

## **The deadly wild beasts of India / J. Fayrer.**

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Fayrer, Joseph, Sir, 1824-1907.

### **Publication/Creation**

[Place of publication not identified] : [publisher not identified], [1889]

### **Persistent URL**

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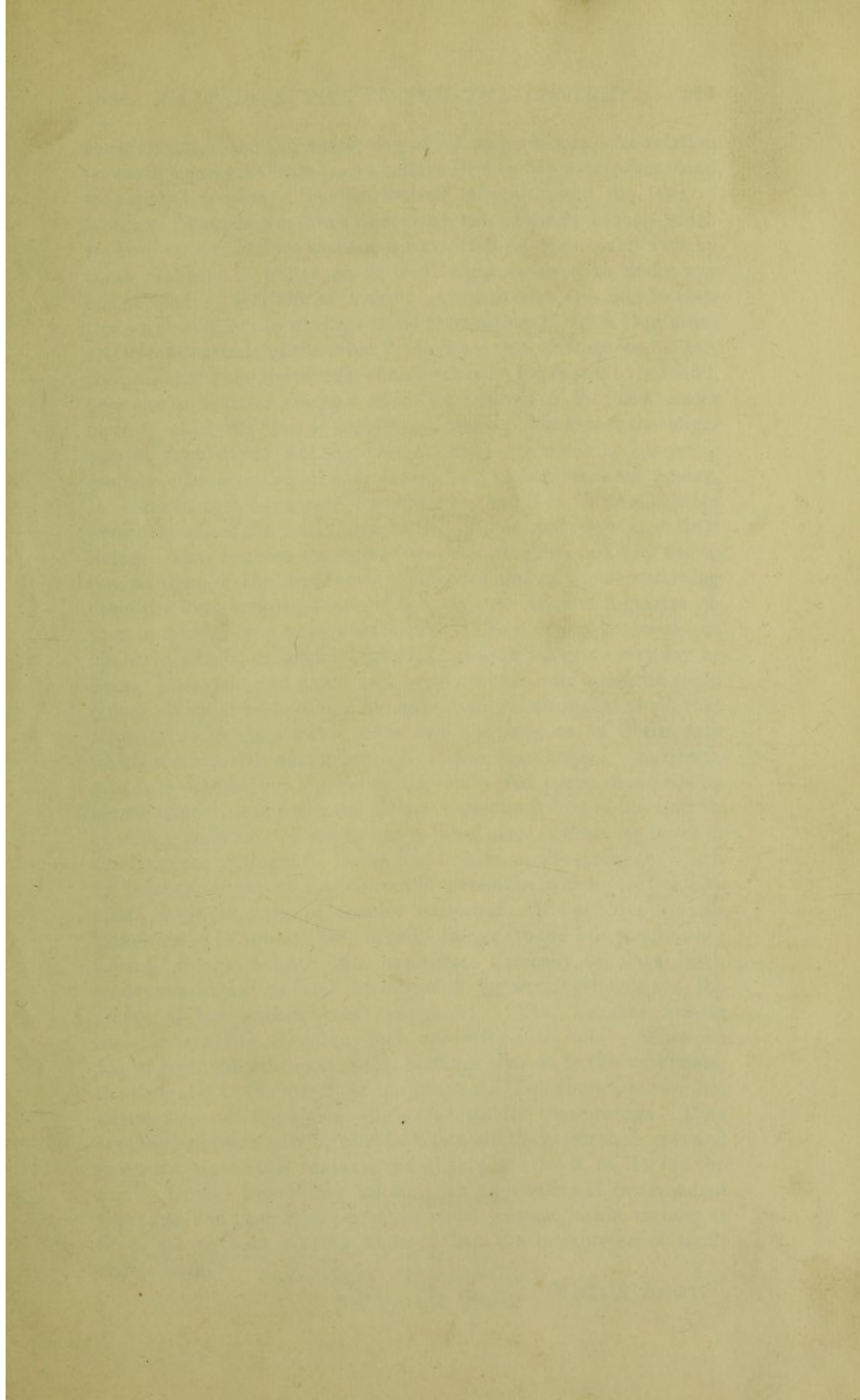
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### THE DEADLY WILD BEASTS OF INDIA.

IN this paper, and in that which will follow, I propose to give a brief description of the destructive wild animals and venomous snakes of British India, with an account of the mortality caused by them among men and domestic animals throughout those provinces which have furnished the necessary statistical information. I shall describe also the measures in force for abating the evil, and offer suggestions for rendering them more effective. The completeness and accuracy of the official returns of deaths caused by wild animals and venomous snakes vary in different districts, but the figures generally, if they err, rather understate than exaggerate the evil, for there can be little doubt that the number of reported deaths falls short of the actual reality. The loss of life is indeed so startling that an inquiry into the circumstances under which the yearly deaths of about twenty-five thousand human beings and fifty-five thousand head of domestic animals occur is one of no slight interest.

