and the ordinary forms are confined in the same cage, obviously to induce interbreeding. There is, however, evidence to prove that the process of cross-breeding takes place in Nature. Till some other distinguishing anatomical quality than mere colour is forthcoming, the

melanoid individual ought to be content with the humbler rank of a variety in *systema Naturæ*. The leopard cat (*F. bengalensis* Kerr.) known from Coorg and possibly Mysore also, is far too fierce for its size, the length of body (excluding the tail) being only 26 inches, and indefinitely maintains a savage disposition. In the menageries, as in Mysore, it is never seen pacing the cage after the manner of the bigger cats, but will spend practically all the days of its life crouching in a corner or on a window sill. Living by day time in the holes of trees or under stones in dense jungles, it issues forth in the evening to commit depredations on the poultry and small mammals near about the villages. The colour markings of this cat are variable. The rusty spotted cat (*F. rubiginosa* Geoff.) is somewhat smaller than the domestic cat, and according to Jerdon is tameable. Its occurrence in Mysore is doubtful. The only other jungle cat reported from Mysore is the common Indian species (*F. affinis* Gray.) frequenting jungles and open country. It is partial to game like hares and partridges, occasionally destroying poultry also. In respect of the long hairs at the tips of their ears, they come nearer to the Lynx. The hunting leopard or cheeta (*Acinonyx venaticus* Gray.) which may occur as a straggler in Mysore, is usually distinguished from the panther by the non-retractile or only partially retractile claws and a slender long legged body. The spots are smaller and solid. When tamed, it becomes perfectly docile like a dog and has the canine instincts of attachment and obedience to its master. In Northern India, it is widely employed in hunting down antelopes, gazelle and nilgai, which it can easily overtake by its remarkable speed for short distances. Buchanan Hamilton gives an interesting account of the manner of hunting with the cheeta, which he gathered in a conversation with Sir Arthur Wellesley, who, while Commanding Officer at Seringapatam, had kept five of these

hunting leopards which had formerly belonged to Tippu Sultan.

Family
Viverridæ.

The small Indian civet cat (*Viverricula malaccensis* Gmel.), the Indian toddy cat (*Paradoxurus niger* F. cur.), the common Indian mongoose (*Mungos mungo mungo* Gmel.) and (*Mungo Elliotti* Wrought), differ from the foregoing family in having an elongated snout, non-retractile claws, and more teeth in the hinder part of the jaws. The body is slender and elongated, an adaptation for an arboreal and burrowing mode of existence. The Indian civet cat, kept in confinement by the Indians, secretes the well-known perfume in its preanal glands, which enters largely into the cosmetics of the Indian toilet. In its native haunts of detached woods and copses, it may be seen wandering both by day and night in quest of field rats, squirrels, and birds' eggs. The Indian toddy cat, also known as the palm-civet, whose favourite residence is the palm or mango grove, frequently establishes itself in the thatched roofs of houses. It derives its popular name from its alleged fondness for palm juice. According to Jerdon, "it has a keen sense of smell, but less acute hearing and vision by day than the mongooses." There are three species of mongoose in Mysore (*M. Mungo mungo* Gmel., *M. fuscus* Waterh. and *M. vitticollis* Benn.); some at any rate are common in hedgerows, thickets and cultivated fields. The supposed immunity of this animal from snake poison is simply due to its extreme agility.

Family
Hyenidæ.

There is only one representative of the family of *Hyenidæ* in India and its occurrence is mainly confined to the drier districts. Hyænas form a sort of connecting link between the cats and the civets and have a canine look about them. Though universally detested for their extreme cowardice and cruelty, these animals are serviceable as carrion feeders.

The dog tribe includes the common wolf (*Canis naria* Wroughton.), the Indian jackal (*Canis indicus* Hodgs.), the wild dog (*Cuon dukhunensis* Sykes.) and the fox (*Vulpes bengalensis* Shaw.). These animals, which inhabit the Malnād tracts, are known for their remarkable intelligence and cunning which they must have acquired through habits of communal life. The jackal and the fox occasionally turn their attention to a vegetable diet and under its influence may destroy wide areas under cultivation, chiefly of coffee, ground-nuts, sugarcane and horse gram. The wolf and the wild dog which hunt in packs are most destructive to game like sambar, antelope, spotted and barking deer.

Family
Canidae.

The martens which constitute the family of *Mustelidae* differ among themselves both in external conformation and the character of teeth far more perhaps than is the case in any other family of carnivora. The South Indian marten (*Martes gwatkinsi* Horsf.) found in tolerable numbers in the hill forests of the Nilgiris and on the Western Ghats may cross the British frontier into the adjoining tracts of the Mysore territory like its congener the common otter (*Lutra lutra* L.). The latter is very destructive to the mahseer and other fish in the large rivers and tanks. It is possible that the clawless otter (*Aonyx cinera* Illig.) which has been reported from Coorg by the Mammal Survey Party, may occur in the confines of Mysore hills also. Both otters are gregarious and live in burrows, on elevated grounds, near water.

Family
Mustelidae.

The sloth bear (*Melursus ursinus* Shaw.) occurs in large numbers in the State and like other game is protected now. The deep cavities formed by blocks of granitoid gneiss that weather on the hill sides are the favourite resorts of bears, whose food consists of fruits, both wild and cultivated, insects and honey. Tickell observes that

Family
Ursidae.

the power of suction in the bear as well as of propelling wind from its mouth is very great and is advantageous to the animal in procuring its common food, the white ants.

Order
Insectivora.

The insectivores are a very primitive race of mammals, whose small size and nocturnal habits, must have helped their survival from past ages. The large number (44) of generalized teeth and their trituberculate character point to their antiquity. The Madras tree shrew (*Anathana ellioti Waterh.*) resembles squirrels and inhabits trees. The South-Indian hedgehog (*Erinaceus micropus Blyth.*) whose occurrence in Mysore is doubtful, may perhaps wander into its confines from the borders of the British districts—Coimbatore and the Nilgiris. The shrews are well represented in Mysore. The brown shrew (*Pachyura murina L.*) is an inhabitant of the woods and occasionally turns up in human habitations nearer their haunts. The grey musk-shrew (*P. cærrulea Kerr.*) is not reported away from human dwellings, where sometimes it is seen in day time running close to the walls, making a peculiar squealing metallic sound. It is quite serviceable in the house where it lives on cockroaches, scorpions, and other vermin and the charge brought against this animal of feeding on grain and vegetables is baseless. Its usual haunts are the dark corners of book shelves, almirahs and boxes, frequently entering holes also. The strong musky smell, characteristic of the domestic forms, is objected to by cats, who do not molest them. Very little is known about the habits of the other shrews (*P. perroteti Duvern.*) whose occurrence in Mysore is doubtful.

Order
Chiroptera.

Bats are flying mammals and are most easily identified. The elongated fingers and forearm include an expansion of the skin which also involves the hind limbs and the

tail. The knee is directed backwards. The sense of touch is developed in these animals to an incredible degree of perfection and is probably exercised by the nose frill, the tragus of the ears and the wing membrane as well. On the ground they are helpless, shuffling along awkwardly and when at rest they hang head downwards, clutching by their hind feet branches of trees, crevices and holes in old walls and caves. Like the primates, the female bats have only two pectoral teats. The Indian fruit-bat or flying fox (*Pteropus giganteus giganteus* Brunn.) lives in large colonies and is most destructive to garden fruits. The fulvous fruit-bat (*Rousettus leschenaulti* Desm.) is a cave-haunting form, which together with the Southern short-nosed fruit-bat (*Cynopterus sphinx* Vahl.) is destructive to plantains, guavas and mangoes. The family *Rhinolophidae*, distinguished by a nose leaf, is represented by the genera, *Rhinolophus* and *Hipposiderus*, the members of which occur both in forests and in human dwellings. The common names of the species, the rufous horse-shoe bat (*R. rouxi* Temm.), the great Indian horse-shoe bat (*R. beddomei* And.), the little Indian horse-shoe bat (*R. lepidus* Blyth.), the large Indian leaf-nosed bat (*H. lankadiva* Kel.), Syke's leaf-nosed bat (*H. speoris* Schneid.) and the bi-coloured leaf-nosed bat (*H. fulvus* Gray.), are derived from the character of the nasal appendage. The members of the family *Nycteridae*, in addition to this character, viz., a leaf on the nose, have their ears united at the base. The large vampire bats (*Lyroderma lyra lyra* Geoff.) frequent houses and the spoils of their foraging expeditions may be seen below their dwellings on the verandahs every morning. The Malay vampire bat (*Megaderma spasma trifolium* Geoff.) may also occur near about human dwellings. The family *Vespertilionidae*, which is by far the largest group, may be distinguished by the occurrence of a tragus in the ear

and the absence of a nose leaf. The Indian *Pipistrellæ* are rapid fliers, executing sudden twists and turns in the air, especially when hunting for insects. Kelaart's *pipistrella* (*Pipistrellus ceylonicus* Kel.) and (*P. ceylonicus chrysothrix* Wrought.) and the Indian dwarf *pipistrella* (*P. mimus mimus* Wrought.), (*P. coromandra* Gray.) and (*P. ceylindicus* Dob.) are among the most common forms near about the houses. The second and the third species frequently enter lighted rooms at night, where they fly about in quest of insects. The winged termites, which come out in dense clouds after early summer showers, attract them in large numbers. Like the *Pipistrellæ*, Dormor's bat (*Scotozous dormeri dormeri* Dob.) and the common yellow bat (*Scotoptilus kuhli* Leach), (*S. wroughtoni* Thos.) and (*Myotis peytoni* Wrought.) are insectivorous and leave their hiding places early in the evening. But the most interesting member of the whole family is the painted bat (*Kerivoula picta* Cantor.) which, as Jerdon says, is easily mistaken for a large butterfly in the day time. It occurs in the whorls of the large stalks of plantain leaves and its bright colouration may have some protective significance. *K. crypta* Wrought. is reported from Shimoga. The family *Emballonuridæ* is not a wide one and the members belonging to this group have no nose leaf, but possess a tragus and the ears are united at the base. The bearded sheath-tailed bat (*Tapozous melanopogon* Temm.), (*T. kachensis kachensis* Dob.) and the lesser Indian mouse-tailed bat (*Rhinopoma hardwickii* Gray.) are among its representatives in Mysore. *Tadarida tragata* Dobson and *Otomops wroughtoni* Thomas, are also known in the State.

Order-
Rodentia.