The following provinces are those from which detailed reports have been obtained: Bengal, Assam, Lower Burmah, North-West Provinces and Oudh, the Punjab, Central Provinces, Hyderabad Assigned Districts, Coorg, Madras, Bangalore, Bombay, Ajmere and Merwara districts, altogether representing a population of 199,043,492. On the other hand, Kashmir, Rajpootana, Hyderabad, Central Indian agency, and Bundelkund, Baroda, Mysore, Munipore, and the Native States under the Bombay, Bengal, and Madras Governments, and under the North-West and Central Provinces, with a population of 56,604,371, are not included. It will thus be seen that only a part, though a great part, of the Indian peninsula is represented, and only about seven-ninths of the whole population, which is estimated at 255,647,863. There is every reason to believe that similar returns, with similar results, might be furnished by the unregistered provinces.

This yearly loss of life suggests the question whether more effective measures might not be devised for diminishing it. Much has been done towards mitigating the evil, but the results are not satisfactory, for the destruction of life still goes on at an almost unabated, and at what has been fitly called 'an appalling rate.'

The Government returns for the last eight years, *i.e.* 1880 to

1887, show that the numbers of persons killed by wild animals yearly fluctuate between 2,840 and 2,618, showing that the cause remains as active as ever, whilst the preventive measures are still unequal to cope with it. With regard to snakes, as I shall show, the number of deaths is rather on the increase, being 19,150 in 1880, against 22,134 in 1886, and 19,740 in 1887. In the year 1887, the last of which the records have been received, 2,618 persons and 61,021 head of domestic animals perished by wild beasts, *not including snakes*, and the deaths were due to the following animals: tigers killed 1,063 persons and 27,517 head of cattle; leopards, 210 persons and 24,161 cattle; bears, 126 persons and 315 cattle; wolves, 177 persons and 4,087 cattle; hyænas, 17 persons and 2,748 cattle; elephants, 56 persons and 4 cattle; whilst 'other animals,' including jackals, buffaloes, boars, crocodiles, &c., are charged with the destruction of 969 persons and 2,165 cattle, and, as I have said, the numbers for the previous years, since 1880, closely correspond.

The total amount paid in rewards in 1887 was Rs. 165,423. Of this, Rs. 37,912 were paid for snakes, leaving a charge of Rs. 127,511 for the wild animals.

In describing the noxious wild animals, I shall include only those which destroy human life.

As most destructive, I begin with the Felidæ, which are numerously represented in India. First, in size, strength, and ferocity, is the tiger, *Felis tigris*; it is confined entirely to Asia, and is most common in India. The general appearance of the animal is so familiar that it seems almost superfluous to describe it; its figure denotes great strength and agility; the elongated, compressed body, the muscular limbs armed with sharp, retractile claws, the powerful muscles of the jaws, neck, arm, and shoulder, and formidable fangs proclaim it to be a creature well fitted to wage war against all others.

Hearing and vision are acute, but scent is comparatively defective. The pupil is round, differing from that of some other cats, which is vertical. The *tapetum lucidum*, of a greenish hue, is often well seen in the angry tiger when about to charge. Tactile sensibility is acute, especially in the so-called whiskers. Each hair is extremely sensitive at its root, and is movable by muscular fibres which surround the hair-bulb; these tactile organs are used as feelers.

The muscular development is enormous. The tiger can not only strike down a cow with a blow of his forearm and hold it with his fangs, but can raise it from the ground and drag or carry it to his lair, where it is devoured at leisure. There are five claws on each fore, and four on each hind foot. The mechanism by which they are moved is peculiar; the claw and the phalanx into which it is fitted are kept in the retracted position by an elastic ligament, and are unsheathed and extended by the flexor tendons which oppose it; the

claw and its phalanx when retracted lie obliquely by the side of the second phalanx. By this arrangement they are kept out of the way during ordinary progression, and not worn or blunted by contact with the ground.

Natives of India speak of at least two kinds of tiger, but there is really only one species, though there are varieties of it; some are longer and lighter, others shorter and more bulky. The ground colour is of a rufous or tawny yellow, shaded with white on the ventral surface. This is varied by vertical, black stripes, ovals or brindlings; on the face and back of the ear the white markings are very conspicuous. The depth of colour varies according to the age, locality, condition, and climate; the young are more dusky than the old, and forest tigers are of a deeper colour than those of more open localities. The tigers of China and the northern regions have long and silky hair, sometimes of a very light shade, and it is remarkable how well the colour harmonises generally with the jungle and cover which the tiger frequents.