Among the members of the order *Rodentia*, are found species, which when they appear in numbers, become a destructive pest to the sustenance on which man lives. The output of forest produce depends on the absence or

abundance of the squirrel tribe. The South Indian flying squirrel (*Petaurista philippensis* Elli.), which is nocturnal in its habits and other diurnal forms, like the Coorg striped squirrel (*Funambulus wroughtoni* Ryley.), the dusky striped squirrel (*F. tristriatus numarius* Wroughton.) which live on fruits, nuts and berries, practically carry on their work of depredation without let or hindrance. One can easily imagine the extent of damage caused to forest revenue, when one realizes the fact that except the palm squirrel (*F. palmarum palmarum* L.) all other species, the common five-striped squirrel (*F. sublineatus* Waterh.) and (*F. palmarum bellarius* Wrought.), the Bombay giant squirrel (*Ratufa indica indica* Err.), the Coorg giant squirrel (*R. indica superans* Ryley.), the Central Indian giant squirrel (*R. indica bengalensis* Blanf.), the large Indian squirrel (*Sciurus malabaricus* Err.) and the grizzled Indian squirrel (*S. ceylonicus* Err.) inhabit the densely wooded tracts, where besides denuding trees of their fruits, they make in them large holes as their breeding grounds. Whatever may escape this process of destruction is sure to attract the attention of the members of the next family, the *Muridæ* which comprise the true gnawers. The Indian gerbil or antelope rat (*Tatera indica* Hardw.), which makes several, often deep, burrows near cultivated tracts, first begins with roots and grass and then proceeds to destroy the standing crops. The field rats and mice, of which there is an appreciably large number in Mysore, are of the same disposition and others are found in granaries, stores and houses, where besides grain, they destroy frequently the garden produce as well. The occurrence of the Indian bush rat (*Gollunda ellioti* Gray.) in Mysore is rather doubtful but this deficiency, if it were so, is more than compensated for by forms like the Cutch rock-rat (*Cremnomys catchicus* Wrought.), the Malabar spiny mouse (*Platacanthomys lasiurus* Blyth.), the

bandicoot rat (*Bandicota malabarica* Shaw.), the South Indian mole rat (*Gunonmys kok* Gray.), the Deccan tree mouse (*Vandeleuria oleracea* Benn.), the white-tailed rat (*Epimys blanfordi* Thos.), the common Indian rat (*Rattus rattus rufescens* Gray.) and (*Rattus rattus wroughtoni* Hinton.), the South Indian field mouse (*Mus buduga* Gray.), the common Indian house mouse (*M. manei* Kel.), the long-tailed tree mouse (*M. badius* Blyth.), the Deccan spiny mouse (*Leggada platythryx* Sykes.), the Coorg hill spiny mouse (*L. grahami* Ryl.), the Coorg lowland spiny mouse (*L. hanningtoni* Ryl.) and the Mysore leggada (*L. siva* Ryl.). The Indian porcupine (*Hystrix leucra* Sykes.) is abundant and, protected by an armour of quills, commits ravages among coffee and sugarcane plantations, besides being destructive to crops and garden produce, like cabbages, carrots, onions, potatoes, peas and fruits. The family of hares (*Leporidae*) is represented by only two species, the common Indian hare (*Lepus ruficaudatus* Geoff.) and the black naped hare (*L. nigricollis* Cuv.) which inhabit waste ground or dry cultivation. They are more often netted than shot, sometimes coursed with hounds, when they take refuge in holes and burrows, not necessarily their own.

Order
Ungulata.

The members of the order *Ungulata* have hoofs instead of claws and their teeth are in the main adapted for a vegetable diet. All the modern survivals of this somewhat ancient race progress on the tips of their digits. The family *Elephantidae*, some of whose extinct relations roamed over every part of the world from the Miocene to the Pliocene times, is now confined to India and Africa. The vertical pillar-like legs, which characterize the elephants (*Elephas maximus* L.) must have developed as a secondary adaptive variation for supporting the enormous weight of the body. In Mysore, the movements of the herds are practically

confined to the districts of Mysore, Hassan, Kadur and Shimoga. The reputed intelligence and sagacity of the elephant are not borne out by the structure of the brain, which rather suggests specialization of a low type, while the massiveness of the skull is due to the formation of an immense number of air cavities. In India, the elephant figures largely in folk tales and religious works and is an indispensable appendage to court pageantry and temple processions. Mythologically the figure of an elephant represents the conception of eternity. The figure of the elephant is a prominent feature of the Ganga dynasty of Kings of Mysore. Down to historical times, the elephant has been part of the fighting forces of the country. For an account of Keddah operations in Mysore, the reader is referred to Section VII below.

The family *Bovidae* includes the hollow-horned ruminants, such as the ox, sheep, goat, gazelle and antelope tribes. The Gaur or the Bison (*Bibos gaurus* H.Sm.) possesses, as regards habits of life, several points in common with the elephant. Their requirements in food and shelter being identical, the same causes must influence the movements of both, and according to the testimony of Sanderson, they are frequently found grazing in close proximity, without becoming intolerant of each other's presence. Unlike the elephants, however, the gaur has never been noticed, at any rate, in Mysore, to venture into the open country, but practically remains concealed in the dense forest belts in the Malnād districts.

The Nilgiri wild goat or South Indian Ibez (*Capra worryato* Gray) which is an inhabitant of the rocky slopes of the South Indian hills may cross over the British frontier into Mysore district but is not reported as being common. Blanford in describing the distribution of the Nilgai or blue bull (*Boselaphus tragocamelus* Pall) notes the occurrence of this tameable animal as far

as south of Mysore, though its abundance or even its occurrence in the State is more than doubtful. The same authority reports the occasional occurrence in Mysore of the four-horned antelope (*Tetracerus quadricornis* Gray.) which resembles the blue bull in keeping chiefly to undulating or hilly ground. The genus *Antelope* is quite Indian and includes only one species *A. Cervicapra* L.), the Indian antelope or black buck, a name associated with the brown pelage turning black with age. A tuft of hair on each knee is characteristic of the genus. The females are generally hornless and those of the male vary as regards distance from each other and the number of spirals. The gazelle may be distinguished by its smaller size and sandy colouration with a white belly. Horns are present in both sexes and are of fair length with a lyrate form. The Indian gazelle or Ravine deer (*Gazelle bennetti* Sykes.) is far less gregarious than the antelope and loves waste lands broken up by ravines. The power of the gazelle and of the antelope to live for a considerable time without drinking water is well-known though both are fond of fresh grass growing near the water margins.

The family *Cervidæ* comprising the deer tribe is absolutely distinguished from the foregoing ruminant animals by the existence of solid horns or antlers which, however, are very variably developed among the several members; and they are with few exceptions confined to the males. The Rib-faced or Barking Deer also known as Muntjac (*Muntiacus vaginalis* Bodd.), frequently erroneously called jungle sheep, derives its popular name from its well-known cry, which at a distance resembles the single bark of a dog. The tongue of this animal is very long and extensible and in confinement, for instance, in the Mysore Zoo, may be seen cleaning the whole face with it. The other name is due to a bony ridge which extends from the base of each of the short brow antlers,

converging towards the nostrils. The buck is able to defend itself by its long sabre-like upper canine tooth. The Sambar or Rusa Deer (*Rusa unicolor* Bechs.) is perhaps the largest of the deer tribe met with in India. The adult male is distinguished by long hair on the neck, which form an erectile mane, and the orifice of the sub-orbital glands is very large. In Mysore, where it is principally a woodland deer, it may be seen grazing on the fresh grass on the hill slopes, after the early rains, singly or only in very small parties. The South Indian Spotted Deer (*Axis axis* Erx.) which is much smaller than the Central Indian forms, is the most beautiful in build and colouration and its favourite resort is bushes and trees, near water-courses or bamboo-jungles. These forms are thoroughly gregarious and hundreds of individuals may, sometimes, be found in a large herd.

The family *Tragulidæ* is distinguished by the absence of the foot and eye glands which mark off the foregoing family (*Cervidæ*). The Indian Chevrotain or Mouse Deer (*Tragulus meminna* Erxl.) which may be more appropriately termed "Deerlet," has several points in common with the pig rather than the true deer tribe. Both sexes are hornless. The feet possess four toes, which characterize the Suina, and hence more primitive than either deer or antelopes and the organization of the stomach is intermediate between the pig and the ruminants. The Chevrotain is confined to the jungly districts in the State.

The pig family, *Suidæ*, is the least specialized among the Ungulates and judging from the fossil remains of the Indian Miocene and Pleistocene beds, it must have been an extensive one, including forms which unite the non-ruminant pigs with the horned ruminants. The Indian Wild Boar (*Sus cristatus* Wagn.) is a solitary animal, found during the day in high grass or crops, while the female and her litter, as a rule, associate in herds or

'Sounders.' They are fond of roots of a sedge growing on the tank slopes, where they turn up the soft earth either with their tusks or muzzle, when rooting about for food. These animals vary their vegetable diet by now and then resorting to feed on dead animals.

Order
Edentata.

There is only one Indian family *Manidæ* belonging to this interesting order (*Edentata*) of mammals and may be easily distinguished by the large imbricating scales covering the head, limbs and stout tail. The under-surface is scaleless and scantily covered by hair. The powerful claws on the fore-feet are obviously intended to tear up the ant-hills, the builders of which form the chief food of the Indian pangolin (*Manis crassicaudata Geoff.*). The conical shape of the skull, its smoothness and the absence of teeth on the jaws, may lead one to mistake it for the skull of a bird, which it certainly resembles in a marked degree. The tongue is very long and is introduced into the tunnels of ants' nests for gathering termites. The scales constitute a protective armour and the animal rolls itself into a ball and hisses like a snake, on being attacked.

III. Birds.

Introduction.

The avifauna of certain places in Mysore, like the Bhadra valley in Kadur District, is both abundant and varied, and the occurrence of a large supply of insect and vegetable food all along the forests of the western portions of the State supports an equally rich wealth of bird life. The classification of birds is still a moot point and the system adopted by E. W. Oates and W. T. Blandford is followed here.

Order
Passeres.

The order of *Passeres* practically includes half the total number of the known species of birds and the family *Corvidæ*, perhaps, represents the most exalted

group of the entire division. The crows are recognized by their black plumage and are distinguished from the *magpies* which possess a tail longer than the wing. The common Indian House Crow (*Corvus splendens* Vieill.) has a grey neck and the most obtrusive and clannish habits. The prevailing belief in India that crows are one-eyed has no basis in fact and is probably due to their habits of tilting their head in one direction to gain a clearer view of the objects which may have excited their curiosity. The Jungle Crow (*C. macrorhynchus* Wagl.) with a glossy black neck is found associating with the former species in towns and villages and the sexes in both forms are indistinguishable. The House Crow in Bangalore breeds from the middle of April to June, while the Jungle Crow breeds from January to March. The true Magpies (*Pica* and *Urocissa*) have not been reported from Mysore but their nearest relatives, the tree-pies (*Dendrocitta*) are represented by the species, *D. rufa*, Scop. and *D. leucogastra* Gould; the former occurring in small bands in the level country, while the latter is confined to forests. Both forms are black, with patches of white in *D. leucogastra* Gould, and they reach a length of 18 to 19 inches. The tits (Fam. *Parinae*) are comparatively small birds, 5 to 7 inches long with an entire beak. The white-winged Black-tit (*Parus nuchalis* Jerd.) and the southern Yellow-tit (*Macrolophus haplo-notus* Blyth.) occur in Mysore. They breed from May to September, making a small nest of hair, cotton and cocoanut fibres in holes of trees.

The sub-family *Crateropodinae*, which includes the laughing thrushes and babblers, which are the most noisy and inquisitive birds, is only poorly represented in Mysore. The Wynaad Laughing Thrush (*Garrulax delesserti* Jerd.), the Nilgiri, and Banasore laughing-thrushes (*Trochalopteryx cachinnans* Jerd.) and (*T. jerdoni* Blyth.) are fairly common in the hills. The Babblers

have a longer tail and the small flocks in which they associate generally keep to the ground. Their eggs are immaculate blue. The common Indian Babbler (*Argya caudata* Dum.) addicted to jungles, and the large Rufous-Babbler (*A. subrufa* Jerd.) also keeping to dense coverings, are met with as frequently as the other Babblers belonging to the general *Crateropus* and *Pomatorhinus*. Of the smaller Babblers belonging to the sub-family *Timeliinæ*, we may mention the occurrence of the small white-throated (*Dumetia albigularis* Blyth.), the yellow-eyed (*Pyetorhis sinensis* Gm.) and the black-headed Babblers (*Rhopocichla articeps* Jerd.) which keep to bushes and light jungle, feeding on the ground in company. The sub-family *Brachypteryginæ* is a group of long-legged terrestrial birds, nearly all of them are skulkers in bushes. The Malabar Whistling-Thrush (*Myiophonus horsfieldi* Vigors.) is occasionally met with in the woody southern portions of Mysore district, while the Indian Blue-chat (*Larvivora brunnea* Hodgs.) is a fairly permanent resident whose migratory movements are confined to shifting from one elevation to another according to the season and the supply of food. The Short-wings (*Brachypteryx albiventris* Fairb. and *B. rufiventris* Blyth.) confined to the higher altitudes, are dwellers in thickets, where they are hard to discover. During the breeding season, the male develops "a pleasing little song." The fairy Blue-bird (*Irena puella* Lath.) of the sub-family *Liotrichinæ* is a brightly coloured bird, occurring in the evergreen forests, either in small parties or in pairs. The bill, though shorter than the head, is powerful and the female is more soberly coloured. The young are like the female and the male changes into adult plumage about March without a moult. Of the Bulbuls belonging to the sub-family *Brachypodinæ*, the occurrence of the South Indian Black Bulbul (*Hypsipetes ganeesa* Sykes.), the Madras Red-vented Bulbul (*Molpastes haemorrhous* Gm.),

the Southern Red-whiskered Bulbul (*Otocampsia fusci-caudata* Gould) and the Yellow-throated Bulbul (*Pyenotus xantholaemus* Jerd.) may be noted. It is possible that *Micropus phaeocephalus* Jerd. may also be found in the borders along the Wynaad and S. Coorg.

The nut hatches, which constitute the family of *Sittidæ*, have as a result of their climbing habits developed a longer hind toe and their bills are adapted to catch insects and rend hard fruits like nuts. The Chestnut-bellied nut hatch (*Sitta castaneiventris* Frank.) and the Velvet-fronted blue nut hatch (*S. frontalis* Horsf.) which occur on the Wynaad borders, generally frequent well-wooded tracts both in hills and plains. The 'king-crow' or Drongo-shrike (*Dicrurus ater* Herm.) is, perhaps, the most familiar bird of the family *Dicruridæ*, which forms the best-defined group of the *passeres*, possessing a glossy black colour and a forked tail of ten feathers. This bird has nothing in common with the crow whom, however, it will never hesitate to attack whenever disturbed. The other Drongo (*D. caerulescens* L.) is met with in Mysore during the cold weather and perhaps migrates to the north of the Peninsula in the hot months. The White-bellied form is reported to have a rich oriole-like note. The tree creepers and the wrens of the family *Certhiidæ* are not represented in Mysore; the warblers which comprise the large family, *Sylvidæ*, are sober-suited, comparatively small-sized birds which migrate in some cases far and wide. A great number of them are winter-visitors to Mysore, while a few remain in the plains in the hot weather, breeding between June to August. *Acrocephalus agricola* Jerd., or the Paddy-field Reed-warbler is a winter bird and *A. stentoreus* Hempr. & Ehr. may stay throughout the summer. The Indian Tailor-bird, *Orthotomus sutoris* Forst., which is a Wren Warbler is a permanent resident. It is so called because it literally sews its curious nest with fibres and leaves.

About the monsoon time, when the breeding season for this bird commences, the cotton tree also bursts its pods and enables the bird to steal large quantities of cotton to stuff its nest with. Another common warbler in Mysore is *Chactornis leucostelloides* Blyth., which has a wide distribution and is known to change colour into a uniformly dull white during the nuptial season, generally after May; *Acanthopneuste lugubris* Blyth., stays only for a few months, summering in the higher parts of Sikkim. The true Wren-warblers, like *Priniajerdoni* Blyth. and *P. inornata* Sykes., are permanent residents which change colour during the pairing time. These, together with *P. sylvatica* Jerd. and *P. socialis* Sykes., are the principal representatives of the family *Sylviidæ* in Mysore. The Shrikes or Butcher-birds, which constitute the family *Laniidæ* are a group of quarrelsome birds, which resemble hawks in point of rapacity, though not in structure. The Bay-backed Shrike (*Lanius vittatus* Val.) is smaller than a Bulbul and is commonly seen perching on some prominent branch of a bush, catching insects either on the wing or on the ground. The Rufous-backed Shrike (*L. erythronotus* Vigors.) which is also a permanent resident, is slightly larger than the previous species and has no white in the wings and tail and its rump is red. The Black-backed Pied Shrike (*Hempipus picatus* Sykes.) and the Malabar Woodshrike (*Tephrodornis sylvicola* Blyth.) have the habit of fly-catchers, in feeding entirely on the wing and are by no means brightly coloured. Both species breed in Mysore in March and April. The common minvet of Mysore is *Pericrocotus flammeus* Forster, which with tit-like habits, is entirely arboreal and looks among leaves and branches for insects. It may move in small flocks from place to place, though not commonly. The White-billed minvet, *P. erythropygius* Jerd., occasionally breeds in the hilly tracts in the months of July and August.

Of the family *Oriolidae*, comprising the Golden Orioles, there are probably only two species common in Mysore, viz., *Oriolus kundoo* Sykes. and *O. melanocephalus* Linn. The note of the Indian Oriole is a rich mellow whistle, which together with its beautiful yellow and a pink beak and eye, ought to distinguish it from the black-headed species "which is less tastefully got up." Both are fruit-eaters, occasionally catching insect larvæ. They also associate with mynas in the peepul trees.

The Grackle family *Eulabetidae* is not an extensive one, and its only representative in the forests of Mysore is *Eulabes religiosa* Linn., which is perhaps locally migratory. The notes and power of mimicry of this species are only rivalled by the starlings and the mynas, which comprise an equally restricted family *Sturnidae*. It is doubtful whether any of the starlings belonging to the genus *Pastor* occur in Mysore, but among the mynas, are found *Sturnia blythii* Jerd., which is reported to breed in Mysore in April and probably the Grey-headed Myna (*S. malabarica* Gm.) also. They are arboreal, feeding on insects or sucking the nectar contained in flowers. The Black-headed Myna (*Temenuchus pagodarum* Gm.) is a familiar bird distinguished by a black crest on the head and a rich buff coat. This species, like the common Myna (*Acridotheres tristis* Linn.) is a ground feeder, hunting for *asshoppers*, for which they closely follow the heels of the grazing cattle. From May to August both construct flimsy nests in the holes of the walls, or trees in the gardens, laying from three to five eggs of a pale bluish green. *A. tristis* is kept as a pet and taught to speak. The family *Muscicapidae*, comprising the fly-catchers, are recognized by the presence of hairy feathers stretching over the nostrils and very feeble feet, which disable them from walking on the ground. A great many are migratory birds and among them may be mentioned the winter visitor to Mysore, *Siphia parva*

Bechst. Of the fly-catchers occurring in the plains, there are several species, belonging to the genera *Cyornis*, *Stoparola*, *Alseonax*, *Ochromela*, *Terpsiphone* and *Rhipidura*. The Indian Paradise Fly-catcher *T. paradisi* Linn., is sexually dimorphic; the adult male has a glossy black-crested head, a white body and two white streamers on the tail, while the female provides itself with a chestnut suit, attracting little or no notice. The white-bellied blue Fly-catcher (*C. pallidipes* Jerd.) and Tickell's blue Fly-catcher (*C. tickelli* Blyth.) are met with in Mysore, where they are permanent residents. The brown Fly-catcher (*A. latirostris* Raffl.) is a tiny little brown bird with the habit of sitting bolt upright, and with ceaseless movements of its tail. It may be seen in the garden perching on the same twig from day to day. The family *Turdiplæ*, composing the Chats, Blackbirds, Redstarts, Forktails, Thrushes and Robins, is a very large group of the *passeres*, but are poorly represented in Mysore. The long feet possessed by the members of this family and the absence of hairy feathers over the nostrils serve to distinguish them from the Fly-catchers. The common Chats like *Pratincola caprata* Linn., *P. atrata* Kel. or *P. maura* Pall. are permanent residents in Mysore and their breeding time is from February to June, when they construct somewhat flat primitive nests in wells or holes in the ground. The Magpie Robin, *Copsychus saularis* Linn., and the Black-backed Indian Robin, *Thamnobia fulicata* Linn., are common in the gardens. They have a habit of erecting the tail almost vertically and are groundlings collecting all manner of insects, but with no interest in fruits. The Magpie Robin has a wonderfully rich and varied tone. The Black Birds, *Merula nigripileus* Lafr. and *M. simillima* Jerd., are dwellers of thick woods on elevations, occasionally entering the gardens of travellers' bungalows. The latter species resembles the English

Black Bird and its charming song is quite a feature of country life in Mysore. But one must resort to the woods after the early showers in May if one desires to hear the melodious song of the Thrushes *Oreocincla nilgiriensis* Blyth. and *Geocincla wardi* Jerd.

In the family *Ploceidæ* are included the Weaver Birds (sub-family *Ploceinæ*) and the Munias (sub-family *Viduinæ*) which are gregarious in their habits and as grain-feeders they are a nuisance to the raiyats. The Baya or the Weaver-Bird, *Ploceus baya* Blyth., constructs an exquisite bottle-shaped nest, fixing it at the end of branches of trees, generally overhanging water. The nest is usually studded with clay balls, which, according to Jerdon, are used for steadying it, if it should become lop-sided; but, according to popular belief, the male sticks fire-flies on these soft clay masses, apparently with a view to secure a brilliantly decorative effect for its dwelling. The rim of the long funnel, which is the passage to the nest, is not plaited, but is loose, obviously with a view not to afford any firm hold to enemies like snakes. The Munias are the handsome tiny cage-birds with red or black bills. We have the Indian Red Munia, *Sporæginthus amandave* Linn., and at least three species of the genus, *Uroloncha*., Jerdon's White-backed Munia (*U. striata* Linn.) is a black and white bird with a bluish beak and the Spotted Munia (*U. punctulate* Linn.) is of a rich brown colour, the underparts being white with stripes on the sides. The White-throated Munia (*U. malabarica* Linn.) is reported to be "promiscuous in family matters," laying eggs in the neighbours' nest instead of its own. Another family of gregarious birds, also with granivorous or frugivorous habits, are the Finches (Fam.: *Fringillidæ*), characterized by a stout bill which they use in husking grain. The common House Sparrow, *Passer domesticus* Linn., is the best known member of the Finch family, whose

noisy presence near about the house is sometimes intolerable. Sparrows build their nests in the ceiling generally or in holes in the walls. The Yellow-throated Sparrow (*Gymnorhis flavicollis* Frankl.), though not common in populous towns, occurs in company with the House Sparrow in the country side, where like the house pest, it does not attach itself to man. The Rose Finch (*Carpodacus erythrinus* Pall.), is a winter visitor to Mysore, which it leaves about the middle of March. The Red-Headed Bunting (*Emberiza luteola* Sparrm.), may also be met with only as a stray winter visitor. In the next family *Hirundinidæ*, comprising the Swallows and Martins, we return to insectivorous birds. The common Martin, *Chelidon urbica* Linn., is reported from Mysore, where it breeds in the hot weather, while the Crag Martins, *Ptyonoprogne rupestris* Scop. and *P. concolor* Sykes., appear to be rare. The Nilgiri House Swallow (*Hirundo javanica* Sparrm.) which is plentiful in towns, flying up and down the long streets, constructs a cup-shaped mud nest in bungalows and out-houses. The few that have established their home in the western verandah of the Zoological section in the Central College, Bangalore, breed annually between March and April. Besides, *H. erythropygia* Sykes., which is a resident of the plains, there is the Indian Cliff Swallow (*H. fluviicola* Jerd.), occurring in abundance near the Jog Falls (Gersoppa). *H. smithii* Leach., the Wire-tailed Swallow, is a winter visitor, found coursing the ditches of the streets or the grassy nullas and occasionally *H. nepalensis* Hodgs. may be met with in its company. The nests of these migrants have been found along with those of the permanent residents. The Pipits and Wagtails, constituting the family *Motacillidæ*, are groundlings and except the Pied Wagtail (*Motacilla maderaspatensis* Gm.), nearly all other forms met with in Mysore are only winter-visitors, like *M. melanope* Pall., *M. borealis*