The tiger attains its greatest size in the jungles of India. Blyth says truly that the largest tiger exceeds in size the largest lion. The statements as to length are conflicting and sometimes exaggerated; errors arising from measurements of the skin being taken after it has been removed from the body and undergone stretching. The animal should be measured from the nose along the spine as he lies dead where he fell; one that is ten feet by this measurement is large, and the full-grown males seldom exceed this, though it is certain that they do occasionally attain to a greater length. I have been present at the death of tigers 10 feet 8 inches and 10 feet 6 inches, accurately measured where they fell, and there are examples on record where the length exceeded twelve feet, so that, whilst fully agreeing with Jerdon and others that the average size of the male tiger is from nine feet to nine and a-half or ten feet, I am able to assert, from indisputable evidence, that they do sometimes attain the length of eleven or twelve feet, or even two or three inches more. The tigress seldom exceeds nine feet, the average being between eight feet and eight and a-half feet, or occasionally nine feet, and perhaps in exceptional cases even up to ten feet. I find that the average of twenty-six tigers and twenty-one tigresses measured by myself on the ground where they fell was:—

26 Tigers.		21 Tigresses.	
Maximum	. . . 10 ft. 8 in.	Maximum	. . . 9 ft. 0 in.
Minimum	. . . 8 „ 0 „	Minimum	. . . 6 „ 5 „
Average of 26	. . . 9 „ 2½ „	Average of 21	. . . 8 „ 2½ „

The tigress is smaller; the head, neck, and body are finer and lighter; she is more active, and, especially when accompanied by her young, more aggressive than the tiger.

The tiger has many synonyms. In Bengal he is Bagh, fem.

Baghni; in the North-West he is Sher, fem. Sherni; in Central India, Nahor; in Tamul, Puli; in Canarese, Huli; in Malabar, Parampuli; in Bhotan, Takh; in China, Lau-chu. He is the *τίγρις* of Greek and Tigris of Latin authors, and figured in the Colosseum and other Roman amphitheatres: ancient mosaics depict him devouring his prey. Pliny says the tiger is produced in Hyrcania and India; he alludes to its great swiftness and its fondness for its young, and remarks that Augustus was the first who showed a tigress in Rome, at the dedication of the theatre of Marcellus, and that the Emperor Claudius showed five tigers, whilst Suetonius also speaks of tigers exhibited by Augustus. Dion says that the tigers first seen by the Romans and Greeks were sent by the Indians when suing for peace from Augustus. Other Emperors also exhibited tigers in the circus and in triumphal processions, which were probably brought from Hyrcania and from India. Tigers are seldom now, I believe, seen west of the Indus.

The geographical distribution is confined to Asia; from Ararat and Caucasus on the west, it extends to Saghalien on the east; and from Cape Comorin to the Himalayas, as high as 6,000 feet or 8,000 feet. It is found in Georgia, north of the Hindoo Khoosh, Bokhara, Persia (Hyrcania), on the shores of the Aral, where, says Blyth, it troubled the Russian surveyors in mid-winter; as far north as the Obi, and in the deserts which separate China from Siberia, on the Irtish and in the Altai regions; in China, Siam, Burmah, the Malay peninsula, Singapore, Java, Sumatra, perhaps in other islands, but not in Ceylon, Borneo, Tibet, Afghanistan, Beloochistan, Lower Sind, or Cutch; it is rare in Upper Sind and the western part of the Punjab; but is found pretty generally throughout the rest of India, especially in large tracts of forest or grass jungle. In some places it is becoming rare, though the numbers are still sufficient to cause serious loss of life. It is also found among the hills and rocky country of Central and Southern India, and localities remote from population and cultivation are most frequented; but when pressed by hunger, the tiger visits cleared and cultivated places, and becomes the dread of the villagers, who are in constant fear for their own or their cattle's lives. During the cold and wet seasons, he is restless, wandering from place to place with no fixed abode, though keeping within a certain range of country. In the months of March, April, and May he is more restricted in his movements, the grass jungle having been burned to a great extent and the water dried up, leaving only swamps and pools. The shelter becomes less extensive, and with the increasing heat he becomes less inclined for exertion; he now seeks the patches of grass or other shelter on the edges of the forest and in the swamps, where, lying at rest during the heat of the day, he steals out at night in search of prey, and it is during these months that he is often hunted and destroyed, either from elephants, machans, or on foot.

The haunts of the tiger are often near villages or cattle-grazing stations, where much damage is done; for, he will kill a cow every second or third day. In some cases he takes to man-eating, and will depopulate a village by killing some and frightening others. When cattle are not to be had, tigers subsist largely on deer or wild pigs; but they probably prefer cattle, as furnishing a better meal and being easier to kill, for the Indian cattle are at the best but feeble and half-starved creatures. The smaller buffaloes are also easily disposed of, but the full-grown bulls are formidable antagonists, and often beat off the tiger, and have been known to wound him mortally. The wild boar is also a dangerous object of attack, and not unfrequently, it is said, foils its enemy; but the ordinary wild pig falls an easy victim, and is favourite food. In districts like the Sunderbunds, where the jungles are left almost entirely to wild animals, the tigers, deer, and pigs are in such numbers as to proportionate the supply to the demand, and *vice versâ*.

Cattle and buffaloes especially seem to have an instinctive knowledge of the proximity of a tiger, and will form into a phalanx or circle, the bulls outside, to resist the attack, when they will also protect the herdsman, who takes shelter within the compact body which faces the tiger. Under these circumstances the attack is generally deferred until some member of the herd is caught straggling and struck down; but even then the others have been known to charge, and drive the tiger off the wounded comrade. In times of scarcity tigers have been known to eat each other, or carrion not killed by themselves; small animals, frogs, and even fish and insects, are then not despised; and a case is on record where a tiger was killed in a state of extreme emaciation, with a porcupine's quill impacted in his gullet. The tiger and the tigress, too, sometimes eat their own young: when she brings forth in captivity this is likely to happen, but probably from a perverted instinct rather than from stress of hunger.