Sundev., and *M. citreola* *Pall.* They haunt cool, shady places near water margins, running between alternate steps preying upon all manner of small insects. The Pipits wag their tails only modestly and among the permanent residents we have, *Anthus nilgiriensis* *Sharpe.* and among the winter-visitors to the plateau of Mysore we have *A. maculatus* *Hodgs.*—the Indian Tree-Pipits. The former species keeps to the highest points of the hill ranges in the State. The Indian Skylark, *Alauda gul-gula* *Frankl.*, belonging to the family *Alaudidæ*, is one of our song birds, frequenting corn fields and grassy plains from which they are, however, driven by the extensive employment of manure which they detest. The only other species definitely known to occur in Mysore is *Mirastra affinis* *Jerd.*, the Madras Bush-lark, about whose habits little is known. The Purple Sunbird, *Arachnechthra asiatica* *Lath.*, of the family *Nectariniidæ*, is common in our gardens, flitting from flower to flower, extracting the nectar hidden in the calyces. This species is the smallest of our garden birds and builds a small cup-shaped nest in the bushes, where two or three grey eggs are laid, chiefly in the cold months. The purple-Rumped Sun-bird, *A. zeylonica* *Linn.*, and probably also *A. minima* *Sykes.*, occur near about the gardens. In the gardens of the hill stations in Mysore, like the Nandi hills, the Flower Pecker, *Dicema concolor* *Jerd.*, is common, dwelling in the foliage of trees. They are as tiny as restless and to watch them steadily for a few minutes in their haunts is by no means easy. The Pittas, family *Pittidæ*, are insectivorous groundlings, hopping and running with great facility. The Indian Pitta, *Pitta brachyura* *Linn.*, is a solitary representative in Mysore, with local migratory instincts.

According to Blanford, the order *Pici* contains the single family of Woodpeckers *Picidæ*, while Evans and

Order *Pici*.

Gadow combine a series of bird families with complicated relations under *Coracii formes*, which coincides with the *picariai* of Nitsch and Sclater. The little scaly-billed Green Woodpecker, *Gecinus striolatus* Blyth., is a fairly common bird in the wooded tracts of Mysore. It does not perch among the branches of trees, but moves about over the bark in a series of jerky movements, pausing now and then to hammer at the trunk for caterpillars, which may have burrowed into the wood. It is curious that in whatever direction the Woodpeckers may be moving, they hold the head upwards, propping the body on the stiff short tail. The most familiar species of Woodpecker in the State is the Golden-backed three-toed form, *Tiga javanensis* L. jung., which in Bangalore breeds about March, laying two or three elongated white eggs in a rudely constructed nest of leaves in the holes of trees. The other species, which are equally common in the cocoanut groves and topes, are *Iyngipicus hardwicki* Jerd. and *I. gymnophthalmus* Blyth. and the occurrence of large forms like *Chrysocolaptes festivus* Bodd., *C. gutticristatus* Tick. and *Thriponax hodgsoni* Jerd. in the ever-green forests of the Malnād tracts is more than probable.

Order
Zygodactyli.

The barbet family, *Capitonidæ*, is not numerously represented in the State. The common Green Barbet, *Thereiceryx viridis* Bodd. and possibly *T. zeylanicus* Gm. are residents of groves far from towns, but the most familiar example is the Coppersmith or Crimson-breasted Barbet, *Xantholpema hæmatocegahala* P. L. S. Mull., whose dull monotonous call, *tonk tonk tonk*, uttered in a wearisome manner but at regular intervals is common experience in Bangalore in March and April.

Order
Ansiodactyli.

The Rollers (Fam.: *Coraciadæ*), Bee-eaters (Fam.: *Meropidæ*), Hornbills (Fam.: *Bucertidæ*), King fishers (Fam.: *Alcedinidæ*), and Hoopœs (Fam.: *Upupidæ*)

constitute the order *Ansiodactyli* and modern ornithologists are not quite agreed as regards the affinities of these several families. The Indian Roller, *Coracias indica* Linn., with its blues and brownish rufous, is the common bird perching on the telegraph wires, which one sees from the train and it leaves the villages and cultivation for the wooded tracts during the breeding season from March to May. The occurrence of *Eurystomus orientalis* Linn., the Broad-breasted Roller, within the State is only exceptional. The Indian Bee-eater, *Merops viridis* Linn., is the representative of the family *Meropidæ*, to be seen from the end of the rains to the beginning of the hot weather, disappearing in the interval for the purpose of breeding.

The Pied Kingfisher, *Ceryle varia* Strickl., is common on all rivers and tanks and hovering about ten or fifteen feet above the water, drops vertically on its prey, uttering a sharp twittering cry in the meantime. Equally common near the waters is *Alcedo ipsida* Linn., not much larger than a sparrow, though of a most irritable temper. The beautiful White-breasted Kingfisher (*Halcyon smyrnensis* L.) and the Stork-billed Kingfisher (*Pelargopsis gurial* Pears.) have a coral-red bill: the latter species is common in Malnād tracts, near about all streams. None of these brilliantly coloured birds have a musical note, their cry being a harsh guttural twitter. The Hornbills, *Lophoceros birostris* Scop. and *L. griseus* Lath., are not uncommon visitors to the forest belts of Mysore. Their heavy bills and the habit of the male among them walling up the female bird from before laying her first egg till the young are about a week old are well known. It is a long step from the Hornbill to the Hoopoe (*Upupa indica* Reich.) a bird about the size of myna with a long, slender, curved bill and a coronal crest. This species is a permanent resident, which together with the winter visitor, *U. epops* Linn., is well known for the habit of

probing the ground for ant-lions and other subterranean grubs.

Order
Macrochires.

There are five species of Swifts (Fam.: *Cypselidæ*) in Mysore. Two of these, *Cypselus melba* Linn. and *Chatura Indica* Hume., are among the fleetest of birds, capable of flying 100 to 125 miles per hour. The Indian Swift, *Cypselus affines* Gray., is common in old temples, where they construct nests composed of feathers, grass, twine, rags and wool. The Swifts have all the toes pointing forwards and can only cling but not perch like swallows. *Chatura sylvatica* Tick., the White-rumped Spine-tail, is a forest species common on the southern borders of Mysore district, where the Indian edible nest 'swiftlot', *Collocalia fuciphaga* Thunb., occurs in the hill ranges. The presence of feathers and straw in the nests makes them rather inedible. The Nightjars or Goatsuckers, as the generic title *Caprimulgus* expresses, are nocturnal, insectivorous birds about the size of pigeons. Franklin's Nightjar, *C. monticola* Frankl., Horsfield's Nightjar, *C. macrurus* Horsf., and the Jungle Nightjar, *C. indicus* Lath., are chiefly forest birds, while *C. asiaticus* Lath., occurs in the plains, chiefly in uncultivated open country. All these species lay their eggs, two in number, of a pale salmon pink or stone colour, on the bare ground in the hot season.

Order
Coccyges.

The sub-family *Cuculinæ*, comprising the Cuckoos, is biologically the most interesting group. From March to July most of them remain in the plateau of Mysore, while some continue in it even in the colder months. Curiously they are "heard rather than seen"; their power of mimicry and their extraordinary habits of parasitism in foisting the duties of rearing their offspring on other birds are well known. The Common Cuckoo (*Cuculus canorus* Linn.), which breeds between April

and June, resembles a sparrow-hawk which is dreaded by birds like robins, wagtails, pipits and bushchats. On the appearance of the male cuckoo in the neighbourhood of these little birds, "they join together in defence of their homes and proceed to buffet the intruder, who draws them away from their nests, into which the female cuckoo, taking advantage of the absence of their rightful owners, slips her eggs." "Soon after hatching, the young foundling proceeds to eject the offspring of its foster parents from the nests, so as to appropriate to itself all the supply of food to which it has absolutely no manner of right." The Common Hawk-cuckoo or more often known as the 'brain-fever bird' (*Hierococcyx varius Vahl.*) also strikingly resembles the shikra (*Astur badius Gm.*) It is a permanent resident but heard only from March to July and Jerdon describes its call more as a loud crescendo, something like 'Pipeeha pipeeha', each repetition higher in the scale. This species victimises the babblers, who rear its progeny. The manner in which the Cuckoos deposit their eggs in the nests of other birds is one which has engaged a great deal of attention. It used to be supposed that the eggs were laid in the normal way in the nest of the birds selected as foster-parents and this may be occasionally so, but the more frequent method is, as pointed out by Bainbridge Fletcher and Inglis, for the egg to be laid and then carried by the Cuckoo in its bill and dropped into the nest selected for the purpose. The unusually thick texture of the cuckoo-egg shell seems to be specially adapted to this end as, in cases where the nest is placed inside a hole, the egg may have to be dropped into it from a little height. In the case of Hawk-cuckoo, it is possible that its hawk-like appearance on the wing may be advantageous in securing a clear field for depositing an egg in this way in the nest of the "Seven Sisters" or some allied species of Babblers, as one observer states

that the whole sisterhood makes itself scarce when the Hawk-cuckoo appears on the scene, and thus give her a fair field for planting her oval imposition on them. The Plaintive Cuckoo (*Cocomantis passerinus Vahl.*), common in the groves and gardens, selects the nests of wren-warblers and bulbuls while the Drongo-cuckoo (*Surniculus lugubris Horsf.*) which is somewhat rare, resembles the Drongo-shrike (*Dicurus ater.*), thereby obtaining access to the nests of its model. The pied Crested Cuckoo (*Coccyzus jacobinus Bodd.*) resembles a magpie and is far more savagely attacked by crows than even the koel (*Eudynamis honcrata Linn.*), which is the bird of the Indian poets. It is a black bird of the size of a crow and is frequently called the 'brain-fever bird', a name perhaps due to the fact that its cries become more persistent as the temperature becomes warmer from March to July. The house crow (*Cervus splendens*) and the jungle crow (*C. macrorhynchus*) play the foster parent to the young koel. The Coucal or more popularly known as Crow Pheasant (*Centropus sinensis Steph.*) is a black bird with straight hind claw, occurring in cultivated and waste lands. It is a cuckoo that is trapped or netted by the wild tribes in Mysore like Sholigas and Kurubas who prize its flesh. This species makes its own nest, breeding about the month of June.

Order
Psittaci.

The parrots by their docile and amusing habits, bright plumage and capacity to stand confinement, have been the most favourite of all birds. They are characterized by certain striking features like the movement of the upper beak and zygodactyle feet. The commonest Indian Parrot (*Palæornis torquatus Bodd.*) is seen flocking in the evening on the peepul tree along with the crows and mynas and is the most destructive to fruit gardens. This parrot builds its nests towards February in the holes of the walls of temples and houses in the extensions in

Bangalore. *P. cyanocephalus* Linn., the western Blossom-headed Paraoquet and the Blue-winged Paraoquet (*P. columboides* Vigors.) are forest species visiting the open cultivated tracts after the rains. Specimens of the Indian Loriquet (*Loriculus vernalis* Sparrm.), reported from western Mysore, are only cold weather visitors, occasionally met with in the fruit gardens after the rains.