It has been said that when a tiger has tasted human flesh he prefers it to other food. I cannot say how this may be, but there is no doubt that when he has overcome the natural dread of the human form he readily kills men, and becomes the terror of a whole district. At Nynceetal a tiger prowled within a circle of twenty miles, and for three years killed, on an average, eighty men per annum. It sometimes happens that a road is closed for weeks by a single tiger; not only pedestrians, but even those travelling in bullock carts, are attacked and carried off; and yet it is remarkable with what apathy the danger is sometimes regarded, for natives will carry on their usual avocations as herdsmen or woodcutters, close to the cover in which the tiger is concealed. On the other hand, they will often not pass along a certain road or path without tom-toms or torches to scare the tiger away, whilst in other cases the beaters will readily go on

foot and beat him out, though should he break back, he is pretty certain to strike some one down, inflicting a dangerous, often a mortal wound, but is less likely to do this if unwounded. I have repeatedly seen herdsmen who were willing to accompany you on foot to the jungle in which the tiger was lying, but who could not be persuaded to mount an elephant for that purpose.

Hindoos especially hold the tiger in superstitious awe; many would not kill him if they could, nor are they always willing to show where he is to be found, even when he has been killing their comrades or their cattle, from fear that he may haunt them or do them mischief even after he is dead. Some they regard as the abode of a spirit with unlimited power of mischief. In certain districts they will not pronounce his name, but speak of him as gidhur (jackal) or janwar (beast), or refuse to name him even indirectly. They do the same as regards the wolf; but, as a general rule, they are glad that others should destroy him, and make great rejoicing when he is killed. All sorts of powers are ascribed to portions of the tiger after death; the fangs, the claws, the whiskers are potent charms, medicines, love philters, or prophylactics against the evil eye, magic, disease, or death. The fat is in great demand for rheumatism and other ailments; the heart and flesh are said to be tonic and invigorating remedies, giving strength and courage to those who eat them. The whiskers are supposed to possess, amongst other powers, that of being a slow poison when taken with the food, and the rudimentary clavicles are also much valued. It is difficult to preserve the skin of a tiger with claws and whiskers intact; the natives will steal them if possible, and I have known them carried off when the dead tiger was placed under the charge of a sentry. They also entertain the delusion that a tiger gets a new lobe to his liver every year.

It is a popular belief, not confined to the ignorant, that the wounds inflicted by a tiger are of a poisonous character. It is possible that the teeth and claws may be contaminated by septic matter, but this is the exception rather than the rule. The real fact is that the wounds are dangerous because they are deep-punctured and lacerated; otherwise they have no peculiarity, and often heal rapidly, though they sometimes suppurate and induce blood-poisoning. I have seen severe injuries recovered from rapidly, while others have caused such suppuration and destruction of tissue as ultimately to prove fatal.

The tiger does not roar like the lion, though he can do so occasionally. There is a peculiar grunting bark or growl when he is disturbed or frightened, and this is repeated loudly when he charges. When calling to each other at night, tigers make a prolonged wailing howl, which is very imposing and makes the hearer glad to feel the protection of a camp about him. A wounded tiger, with his ears laid back, his eyes glaring, his fangs displayed, and his hair erect



as he charges with repeated, angry growls, is a most trying ordeal, and very difficult to meet unmoved.

The tiger generally seizes his prey at night; he watches the cattle or whatever it may be until he creeps within reach, and then with a rush or bound he grips it by the throat, drags or strikes it to the ground, twisting it so as sometimes to dislocate or break the neck; the fangs are driven in so as to hold the struggling creature until dead, when it is dragged off to the jungle to be eaten at leisure. His lair is near, and from this he proceeds, as appetite prompts him, to the 'kill,' until it is eaten and even the bones gnawed, by which time, owing to the heat of the weather, it is far advanced in decomposition. The place is revealed by the vultures, kites, crows, and adjutants soaring over it or settling on the branches round about it, and by prowling jackals. The vultures sit with a gorged or sleepy aspect on the trees or on the ground near the 'kill'; they endeavour to make a meal when the tiger has left it for a time, and even try to snatch a morsel whilst he is feeding, a temerity for which they often pay with their lives. The tiger is frequently found and slain near the 'kill.'

Great numbers of cattle are killed annually. Some tigers seem to live entirely on them, while they seldom interfere with other creatures, and the villagers and herdsmen then fear them but little, though, as I have said, when they take to man-eating, they cause the greatest consternation. The natives do not generally fear to go near their haunts, and the herdsmen even drive them off the bullock which has been struck down. They will beat tigers out of the cover on foot, and though they are occasionally injured, this generally happens when the tiger has been wounded, or thinks he is surrounded; he will then strike a man down, perhaps kill him with a single blow, or he will give him a severe bite about the shoulder, drop and leave him. It is remarkable how many persons escape from the clutches of a tiger. It rarely kills outright, and seldom carries the man far from the spot where he was struck down, except, of course, in the case of the confirmed man-eater, when the victim is carried off and eaten just as a deer would be.

The tiger is naturally a timid, suspicious animal, very morose and unsociable, and often found quite alone, though at certain seasons his mate is not far away. Four or five tigers may be seen together, but such a party probably consists of the members of a full-grown family. I have seen a tigress and three full-grown cubs killed within a circle of a few hundred yards. His great anxiety when hunted is to get away, and shikaries find great difficulty in preventing him from slinking away into remote corners and being lost in extensive forests or other cover; but when wounded he becomes very savage, and charges his assailants with the greatest ferocity. It is in doing this that tigers are often killed, whilst it also not unfrequently happens that a mortally

wounded tiger, in his dying charge, seizes the man and inflicts a deadly wound ; thus have died more than one good Indian sportsman.

Tigers are fond of water, in the hot weather seek it eagerly, and swim well, crossing rivers and even arms of the sea. They are not, like leopards, tree-climbers, but have been known to climb trees to escape floods. They have a habit of scratching the bark of certain trees, to polish and sharpen their claws, and such marks may be seen to a height of ten feet or more. I can recall more than one tree with deeply-scored bark, showing that it was the favourite resort of the tigers of that neighbourhood. The tiger is capable of springing to a considerable height and making long bounds over low obstacles and across nullahs ; but, though he does not readily do so, he has been known to spring on to an elephant's head ; and there is at least one well-authenticated instance, that of Brigadier H——, in which a tigress sprang from the level ground on to the elephant's head, and, standing over the mahout, grappled with H—— in the howdah, and finally fell with him to the ground, where she died of her wounds ; H—— recovered.

The general mode of attack is a rush ; the tiger, rising on his hind legs, seizes the prey with his teeth and powerful claws. I have seen a tigress thus grasp the forehead of an elephant, and after holding on with teeth and claws, inflicting severe wounds, be shaken off, leaving a claw deeply imbedded in the elephant's head.

The tiger is monogamous. The period of gestation is fourteen to fifteen weeks, and from two to five, or even six young are produced, but two or three is the common number. These remain until full-grown with the mother, who is very careful, guards and trains them with the greatest solicitude, and is peculiarly vicious and aggressive, defending them with the greatest courage, and, if robbed of them, terrible in her wrath and vengeance. When she is teaching them to kill, great destruction takes place ; for animals are destroyed for the sake of practice, and far more are killed than are needed for food. The older tigers are content with a bullock every second, third, or fourth day, and will probably not kill again, unless disturbed, until they have eaten it ; but they vary in character, and some are more wanton in their destructive habits than others. At about two years of age, the young tigers, being nearly full-grown and quite able to provide for themselves, leave their mother and begin life on their own account.

It is doubtful whether tigers have diminished in numbers since the Disarming Act which followed the Mutiny of 1857. In some places cultivation and population may have pushed them back, but in others they are as numerous as ever. Many are killed yearly, but the destruction of life and property goes on, though perhaps not to so great an extent as sometimes represented ; it is to be hoped that, when more decided measures for their destruction are taken, their numbers will decrease.

There are many ways of compassing the tiger's death. They are caught in pitfalls, traps, or even nets, and then speared or shot. They are killed by strychnine or poisoned arrows; and many are shot by professional shikaries and European and native sportsmen on foot, from machans or from elephants.

It appears that during the eight years 1880-87 inclusive, 7301 human beings, or a yearly average of 912 persons, and 158,845 cattle, or a yearly average of 19,855 head, have been killed by tigers. In the case of human beings the figures do not vary much; they were 872 in 1880, 831 in 1884, 928 in 1886, and 1063 in 1887, showing, at all events, there was no diminution; even eleven years previously, in 1876, 917 persons were killed. In the case of cattle the variation was considerable, from 15,339 in 1880, 14,496 in 1881, gradually increasing to 27,517 in 1887. In 1876 the cattle destroyed were 12,116, which shows a great increase for 1887, if the returns can be relied on.

The number of tigers destroyed during the year 1887 was 1,408, and the total amount of rewards paid for them was 40,096 rupees, or an average of about twenty-eight rupees for each. The number of tigers destroyed in 1876 was 1,693; the rewards paid for them were 43,598 rupees, or an average payment of 25 $\frac{3}{4}$  rupees per tiger.