The owls have a position midway between the parrots and the *Accipitres* or birds of prey and are distinguished by the reversible outer toe, two large eyes looking forward, uncommonly large 'ears', a parrot-like beak, and peculiarly soft feathers. Some at any rate of these characters are associated with their nocturnal habits, which together with their dismal cries, must account for the popular belief that they are birds of evil omen. The little Spotted Owl (*Athene brama* Temm.) with its semi-diurnal habits, is the familiar bird whose noisy jabber near about the houses is a nuisance. Perching on electrical wires, these owlets get a rich feed of winged termites which gather in dense clouds round the street lamps. This species roosts and breeds, from March to May, in the roofs of the houses in the extensions in Bangalore. More thoroughly nocturnal and therefore less familiar is the Barn owl (*Strix flammea* Linn.), which establishes its home in the deserted temple, old walls and forts. They were formerly common in the extensions in Bangalore and the present writer has noticed them swooping, from their perches on telephone wires, on mice which come out in the dark to pick gram from the droppings of horses on the streets. This species is less dreaded by the superstitious folk than the great Fish-owl (*Ketupa zeylonensis* Gm.) whom the prospect of food may sometimes attract to the neighbourhood of human dwellings and its loud and ghostly cry

Order
Striges.

'Ghoo-Ghoo-Ghoo', far reaching without being localized, combined with the weird stillness of the night must produce a terrible effect on weak nerves. This owl is as fond of mice and other small mammals as any other species of its tribe. Among the Wood-Owls confined to the hill forests, may be mentioned the Brown-owl (*Syrnium indrani* Sykes.), possibly the mottled form *S. ocellatum* Less. and the Eagle Owl (*Huhua nepolensis* Hodgs.). Their habitat, large holes in trees and crevices in rocks, and their shy disposition do not favour their being seen.

Order
Accipitres.

The diurnal birds of prey which constitute this order are a strikingly marked group, with a raptorial bill, powerful talons, strong and sustained powers of flight and the long nest occupation of the young. The Vultures are a bald-headed and bare-necked family, with perhaps a single genus, *Neophron*, represented in Mysore. The White Scavenger Vulture, *N. ginginianus* Lath., is common about towns and villages and the other forms are *Otogyps calvus* Scop., the Pondicherry Vulture, *Gyps indicus* Scop., the Long-billed Vulture and *Pseudogyps bengalensis* Gm. the White-beaked Vulture. The great majority of other raptorial birds, like hawks, kites, falcons, harriers and eagles, which comprise the family *Falconidæ*, differ from the vultures in having their neck and head decently clothed and never given to foul-feeding. The only two eagles likely to occur in Mysore are Bonelli's Eagle (*Hieraëtus fasciatus* Vieill.) and possibly the Black Eagle (*Ictinaëtus malayensis* Reinw.) The first species is destructive to pigeons and some of the bolder members may carry off even large-sized chicken. Legge's Hawk-eagle, (*Spizaëtus kealarti* Legge.) is confined to the hilly tracts, while the white-eyed Buzzard-eagle, *Butaster teesa* Frankl., keeps very much to the open plains, building a crude nest of sticks in the mango trees.

The Brahminy Kite, *Haliastur indus* Bodd., and the Common Kite, *Milvus govinda* Sykes, are the familiar country-side birds. The Black-winged Kite, *Elanus caeruleus* Desf., occurs only rarely in the western outskirts of the State. The Harriers, *Circus macrurus* Gm. and *C. cineraceus* Montagu, which are our cold-weather visitants, scour the country during their sojourn, for quails, munias, mynas and incautious mammals of small size. The Shikra, *Astur badius* Gm. is easily known by its flight which consists of a few rapid strokes of the wing and then a gliding movement, and is a terror to small birds like sparrows and bulbuls. The Crested Goshawk, *Lophospizias trivirgatus* Temm., is a hill-forest shikra of doubtful occurrence in Mysore and the Sparrow Hawk, *Accipiter nisus* Linn., may take its place, which for sheer boldness and swiftness of attack excels birds of larger size. The falcons do not resort, like hawks, to surprises, but fairly hunt down their victims in the open air. Doubtless the Peregrine Falcon, *Falcon peregrinus* Tunstall., flies over Mysore in the cold weather, but the Laggar Falcon, *F. jagger* Gray., is a permanent resident, striking down all manner of smaller birds, chiefly pigeons. *Tinnunculus alaudarius* Gm. is the Kestrel or the wind hover, a name which it derives from its habit of hovering in the air before alighting on its food of lizards, mice and frogs and is a great lover of open grassy plains.

In the order *Columbæ*, we have a group of birds like Pigeons and Doves which are either grain or fruit-eaters. The South Indian Green Pigeon (*Crocopus chlorogaster* Blyth.) occurs in flocks wherever the banyan and peepul trees abound. *Osmotreron affinis* Jerd., the grey fronted green pigeon, like the foregoing species, is a forest haunting example, easily approached and shot. In all rocky cliffs and old deserted buildings and sometimes when encouraged, in towers of mosques, are found large flocks

Order
Columbæ.

of Blue Rock-pigeons (*Columba intermedia* Strickl.) which are the parents of all the commonest varieties, like tumblers, pouters and fantails, which the fancier has produced. The Nilgiri Wood-pigeon (*Alsocomus elphinstonii* Sykes.) which keeps to the hill-forests of the Malnād tracts, is quite as large as a fowl. Of the Doves, that which is most often seen in Mysore is the spotted species (*Turtur suratensis* Gm.), which can be recognized by its reddish wings spotted with dark brown and pale buff. The Indian Turtle-dove (*T. ferrago* Eversham.) is not at all, and the little Brown dove (*T. cambaymsis* Gm.) only too frequently, met with in the bush jungle and trees about cultivation. It is doubtful if the Red Turtle-dove (*Oenopælia tranquebarica* Herm.) occurs within the confines of the State.

Order
Pterocletes.

Like Pigeons and Doves, the Sand or Pigeon-grouse is a lover of hard seeds and is monogamous. Blanford reports the occurrence of the painted sand-grouse (*Pterocles fasciatus* Scop.) in Mysore and this is perhaps the only representative of this somewhat restricted order in the State.

Order
Gallinæ.

The members of this order are most varied and are represented in Mysore by the common Pea-fowl, *Pavo cristatus* Linn., the-grey Jungle-fowl, *Gallus sonnerati* Temm., the Red Spur-fowl, *Galloperdix spadicea* Gm. and occasionally the Painted Spur-fowl, *G. lunulata* Valenc. They are shy birds confined to wooded ravines near water and bamboo jungles. Living habitually among hedges and bushes, is found in little flocks the Bush-quail (*Perdica asiatica* Lath.) all over the forests and hills. The Grey Quail (*Coturnix communis* Bonn.) is a cold weather visitant and all along the Ghats the Painted Bush-quail (*Microperdix erythrorhynchus* Sykes.) occurs. The White-painted Partridge, *Francolinus pictus*

Jerd. and the Grey-partridge, *F. pondicerianus* Gm., affect cultivated tracts.

The order of *Hemipodii* has been created to receive the three-toed quails and throughout, unlike the foregoing order, the female birds are bigger and in a few species are more brightly coloured. They lead a solitary life in grassy plains and do not fly till actually endangered, when after a short flight drop again "whence they can be very seldom flushed a second time." The Button Quails, belonging to the species *Turnix pugnax* Temm., the Bustard-quail and rarely *T. dussumieri* Temm., the little Button Quail, are the only representatives in Mysore.

Order
Hemipodi

The only common forms representative of this order are the Blue-breasted Banded Rail, *Hypotaenidia striata* Linn., and the Ruddy Crane, *Amaurornis fuseus* Linn., which love swampy places and bamboo jungles where, owing to their skulking habits, they are occasionally heard rather than seen. The Brown Crane, *A. akool* Sykes., though a moorhen rather than a rail, can swim in water quite as well as run on land, and the true moorhen, *Gallinula chloropus* Linn., is only an occasional visitant to the large swampy areas in the Malnād belt. Among the cranes haunting the tanks or rivers, we notice *Grus communis* Bechst., which as the specific name indicates is a gregarious bird like the Demoiselle Crane, *Anthropoides virgo* Linn. The Great Indian Bustard, *Eupodotis edwardsi* Gray., frequenting wastes covered with low grass in the dry open country, is one of the largest game birds often weighing 25 to 30 lbs., and distinguished by its peculiar deep booming note. The Florican, *Sypheotis aurita* Lath., breeds and lives in high grass or growing crops and is a permanent resident of the Mysore State.

Order
Gralla.

Order
Limicolæ.

Swamps, river-side and stony plains are the favourite haunts of the members of this group. The Stone Curlew, *Oedipodius scolopax* Gm. and the Stone-plover, *Esacus recurvirostris* Cuv., are met with in undulating ground; the former is well known for its trick of lying down on the ground when pursued, when detection becomes difficult. The Courser (*Cursorius coromandelicus* Gm.) is as common on the sandy tracts of the State as the Bronze-winged Jacana, *Metopidius indicus* Lath., near about tanks overgrown with water reeds. Among the Lapwings and Plovers, we may note the occurrence of the Red-wattled Lapwing, *Sarcogrammus indicus* Bodd., and some species of Sand Plovers (*Aegialitis*). The sportsman's "Snippets" are either the common Sandpipers (*Totanus hypoleucus* Linn.) or the Wood Sandpiper (*T. glareola* Gm.), or the Green and Red Shanks belonging to the same genus. Other water birds which are our cold weather visitors are the Woodcocks, *Scolopax rusticula* Linn., and the Snipes, *Gallinago*. The former is a nocturnal feeder and is rare in Mysore. The Pintail Snipe, *G. stenura* Kuhl., and rare'y *G. caelestis* Frenzel, the Fan-tail Snipe, predominates in Mysore in season.

Order *Gaviæ.*

The River-tern (*Sterna seena* Sykes.) and the Black-belted Tern (*S. melanogaster* Temm.) are common Mysore river-birds, frequently met with near large tanks and marshes also.

Order
Steganopodes.

No breeding ground of the Spotted-billed Pelican (*Pelecanus philipensis* Gm.) has been discovered in Mysore and the Cormorant visiting, either singly or in flocks, the rivers and tanks within the State is *Phalacrocorax javanicus* Horsf. The commonest of the diving fishers is the Indian Darter or Snake-bird, *Plotus melanogaster* Penn.

The members of this order are marsh-lovers and resemble the Cranes and *Limicolæ* in having long bills, necks and shanks. It is doubtful if any *Ibis* is met with in Mysore, where, however, the Black-necked Stork, (*Xenorhynchus asiaticus* Lath.) frequents the river margins of the Cauvery, the Thunga and the Bhadra. The Herons, belonging to the genus *Ardea*, are uncommon, while the Egret, *Bubulcus coromandus* Bodd., is met with in large numbers in company with the Pond Heron, *Ardeola grayi* Sykes. The latter is essentially a paddy bird, fond of cultivation or ponds which hold frogs and crabs. It is probable that the black Bittern, *Dupetor flavicollis* Lath., occurs within the confines of the State.

Order
Herodiones.

The web-footed birds, ducks, geese and swans form this well-marked order. The Swans (*Cygnus*) are not reported from Mysore. The Comb Duck or Nukta, *Sarcidiornis melanozonotus* Penn., is common near about marshy tanks with reedy margins, where as an occasional visitor the Pink-headed Duck, *Rhodonessa caryophyllacea* Lath., may also be met with. The migratory Brahminy Duck or Ruddy Sheldrake, *Casarca rutila* Palls., occurs in cold weather near the sandy banks of all the rivers in Mysore. About weedy ponds, we have the Whistling Teal, *Dendrocyena javanica* Horsf., the Cotton Teal, *Nettion coromandelianus* Gm. and occasionally the spotted billed duck, *Anas poecilorhyncha* Forst., which offer excellent sport at all times. Among the migratory ducks, which are sometimes met with about October to March, may be mentioned *Nettion crecca* Linn., the Common Teal, and *Dafila acuta* Linn., the Pintail.

Order
Aseres.

IV. Reptiles.

Reptiles are cold-blooded scaly animals which breathe by lungs. A fairly tropical climate and a rich supply of

Introductio

insect food support quite an abundance of reptilian life within the State. Their mode of occurrence is correlated with their structure ; some inhabit the rivers and tanks, a few are entirely arboreal, others dwell in the underground burrows or lead a subterranean life. A great majority of reptiles are nocturnal in their habits, while others that venture to hunt for their prey during the day time, trust for their safety either to their speed or effective concealing powers. In regard to their classification and nomenclature, Dr. G. A. Benlenger is followed.

Order
Emydosauria.

The Marsh Crocodile or the "Mugger," *Crocodilus palustris* Less., flourishes in abundance all along the Bhadra and the Cauvery, and being naturally a timid animal, has not been known to molest man or animals in his service, except under grave provocation.

Order
Chelonia.

There is no mistaking a tortoise in which the long retractile neck and legs act as a piston for respiratory purposes. The soft shelled family *Trionychidæ* is represented in the Mysore rivers by the species *Trionyx leithii* Gray. and *Emyda vittata* Peters., both of a pugnacious temperament. The family *Testudinidæ*, which is a wide one, contains two forms occurring commonly within the State, viz., *Testudo Elegans* Schoep. and *Nicora trijuga* Schweigg., both of terrestrial habits, living in the grassy jungles at the base of the hills. The only other form that may possibly occur in the Cauvery is *Kachuga lineata* Gray.

Order
Squamata.

Lizards, skinks, monitors, chameleons and snakes comprise this comprehensive group. Among lizards possessing cylindrical digits, we may mention the occurrence of genera like *Gymnodactylus* and *Gonatodes*. Examples such as *Gym. nebulosus* Bedd., *Gmy.*

albofasciatus Boul., *Gon. mysoriens* Jerd., *Gon. indicus* Gray, and *Gon. wynadensis* Bedd. are inhabitants of moist sub-tropical forests of the Malnād districts with diurnal habits. On the slightest approach of danger, they retreat under stones or disappear in a heap of dead leaves. Geckoes, with dilated digits, possessing adhesive structures underneath the toes, constitute the common genus *Hemidactylus*, most members of which possess "a voice," from which the superstitiously disposed persons draw all manner of prognostications. About eight species of this genus can be mentioned as occurring in Mysore and in the villages with a rank scrub jungle all round, *H. frenatus* Dum. and Bibr., *H. gleadowii* Kel., *H. leschenaultii* Dum. and Bibr., and *H. coctaei* Dum. and Bibr. are met with as house Geckoes. They are mainly nocturnal in their habits but in places rarely frequented, like forest or inspection bungalows, they may be seen running about the floor and walls in day time. Like *H. reticulatus* Bedd., *H. triedrus* Daud. is a Hill Gecko with young ones which are curiously striped. *H. leschenaultii* Dum. and Bibr. is not infrequently met with on the peepul tree, the bark of which completely harmonises with the colour of this Gecko. "The tail of all these forms is the weakest point of their structure and if dismembered, is soonest regenerated. The extraordinary twitchings of the snapped appendage in the claws or jaws of the pursuing enemy must be the only defence of these harmless lizards, which having thus drawn the attention of the captor to the less vulnerable part, escape into their retreats with their body intact."

In the family *Agamida*, we find mostly arboreal, laterally compressed forms which possess eyes provided with lids and a differentiated dentition. The "Flying Dragon," *Draco dussumieri* Dum. and Bibr., an inhabitant of the hill forests, uses the lateral expansion of skin as a "parachute" in supporting its mid-air leaps from tree

to tree. The sexes in this lizard differ. The ground long-limbed Lizard, *Sitana ponticeriana* Cuv., occurs throughout the State, the male during the breeding season developing a coloured gular sac. The Tree Lizard, *Salea horsfieldii* Gray., is rather rare in Mysore and the next genus *Calotes* is, however, widely represented. A crest of dorsal spines running from the neck downwards will distinguish it at once. The commonest member is *C. versicolor* Daud., the males of which species are the larger and become brightly coloured in the nuptial season. This lizard and its relatives have the habit of nodding their head when alarmed. Other species occurring in the State are *C. nemoricola* Jerd., *C. ophimachus* Merr. and *C. ellioti* Gunth, which are met with both in the plain country and in the woods. All the Tree Lizards are diurnal in their habits and are insectivorous. *Charasia dorsalis* Gray. and *Ch. blanfordiana* Stol., are Rock Lizards with a depressed body, occurring at all elevations. The male of the latter species has a red head and a black body, limbs and tail during the pairing period. People in the country-side report the occurrence of a lizard which can expand its body and is dreaded by them for its "poisonous qualities." It is possible that this lizard is the S. Indian Monitor (*Varanus bengalensis* Daud.) which is nocturnal in its habits, and is said to attain 2½ ft., exclusive of the tail. The true lizards (Fam. : *Lacertidæ*) may be distinguished by the presence of symmetrical shields on the head, the skin of the body being devoid of osteoderms. The two genera *Cabrita* and *Ophiops* are represented in Mysore by *C. leschenaultii* M. Edw., *O. jerdonii* Blyth. and *O. beddomi* Jerd., haunting arid waste lands. In the former species, the lower lid of the eye possesses a large transparent "window," which in the latter, is permanently welded to the aborted upper lid, an adaptation for protection against sand in which they live. In the skink, of the genus

Mabuia, one of the group of the next family, *Scincidae*, for example in the form, *M. Carinata* *Schneid.*, the lower eyelid is considerably enlarged and covers the whole eye when it scuds along or hides in sand. *M. beddomii* *Jerd.* is another example of skink, with red or scarlet tail, met with in Mysore. In the other group of skinks, *Gen. Lygosoma.*, of which there are about four species which inhabit sandy situations and have burrowing habits, the body is elongate and the limbs poorly developed. The Chameleon, *Chamoeleon calcaratus* *Merrem.* (Fam.: *Chamaeleontidae*), known for its power of changing the colour of its skin, is the most specialized among the lizards and is a dweller of the wooded tracts. Its digits, arranged in groups of two and three, its clutching round tail, the long projectile range of its tongue and the independent action of the eyes are some of the adaptations which the animal has developed as a result of arboreal habits.

Snakes are only lizards which have lost their limbs and girdle bones, chiefly owing to gliding motion and to habits of insinuating themselves into holes, and they have also a specialized swallowing apparatus by which they can swallow prey much larger than the girth of their own bodies. A poisonous snake differs from the non-poisonous form in possessing a gland which secretes the poison, conveyed by a duct to a grooved or canaliculated tooth called a fang. There is no external criterion by which one can tell, except through a wide and intimate acquaintance with the ophidian life, a poisonous species from an innocuous form and an examination of the dentition is the only basis of determination. The burrowing families, *Typhlopidae* and *Uropeltidae*, are a most primitive race, in that they possess, like the *Biodae*, remnants of pelvic bones and must have taken to subterranean life very early in the course of the evolution of the Ophidia. There are three species of Typhlops, *T. braminus* *Daud.*,

T. beddomii Blgr. and *T. acutus* Dum. and Bibr., occurring in the State and they are all worm-like burrowing creatures. The other family, *Uropeltidae*, is represented by several species of the genus *Silybura* and one of the genus *Melanophidium*. The Boas in Mysore are the rocksnake, *Python molurus* Linn., *Gongylophis conicus* Schneid., a comparatively inoffensive snake which Boulenger describes as of a "fierce temper," and the burrowing snake *Eryx Johnii* Russ. It is possible that *Xenopeltis unicolor* Reinw. may also be found. The *colubrinae* which are fangless (Aglypha) are an inoffensive group like the foregoing and species belonging to the genera *Xylophis*, *Lycodon*, *Abalabes*, *Oligodon*, *Zamenis*, *Coluber*, *Dendrophis* and *Tropidonotus*, constitute the main ophidian life in the State. *Lycodon aulicus* Linn. is a striped snake which turns up in houses and the useful role it plays by destroying the vermin in the house is usually forgotten in dealing with it. It simulates the colour of the deadly Krait. The rat snake, *Zamenis mucosus* Linn., is another example which suffers for imitating the Cobra and no greater friend of humanity suffering from rat pests really exists. *Dendrophis pictus* Gm., the palmyra snake, is a typical arboreal form, which by energy and aggressiveness, makes up for lack of poison. *Tropidonotus stolatus* Linn. is the common grass snake and *T. piscator* Schneid. is the pond and river snake and *T. plumbicolor* Cantor is the thick green snake met with in old brick heaps or mounds of earth. The group *Dipsadinae* possess a fang in the rear of the upper jaw, and hence constitute the series Opisthoglypha and the genera *Dipsas*, *Dryophis* and *Cerberus* are represented by a few species. *Dryophis mycterizans* Daud. is the common green whip snake, which is popularly believed to strike the eye. Its green colour, harmonizing with the foliage amidst which it lives, is an example of protective colouration. *Cerberus rhynchops* Schneid., which

lives in the marshy portions of the Cauvery, has none of the gentle disposition attributed to it by certain authors. The sub-family *Elapinae* (Series *Proteroglypha*) comprises the most deadly species like the Krait, Cobra, and Coral Snakes. The common Mysore or S. Indian Krait (*Bungarus Cæruleus Schn.*), rare because of its shy disposition, is recognized by the dorsal median row of hexagonal scales, which are larger than the neighbouring ones. The latter are fifteen around the body. These characters coupled with a blackish or bluish black ground colour with transverse white bands, would be sufficient diagnosis.. The scales underneath the tail are undivided. One ought to look to the scalation and teeth instead of colour for identification. As widely prevalent as the Krait, is the Cobra, *Naja tripudians Merr.*, whose hood and 'spectacle mark' ought to be sufficient to identify this species. The Coral Snakes, easily recognized by the red on the under-surface of their body, are confined to the hill tracts, where the common form is *Hemibungarus nigrescens Günth.* *Callophis trimaculatus Daud.* is a rare snake in Mysore. The open groove of the fang of the *elaphinae* becomes a closed canal in the family *viperidae* (*Solenoglypha*) which includes the Daboia or Russel's Viper, (*Vipera russellii Shaw.*) whose magnificent scheme of colour is a sufficient means of identity.

Russel's Viper grows to about four feet in length. It is considerably thicker than the cobra, though it is of sluggish habits. Daboia, Krait and Cobra are most destructive to human life and cattle. The saw-scaled viper, *Echis carinata Schneid.*, common in Mysore, is recognized by the carinate scales on the flank and a cruciform white mark on the head. It rarely exceeds two feet in length but is very fierce and venomous. The Pit Vipers, or sub-family *Crotalinae*, are represented in the Malnād area and the hill forests by species like *Ancistrodon hypnale Merr.*, the Hump-nosed Viper,

Trimerisurus (Lachesis) anamallensis Gunth, *T. strigatus* Gray. and *T. gramineus* Shaw. The *Crotalinae* may attain a length of three to four feet in some cases and inflict furious bites setting up severe constitutional disturbances, but these do not generally lead to a fatal termination.

V. *Amphibians.*

Introduction.

As a class the amphibians are less numerous than any of the foregoing groups and fishes. Biologically they are interesting from the fact that several features of their internal organization disclose a piscine descent and in turn they have been the ancestors of reptiles. Most members of the phylum pass through an interesting stage of larval development, at which the young possess both gills and lungs, which are however permanent only in some of the primitive orders.