The lion, *Felis leo* (Bhubber-Sher, Singhia, Untia Bagh), belongs to the African rather than to the Asiatic fauna, and in India is apparently approaching extinction. Lions are unknown now where some years ago they were numerous. Blanford says a few are still to be found in Kattyawar and in the wildest parts of Rajpootana, especially Jodhpore, Oodeypore, and round Mount Abu, where twenty years ago they were common. Several were then shot near Gwalior, Goona, and Kotah, and a few still existed near Lalitpore, between Saugor and Jhansi. One is said to have been killed near Goona in 1873; in 1864 one was killed near Sheorajpore, twenty-five miles west of Allahabad, and in 1866 a fine lion, with a good mane, eighty miles from Allahabad. About 1830, lions were common near Ahmedabad. In the early part of the century they were found in Hurriana and Kandeish, in many places in Rajpootana, in Riwah, and Palamow. They have entirely disappeared from other parts of India, and the only districts of Western Asia in which they are common are Mesopotamia and parts of south-western Persia. Blanford says further that he never heard of the lion being found in Cutch, and suspects Jerdon was mistaken in supposing it to exist there. It is common in Africa, but no longer found in Southern Europe, though within historic times it existed in Greece.

The lion is smaller and less powerful than the tiger, though its large head and mane give it a more imposing appearance; its dentition and general structure are like those of the tiger; its length from

the nose to the end of the tail, which is tufted and has a small terminal spine, is from eight feet to nine feet, or a little more; it is comparatively weak in the hinder extremities. It is of various tints of tawny colour; the end of the tail and back of the ears and the mane are black, though the latter in some lions is lighter than in others. In India the lion is of a paler colour, and the mane not always so well developed as in the African variety; there is probably no difference beyond what is due to locality, though one imagines one can recognise a distinction between the African and Asiatic forms. The lion differs in character and habits from the tiger, and is said to be bolder and of a nobler nature. Like the tiger, it is chiefly nocturnal, sleeping in the day and searching for food at night. It roars loudly, especially when it prowls round the camp fires, sometimes carrying off an animal from the encampment. In India, deer, antelope, pigs, cattle, even camels, horses, donkeys, and men too, occasionally have formed its prey: donkeys it is said to prefer to other cattle. It frequents the open or scrubby jungle, ravines, sandy desert places, and low grassy or thorny covers, but not the swamps and deep grassy or tree jungle, like the tiger.

As I have said, it is rapidly diminishing in numbers in India, and promises soon to be extinct. Of the extent of destruction of human and animal life caused by it I am unable to give any account, as the returns furnish no data for late years. Some, no doubt, fall victims, but compared with those of the tiger and leopard they must be very few. I was told some years ago by officers of the Central India Horse who used to kill lions yearly, that they were becoming rarer every year. I do not know what has been done among them of late. In Kotah, some years ago, twenty-five rupees were offered as a reward for a lion, but the returns did not give the results of this offer.

The lioness is smaller than the male, and has no mane; she brings forth from three to six young, and the period of gestation is about 108 days; the young are spotted.

The leopard or panther, *Felis pardus* (Tendwa, Cheeta, Cheeta-bagh, Palang, Gorbucha; with a variety of other synonyms in different parts of India), is widely distributed but does not extend so far north as the tiger; it is found all over India, in Ceylon, and in Africa. Many sportsmen and some naturalists consider that the leopard and panther are different species, but such is not the case. There are large and small leopards, but they are varieties of one species. Temminck thought them distinct species; he assigned to the leopard a longer tail with twenty-eight caudal vertebræ, whilst to the larger panther he gave a shorter tail and twenty-two caudal vertebræ. Blanford does not recognise the distinction. No doubt size and the colour of the skin are modified by the surroundings and the conditions of life. Some have a darker and richer coloured

skin; others, such as the Persian, are lighter. The spots or rosettes are black externally and pale within, differing in form and size; it varies in length from five feet to eight feet, including the tail. There is also a black variety, in which the spots are visible, though the general colour is uniform black; this variety is said to be more common in the Malay Peninsula and in Travancore.

The leopard is more active than the tiger; it climbs trees readily, springs to a great height, and is very destructive; sheep, goats, and dogs especially, are its favourites. In some of the hill stations it is difficult to keep a dog; they are constantly carried off, even out of the verandahs of the houses. In pursuit of prey it is daring, and will enter outhouses, huts, and tents. Its favourite haunts are hills covered with scrub, caves or rocky places, as well as the jungle. It is more courageous and aggressive than the tiger, and when wounded is very dangerous, charging with ferocity, and springing with great activity.

Leopards kill oxen, donkeys, deer, all the smaller animals, and even birds, such as peacocks; but dogs seem to be their favourite prey. They sometimes take to man-eating, and Blanford says that in the Sonthal pergunnahs and in Seoni in the Central Provinces, leopards in 1860 were very destructive, taking men, women, and children out of houses or off machans. One leopard near Seoni is said to have killed two hundred human beings in two years, before he was shot. They take the water readily and swim well. The leopard is a silent animal, but makes a grunting or grating roar when charging or angered. The female is smaller than the male, has three to four cubs, and about the same period of gestation as the tiger; the dentition also is the same as that of the tiger. They are killed in great numbers by shooting and trapping, many being taken alive in traps baited with a calf, goat, or dog, into which they enter readily. Fewer leopards than tigers are killed by European sportsmen; there is not so much excitement in searching for them, albeit when attacked and wounded they are more dangerous from their activity, ferocity, and fearlessness.

The returns for 1887 show that during the year, 210 human beings and 24,161 head of cattle were killed by leopards, whilst 3,822 leopards were destroyed. The rewards paid for them amounted to 49,210 rupees, or an average of nearly 13 rupees per head. There appears to have been a progressive increase in the destruction of leopards since 1880, when the number killed was 3,047 against 5,260 in 1884, 5,466 in 1885; the number fell again to 4,051 in 1886, and 3,822 in 1887.

There are other species of this genus, such as *Felis uncia*, the snow leopard, found at elevations on the Himalayas, on the Tibetan side of the snowy range, and in the Upper Indus and Sutlej valley, from six thousand feet to nine thousand feet and upwards. It

has a dense woolly fur of a whitish-grey, spotted with black, and is from 7 feet to  $7\frac{1}{2}$  feet in length, including the tail. It lives on ibex, markhore, sheep, goats, and small animals; no doubt it destroys a certain number of cattle, but has not been charged with killing men, and does not therefore appear among the destructive creatures of this paper.

The *Felis nebulosa*, or clouded leopard, is another species found in the Himalayas, Sikkim, Bhotan, Assam, Burmah, Siam, the Malay peninsula, Sumatra, Java, and Borneo. It is smaller than the two previous species, and is chiefly arboreal, living on birds and small animals. It is of a greyish or fulvous colour, with large patches of a darker colour, has remarkably large feet, and was called the 'macrocelis.' It probably does not contribute to the death-rate of either men or domestic animals.

The genus *Cynælurus* has one species, *C. jubatus* (hunting leopard or Cheetah), which is found in Africa, Persia, east of the Caspian, and India, through a great part of the country, from the Punjab, through Rajpootana and Central India, but how far south is not exactly known. It is taller, slighter, longer and more delicately built than the leopard, with only partially retractile claws. It is spotted, but the spots have not the rosette-like form of those of the leopard. It is caught and trained for hunting antelope, and is a great favourite with native chiefs. There is no reason to think that it kills men or cattle; its habits probably lead it to prey on deer and antelope, and it is therefore not included among the destroyers of life in India referred to in this paper.

The hyæna—*H. striata*, striped hyæna (Jhirak, Lakhar-bagha, Rera, and other synonyms in India)—is common in rocky hills, ravines, in grassy and bushy localities, in open country, North-Western, Central, and other parts of India. It is rare in Bengal and absent from Ceylon, but is found in South-Western Asia and North Africa. It is nocturnal, hiding away in caves, among rocks or hills and ravines during daylight, and is a sneaking, cowardly, though formidable animal, with jaws so powerful that it can crush large bones with ease. It eats carrion and animals that have died or have been killed by other beasts of prey; it attacks sheep, goats, and dogs, and larger animals if they are weak or unable to defend themselves. It roams far at night, and is solitary in its habits: more than two are seldom met with together. It is often hunted and speared, when it makes little effort to defend itself; it has an unearthly, disagreeable cry, is of a grey colour with transverse tawny stripes, has a mane on the back, and is altogether a repulsive, mean-looking creature, and so cowardly that I have seen one caught and held by the hands of a native shikari; it is most ravenous, and destructive to all that it thinks too weak to retaliate.

It figures to a considerable extent among the destroyers of life.

In the year 1887, 17 human beings, probably children or infirm old people, and 2,748 head of cattle, were killed by hyænas, whilst 1,390 hyænas were destroyed, at a cost of 3,935 rupees, or at the rate of about  $2\frac{3}{4}$  rupees each.

There are two Indian wolves; the first, *canis lupus*, is distributed throughout the Palæarctic region, Beloochistan, Sind, and probably the northern Punjab. It seems to be undistinguishable from the European wolf, and is rather larger than the other species, *canis pallipes*, which is the common wolf of India. There is also a black variety found in Tibet. The Indian wolf is rather smaller than the European species; it is of a hoary, grizzled, reddish colour, some of the hairs being tipped with black; the ears also are rather smaller, and the hair is shorter, with little or no under-fur. The length of the body and tail is about 4 feet 6 inches.

It is distributed over the Indian peninsula, south of the Himalayas. Blanford says it is not found on the Malabar coast, is rare in Lower Bengal, and not seen further east, in Burmah, or Ceylon. It is known to natives as Bherya, Hondar, Nekra, &c. It is very common in the North-West Provinces, Oude, Sind, Rohilkund, Rajpootana, and Central Provinces, and is very destructive to life. It carries off children frequently, taking them out of the huts, and has been known to snatch them from their mothers' arms; it is also very destructive to sheep, goats, antelope, hares, and birds. It is gregarious, but does not associate in large packs; not more than six or eight keep together. It is generally silent, but sometimes barks like a pariah dog, and is not often heard to howl. Wolves are cunning, cruel, bloodthirsty, and very wary, often hunting deer and pigs, in small packs, some lying in wait, whilst others drive the hunted animals in their direction. They are seldom seen in the daylight, prowling chiefly at night. They live in holes and ravines, and are not often met with in the open; at night I have seen one or two flit like spectres across the road. If surprised by day in the open they make off at a long, loping gallop, in which it is almost impossible to overtake them even on a good horse, though they are sometimes run down and speared. They seldom molest the larger animals except when feeble, nor do they often attack adult human beings, unless they take them by surprise, but children they attack readily. They grasp at the throat, and I have seen children who have been seized and rescued, but were found to be mortally wounded. Many natives have a most superstitious dread of the wolf. Not only will they not kill it, but will often not aid in doing so; neither will they mention its name, fearing, if its blood be shed, that they may thus bring evil on themselves or their children. It is often very difficult on this account to bring about their destruction. I remember a singular illustration of this told me by the late Nawab Munower-ood-dowlah, about one of his hunting expeditions near Seetapore in Oude. A large wolf had long