Order *Ecaudata.*

The tail-less four-footed Batrachians, like Frogs and Toads, constitute this order and the family *Ranidae* is the most comprehensive one. The green tank frog, *Rana hexadactyla* Less., inhabits situations which do not dry up in the hot weather. This and its near relative *R. tigrina* Daud, or the Bull Frog, attain a very large size. There is more than one variety of this latter species in Mysore, e.g., *R. tigrina* (var) *crassa* Jerd. The commonest form which sometimes visits the street gutter is *R. cyanophlyctis* Schneid., which is a concert-giving frog. All these three species have a habit of running or jumping over the surface of the water as on land, when alarmed. In the paddy fields and near about the adjacent water-courses occurs a green frog known as *R. limnocharis* Weigm. and after a heavy shower of rain, a fat member of the same genus, *R. breviceps* Schneid., comes out in the night to breed in the improvised pools and disappears before morning. This is a powerful digger. In the

Malnād tracts, the chief representatives of this tribe are *R. curtipes* Jerd., easily recognized by its grey back and black sides and limbs and *R. leptodactyla* Blgr. The hill forests contain *R. dobsoni* Blgr., *R. beddomii* Gunth., *R. malabarica* Dum. and Bibr. and *R. temporalis* Gunth. An equally large genus is *Rhacophorus*, which includes the "chunam frog" *Rh. maculatus* Gray., met with in the plantain trees and occasionally on the walls of houses. This species and its relatives *Rh. pleurostictus* Gunth. and *Rh. malabaricus* Jerd. construct a kind of parchment nest for the reception of their eggs. The enormously large black tadpoles, met with in shoals in the tanks and rivers in the Malnād districts, are the young ones of *Rh. pleurostictus*. The hill forests are the headquarters of a race of tiny frogs of the genus, *Ixalus*. The larvæ of some species of this genus resemble the young ones of the foregoing genus and in both genera the adults have digits which possess discs with which they can cling to vertical surfaces. The commonest members, of about half a dozen species of this genus which can be noted in Mysore, are *I. variabilis* Gunth. and *I. glandulosus* Jerd. Other genera with similar discs are *Micrixalus* and *Nyctibatrachus* and we find forms like *M. saxicola* Jerd., *M. fuseus* Blgr., and *N. Major* Blgr. near the shady mountain streams of ever-green forests or *kans*. A new variety, *N. sanctipalustris modestus* Rao, is recorded from Shimoga.

The family *Engystomatidae* is characterized by a narrow toothless mouth and possesses a digging apparatus on the heel. They are thoroughly terrestrial and leave their places, some of them at any rate, only after very heavy showers. The one whose cry is loudest is *Cacopus systema* Schneid. It is common in the plain country. The male has a very large vocal sac. *Microhyla rubra* Jerd., which has a stout habit like the preceding species, is rare. *M. ornata* Dum. and Bibr. is the

most widespread example of the whole family. Large shoals of transparent tadpoles with flagellate tail seen in the tanks between the months of May to October belong to this frog. The cry of the two *Microhyla* is a low whistle. *Kaloula variegata* Stolic. is met with in the ant-hills and produces a low plaintive voice "qhuay," "qhuay," uttered at regular intervals, from a direction which also changes as the listener turns this side or that. *K. obsecura* Gunth. and *K. triangularis* Gunth. are other species with similar habits, found in Mysore. Another extremely little frog, new to Science, *Ramella symiotica* Rao, has been recorded from Bangalore.

The toads, Fam.: *Bufonidae*, also toothless, are terrestrial forms, with a dry warty skin. A bean-shaped gland on either side of the neck is more or less prominent. The thick musky humour secreted in this gland confers on toads immunity from all enemies except the cobra. The house toad, *Bufo melanostictus* Schneid., which is the largest of the Indian toads, may be seen towards evening greedily swallowing the winged termites, which leave their burrows in dense masses or enjoying a bath under the tap. It enters the tank during the breeding season, and lays eggs in double strings round about the grass and weeds near the margin. The young ones, which are extremely tiny, leave their hiding places and come out in thousands soon after the rains, thus accounting for the popular belief that "it has rained frogs." *B. fergusonii* Blgr. and *B. microtympanum* Blgr. are other forms found in the open country and *B. parietalis* Blgr. and *B. pulcher* Blgr. are confined to hill forests. The toads in the fruit gardens do excellent service by destroying earthworms and all noxious insects.

Order Apoda.

The limbless batrachia are worm-like burrowing animals restricted to the dense moist hill forests, about whose habits practically nothing is known. Five species

belonging to the three genera *Iekthyophis* *Gegenophis* and *Uraeotyphlus* are known from S. India and it is likely that *U. Oxyurus* *Dum.* and *Bibr.* is found in Mysore, possibly also *I. glutinosus* *Linn.*, *I. carnosus* *Bed.*, *U. malabarica* *Bed.* and *U. menoni* *Annand.*

VI. Fishes.

The river Cauvery with its principal affluents like the Lokapavani, Shimsha, Arkavati, Lakshmanathirtha and Kabbini; the Thunga and the Bhadra, the Sharavati and numerous smaller streams which form the upper reaches of the Pennars and the Palar, together with some of the magnificent artificial tanks, abound with excellent fish. Introduction.

The Cat-fishes, so called because of the barbels fringing the mouth, form the well-known family *Siluridae*, Order
Physostom most members of which inhabit the tanks where in the hot weather the waters become both muddy and foul. *Clarias batrachus* *Linn.* (the Anai meenu of fishermen), so called because of its amphibious life, is the most common fish whose flesh is considered nourishing and invigorating. *Saccobranchus fossilis* *Bloch.* (Thelu meenu) is prescribed for convalescents for its nourishing qualities and is equally amphibious. Its pectoral spine is dreaded by fishermen as causing poisonous wounds. *Wallago attu* *Bloche.* and *Schneid.* (Balai-meenu) inhabits rivers and tanks, where it is most destructive to the smaller species. This predaceous form is said to attain 6 feet—four foot specimens are common, and are good eating. All these are foul feeders. The Butter fish (also known as Pafta) *Callichrous bimaculatus* *Bloch.* is greatly prized for its fine qualities and the larger tanks and rivers abound with it. Another fish equally liked for its excellent qualities is the Lady fish, *Pseudotropius atherinoides* *Bloch.*, inhabiting the bigger tanks. *Macrones* (Jella) is

common in tanks and rivers and is employed as food by the poorer classes though the fish itself is of inferior quality. *M. vittatus* Bloch. (Jella) is a small species, but extremely common. According to Day, this fish is called "Fidler," because it is supposed to make a noise when irritated. Its musical power is, however, limited to a whirring noise which it can produce. The irritable temper attributed to *vittatus* enables them to attack fish of larger size. The fishermen dread the pectoral spine of *M. cavasius* H.B. (nar jella) and prize *M. aor* H.B. a three-foot specimen of which was recently obtained from the Thunga. *M. punctatus* Jerd. (Sholang Kellatte) is common in the Cauvery and *M. oculatus* Cuv. has been taken from the Kabbini. Both these forms are netted when the river is low, and brought to the market in numbers. *M. keletius* C. and V. is a form familiar in the Thunga river; from the same source may be obtained *Rita hastata* Val., which is believed to live out of its element for a long time, thus permitting its being carried in a fresh condition over long distances. Poorer classes eat this fish. It is likely that *Bagarius yarrelli* Sykes. is found in the large rivers of Mysore. According to Day, it takes a live bait but is difficult to kill. Partly because of its size and veracity and partly because of its under-hung mouth, this form is often termed a freshwater shark. The genus *Glyptosternum* is adapted for a life in rapid streams, by the development of an adhesive apparatus on the under-surface of the body. The species *G. lonah* Sykes. and *G. madras-patanum* Day, which occur in the Cauvery and the Bhadrā, are never in demand on the market.

The Carps, Fam.: *Cyprinidæ*, differ from the Catfishes in possessing a toothless mouth. They both constitute the main fish fauna of our tanks and rivers. The Loaches (Marlu Meenu) are the principal destroyers of mosquito larvæ and being small, are usually angled

for. *Botia* sp. obtained from the Thunga is likely to prove new to science and *Nemachilichthys* sp. (named *N. Shimogensis* Rao) taken from the same source may be another new species. *Lepidocephalichthys thermalis* C. and V. is, like the genus *Nemachilus*, the commonest loach. There are nearly half a dozen species of *Nemachilus*, of which the most familiar forms are *N. evezardi* Hav., *N. beavani* Gunth., *N. denisonii* Day, and *N. pulchellus* Day, all known from Shimoga. It is likely that *Homaloptera* or Stone Carp may occur in the Thunga and the Bhadra. The stone *ophiocephalus* or *Garra lamta* H. B. (Pandi pakke or Rathi koraka) is adapted by its ventral sucker for a life in rapids and the forms inhabiting the tanks show a degeneration of this adhesive apparatus. This is a foul feeder and is the food of the poorer classes. There are at least more than two new species and one new local race of this fish in Mysore. Two new species of *Garra*, *G. bicornuta* Rao and a new variety of *G. jerdonia brevimentali* Rao, have also been found in the State. The group *Labeo* derives its name from the thickened tuberculated lips, continuous at the angle of the mouth, and to some extent resembles the snout of the suinae; hence the Muhammadans do not touch this and the previous genus. *Garra Labeo calbasu* H. B. abounds in tanks where it is essentially a bottom feeder, and fairly popular in spite of its numerous bones. *L. potail* Sykes., *L. kontius* Jerd. (Handi Kurlu), *L. boggut* Sykes., *L. boga* H.B. (Mada Kurlu) and *L. arizu* H. B. are some of the examples met with in the rivers and most of these are common on the markets of Mysore and Shimoga. *Cirrhus* and *Scaphiodon*, both known as Aruju, are not esteemed as food except by the poorer classes. *C. Cirrhosa* Bloch., *C. reba* H.B. and *S. brevidorsalis* Day and probably also *S. nashii* Day inhabit tanks and rivers, where they are baited and netted. It is not certain if *Catla catla* H.B., which is greatly

esteemed, is found in the Cauvery, where forms like *Ambly pharyngodon melettina* C. and V. (paraga) and possibly *A. mola* H.B. are equally common. Yedatore, Chunchankatte and Ramnathapur are famous for *Barbus* (Pakke) and some of the brilliantly coloured forms are found in the Cauvery and the limpid water of Moti Talab (Pearl Tank). The Sharavati contains forms which exhibit great individual variations, chiefly in the examples taken above and below the Fall. Over twenty-two species of this wide genus occur in the State and the "mahseer," *Barbus tor* H.B. from Sharavati is justly famous like *B. neilli* Day, from the Thunga and the Cauvery. The fishermen employ the term "pakki" in a generic sense and its application to forms like *B. sarana* H.B. (Gid pakke), *B. parrah* Day (Pith pakke) and so forth, has reference to particular features like size, colour or edible qualities. The paraga or paraga pakke of fishermen is *Nuri (Esomus) danrica* H.B., which abounds in all ponds and tanks and as a surface feeder is a valuable agent in destroying mosquito larvæ. Perhaps equally useful in this direction is *Rasbora daniconius* H.B. (Jubbu) common in garden wells and irrigation wells and irrigation channels. *Rhotee neilli* Day, *R. cotio* H.B. and *R. Ogilbii* Sykes., which rarely exceed 5-6 inches, are not esteemed as food except by the more indigent classes. They are common in the Thunga. The occurrence of *Danio* in Mysore is more than probable. The genus *Brailius*, represented by at least two species *B. bendilisis* H. B. and *gatonsis* C. and V. *Chela* (Kende Meenu), occurs in greater profusion, at least six species being known. The individuals of several species of the genus obtained from different sources vary widely and examples like *C. argentea* C. and V. (White carp), *C. clupeoides* Bloch. and *C. bacalia* H. B. are in some demand in the local markets.

The herring family, *Clupeidæ*, is marine but experiments

on *Clupea ilisha* H.B., the 'Hilsa' (*palasa meenu*), ought to be of more than ordinary interest to a State like Mysore with its rich network of broad rivers.

The two species *Notopterus Pallas Razor*, or *Knife Fish* and *N. chitala* H.B., which represent the family *Notopteri*dæ (*walka thattai*), thrive in great profusion in the larger tanks and rivers and in spite of numerous bones, they are greatly esteemed as food. *Chitala* attains four feet and this and other species are extremely wary in taking a bait.

The family *Cyprinodonti*dæ is represented by the tiny little fish *Haplochilus melanostigma* McClelland, frequently entering the inundated paddy fields. This form is a surface feeder and is an effective agent in the destruction of mosquito larvæ. The colour of this species varies according to the surroundings from which it is obtained. It is probable that *H. lineatus* C. and V. also occurs in Mysore. *Belone cancila* H.B. (*Kale holaya*) belonging to the family *Scombresoci*dæ, occurs in our rivers but is not greatly esteemed as food. Its elongated toothed jaw is used by the barber surgeon for opening wounds and ulcers.

The order *Acanthopterygii* is largely marine except for a few species of the genus *Ambassis* and some other families. *A. nama* H.B. and *A. ranga* H.B. are common in the rivers of Mysore and both species vary either with age or with the surroundings, in which they live. It is more than doubtful if *Nandus nudus* H.B. occurs in Mysore. But two species of the family *Rhynchobdeilli*dæ, *Mastacembelus pancalus* H.B. and *M. armatus* Lacep. (*havoo meenu*), are found in rivers and tanks. The latter example attains more than two feet and the body is cylindrical or eel-like. It is prized as excellent food, especially when it comes from the rivers. Members of the family *Ophiocephali*dæ coming from the

Order
Acantho
pterygii.

same source, viz., rivers, have an equal value. About half a dozen species of *Ophiocephalus* (Murrel or snake-heads) inhabit the rivers and tanks within the State. They are amphibious and can live outside the water for a considerable time, and their breeding habits are interesting. They construct a crude nest in the clearings of coarse grass or rushes near the weedy margins of tanks and are strictly monogamous. The young of some forms like *O. striatus* Bloch. are brilliantly coloured with orange and those of *O. punctatus* Bloch. have a metallic band across the body. They breed twice in the year almost corresponding to the two monsoons. The true murrel, *O. marlius* H.B. (marua), is common in Shinoga and both *striatus* and *punctatus* (kuchu meenu) are plentiful in Bangalore. *Oleucopunctatus* Sykes. (soovara or hoovu meenu) and *O. gachua* H.B. (Korve) are known from Mysore. The former species, which attains nearly three feet, commands an excellent market. The occurrence of *Polyacanthus cupanus* C. and V. (thabutte) Fam: *Labyrinthici*, in the Mysore rivers, is more than doubtful, but at least two species of the genus *Etroplus* of the family *Cichlidae*, often designated as Chromides, inhabit Mysore. *E. suratensis* Bloch. (bachenake meenu) easily takes a bait. Larger forms of this species grow a foot or more, and afford excellent eating.

VII. Elephant Kheddahs.

Pit method.

The pit method of capturing elephants in Mysore on a wide and systematic scale owes its origin probably to the failure of Hyder Ali in his operations in the Kankanote Forests to surround and secure large herds, which in his time must have proved valuable military adjuncts. The presence of pits in Ainurmarigudi, Methikoppe Veeranhosahalli and Chamarajnagar State Forests in Heggaddevankote, Hunsur and Chamarajnagar taluks

bears testimony to the popularity of this system. It continued to be employed in an organized manner up to 1898. The number of elephants captured during the period between 1878 and 1898 is reported to be 138 which is certainly a large prize. The system in vogue of catching elephants was not an elaborate one. Pits were artfully disposed along routes frequented by wild elephants, or near about the pools and trees which they love to visit, and being lightly covered over by a network of bamboos, leaves and earth, were speedily overgrown with grass after the early showers, so as to remove all causes for suspicion. The excavations (usually $10\frac{1}{2}' \times 7' \times 12'$) were purposely made tight-fittings to prevent the captives from digging in the sides and make a way out. It is astonishing that animals, usually so cautious, saw nothing to rouse their suspicion and precipitated themselves into the pits, damaging their limbs or receiving some permanent internal injury. The Sholigas and Kurubas, who generally supervised these operations, visited the pits both in the morning and evening during the elephant season, usually after the monsoon, and carried the news of the fall to the base camp, where the tame elephants were stationed. When the captive elephants fairly completely filled the pits, there was no space in which to throw fodder and there was absolutely no means of watering them and the period which elapsed between the fall and the rescue was usually one of starvation for them. After noosing the captive with the help of the *Kumkies* (or tame elephants), the pits which by now would be slightly enlarged by the struggles of the captive beasts, were filled in with twigs, leaves and other rubbish, with the result that the animals elevated themselves automatically. Sometimes, as in British India, the pit was, as a precautionary measure, surrounded by an improvised stockade, which, however, was usually dispensed with.

This is but a general outline of a method which, on account of the cruelty involved, is very rarely resorted to in Mysore at the present day, still flourishes in South India and Malabar, with such variations in the details of operations as local conditions may call for, but in all cases usually attended by unspeakable horrors.

Kheddahs

The earliest reference to the Kheddah operations in Mysore is the unsuccessful campaign organized by Col. J. L. Pearse in 1866-67 in the Kakankote forests, not far from the site of the present Kheddah. The failure of his attempt would appear to be due to the inexperience of the men with whom he had to deal, the occurrence of an accident which scared away the herd and the arrival of hot weather, which forced the elephants of these parts to take shelter in S. Coorg, Wynaad and the bases of the Nilgiris. By employing the method prevalent in the Government Kheddah Establishment in Bengal, the late Mr. G. P. Sanderson successfully planned a campaign, which resulted in 1874, in the capture of a herd of fifty-three elephants, which had escaped the operations of 1873. The system consisted in surrounding the herd or herds in their covers, on information being brought to the hunters by the party of trackers, who were sent early in the season to locate them. By establishing a guard of sentry all round, it was impossible for the herd to break through, for all attempts on the part of the enclosed captives to approach the ring of patrol would be met by shouts and noises from which they promptly retired. During the day time, when the elephants gave no trouble, a few men would be drawn from the watching line to construct the Kheddah in the enclosure itself. The Kheddah, or the ring stockade, was placed on one of the beaten paths frequented by the herd in the surround, and two diverging wing stockades or funnel would lead out from the drop down of the Kheddah. On the

completion of the construction, leaves and branches of trees were used in screening the posts and gates. Once the herd was set on this track, the funnel into which they were continually driven from behind and from the flanks, led them to the gate, which they were forced to enter by shouts and blazes of fire behind. The door of the Kheddah was then dropped by cutting a small cord which secured the controlling rope and the *Kumkies* or tame elephants were then entered into the stockade to help in roping the wild captives.

The Mysore Kheddah system differs from the Bengal method in several points. The herd is driven from long distances till finally the elephants enter by one of the gates, a large enclosure (Kheddah) protected by a deep trench all round, except at the entrances. The funnel leading out from one of the gates and the roping enclosure with a platform from which to witness the roping operations are constructed later. Herds may also voluntarily enter the Kheddah. Mysore system.

The following table shows the number of Kheddahs in the State:—

Taluk	Kheddah	Remarks
Chamarajnagar	1. Karadihalla	Not used.
	2. Neeldurgi	
	3. Boothepadaga	
Nanjangud	4. Naganpur	Not used.
Heggaddevankote... ..	Kakankote—	
	5. Number i Kheddah ...	
	6. do ii do ...	
Shimoga	7. Sakrebyle	
Narasimharajapura ...	8. Hebbe	Not used.

Statistical
table of
captures.

The following table shows the number of captures made in the several operations since 1894, and the amounts realized from the sale of elephants :—

Year of Operation	Captures	Casualties	Number Sold	Number Disposed of otherwise	Amount Realized
					Rs.
1894-95	57	12	45	...	33,245
1895-96	33	...	26	7	23,032
1896-97	170	52	79	30	82,990
1897-98	27	...	23	4	27,235
1905-06	87	8	53	21	64,165
1909-10	92	13	61	17	1,07,505
1911-12	22	4	18	...	27,575
1913-14	109	32	66	11	1,25,250
1917-18	83	4	9	20	14,950
Total	680	125	385	119	5,80,947
Average	70	14	43	13	1,379 approxi- mately

The average price of an elephant would be, according to the above total, Rs. 1,379. About 60 per cent of this amount would be the cost of operation, calculated on a single head, and 20 per cent the cost of maintenance, till the elephant is put on the market, assuming that any of the old Kheddahs, with such repairs as they may need, are used in the capture.

In Mysore, the operations are generally undertaken to provide relief to the harassed raiyats, whose cultivation is destroyed by the elephant, or they may be ordered to provide entertainment to distinguished State guests. Some of the elephants captured on these occasions are reserved for the use of the Palace and the Forest Department.

VIII. Game Law.

(a) GENERAL OUTLINES.

The Mysore
Game and
Fish Preser-
vation Regu-
lation.

The necessity for a Game Law having been pressed upon the Government by both planters and sportsmen, principally to prevent the indiscriminate destruction of

useful species of animals and birds, Regulation No. II of 1901 was passed on 8th April 1901. The legislation is based both upon humane and utilitarian considerations, inasmuch as it does not attempt to extinguish the immemorial rights of the people to kill game for food or sport or to create any monopoly in animals and birds in a state of nature for the benefit of Government or of sportsmen. To ensure the due propagation and perpetuation of useful species of game and fish, the Regulation provides for the protection of such species with reference to time, place, sex, growth, manner of killing and the implements of destruction. It also empowers the Government to afford absolute protection to specified insectivorous birds and to animals and birds whose killing would be unsportsmanlike or viewed with popular disfavour. By rules framed under the Regulation, the killing of animals and birds for the commercial value of their skins and plumage has been regulated by means of a system of licenses or prohibited altogether in the case of particular kinds of animals or birds either for a certain time or within a certain area.

Fishing in any stream or tank has, in like manner, been controlled, together with the poisoning of the water, the use of explosive or other deleterious substances thereon and the capture of fish by fixed engines and nets of a mesh below a certain size.

A season in the year has been fixed for the killing or capture of game or fish and the killing has been prohibited absolutely as regards both mature specimens and the young of either sex of specified descriptions of game.

By Section 12 of the Regulation, a general exception has been made in the case of an owner or occupant of land who may kill, capture or pursue game doing damage to any growing crop.

(b) DEFINITION OF "GAME."

The term "Game," as defined in Section 2 of the Regulation, means antelope, ibex, jungle-sheep, sambhar and all other descriptions of deer, bison, hares, jungle-fowl, spur-fowl, pea-fowl, partridge, grouse, quail, wood cock, bustard, florican, duck and teal and includes such other animals and birds as may be notified by Government to be "Game."

(c) PENALTIES UNDER THE REGULATION AND THE RULES THEREUNDER.

Every offence against the provisions of the Regulation and the Rules thereunder, is punishable by a fine not exceeding Rs. 100.

Elephants
(Madras Act
No. I of 1873).

Madras Act No. I of 1873, extended to the Mysore State, in May 1874, prohibits, subject to the exception noted below, the destruction of wild elephants, whether on Government property or not. Wild male elephants may be destroyed (a) on private estates by the proprietor or a person authorized by him, (b) on waste or forest lands, the property of the Government, by a person holding a license issued by the Deputy Commissioner under rules framed by Government.

The license is tenable for one year after the expiry of which, unless renewed, it becomes void. Conviction for an offence under the Act entails forfeiture of the license.

The Act does not prohibit the destruction of wild elephants, male or female, found upon cultivated lands or in the vicinity of a public road, nor does it prevent any person from destroying a wild elephant, male or female, in defence of himself or any other person.

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