been well known there, and had destroyed many lives. The Nawab had a trap set and caught it, but did not like to kill it, in deference to the prejudices and superstition of the ryots, so he hit on the following device. He had a good-sized bell fastened round its neck and let it go. In a few days it was found dead; the noise of the bell gave notice of its approach to all creatures, and it was starved to death. No blood had been shed, so no evil was apprehended, and the people were rid of their plague.

In 1887 177 persons and 4,087 head of cattle were killed by wolves in the registered provinces; on the other hand there were 6,339 wolves killed, and 24,163 rupees paid as rewards for their destruction, or at the rate of about  $3\frac{3}{4}$  rupees per head. The human mortality caused by wolves has not varied much during the last eight years ending 1887. In 1880 it was 347; in 1881, 256; in 1882, 278; in 1883, 287; in 1884, 265; in 1885, 248; in 1886, 222; in 1887, 177; still there has been some diminution. In the depredations among cattle and domestic animals there has also been a diminution, as follows: in 1880 there were 13,547 deaths; in 1881, 8,076; in 1882, 8,661; in 1883, 6,704; in 1884, 4,532; in 1885, 6,635; in 1886, 4,265; in 1887, 4,087.

*Canis aureus*, jackal (Gidhur, Syal, in Hindustani), does not occupy a prominent place among the destroyers of human life, though I have known young children and also young and feeble animals carried off; but it is essentially a carrion-eater. As jackals occupy a place among the 'other animals' charged with the destruction of life, they are mentioned here, though it is not probable they have sinned to any great extent.

*Cuon dukhunensis* and *Cuon rutilans* are two so-called wild dogs found in various parts of India, especially in the great forest districts, the latter in the Malay peninsula, Burmah, Java, Sumatra, and Borneo. They are somewhat jackal-like in form, of a reddish or rufous grey colour, with a good brush tipped with black. The dentition of this genus is rather different to that of *canis*; there are only two true molars on each side of the lower jaw instead of three; in other respects they agree with *canis*. They hunt in packs, are said to run down and kill the tiger, are very wild and avoid the vicinity of man. They kill a certain number of sheep, goats, and cattle, and Jerdon and Blanford mention instances where they had hunted and killed a buffalo. Though not contributing largely to the death-rate of domestic animals, and probably not at all to that of man, they are given a place among the 'other animals' which destroy life; but it seems that they may have been credited in some instances with the misdeeds of the half-wild pariah dogs which abound everywhere in India.

The bears, *Ursi*, are mostly frugivorous, root-eating animals, but at times are carnivorous. Some are very aggressive and fierce, and frequently destroy both men and animals. A well-authenticated



case is related where a bear entered a village, got into a house, and killed several people before it was destroyed. They are plantigrade, with long, curved, non-retractile claws, with which they can inflict severe wounds. They vary in size and colour, from black or dark brown to silvery grey. The brown or Isabelline bear, *Ursus Arctus*, is widely distributed in the Himalayas, Afghanistan, Nepaul, and Tibet. The black, *U. torquatus* or *tibetanus* (Rinch, Bhalu), is quite black, and has a well-marked crescent of white on the chest; it is distributed throughout the forest region of the Himalayas, extending into Afghanistan, Beloochistan, on to the frontier of Persia. It is also found farther south. Theobald is said to have found it in Pegu, and Anderson obtained it in Mergui. It is said to have been met with also in the Terai. It exists at elevations up to 12,000 feet, but in winter it descends lower. It is fond of honey and the sweet flowers of the *Bassia latifolia* (Mhowa tree). It is also carnivorous, and kills sheep, goats, deer, and even ponies and cattle. Many natives are killed and wounded by it, and in the villages near where it is found, it is not uncommon to see men bearing the scars of severe wounds. It lives in dense jungle, in hollow trees, among thick bushes, or in rocky caves and recesses. It is sometimes found alone, but the female with full-grown cubs is frequently met with, or the male and female in the pairing season. It is said to be fiercer and more aggressive than the Isabelline species. The bear will charge when wounded, and, rising on his hind feet that he may see better, attack and strike out with his powerful arms and formidable claws, but the story of hugging wants confirmation. Bears when born are very small and remain blind for four weeks; they stay with the mother till full-grown. They are sluggish during the winter, not hybernating completely, but moving about very little, and only occasionally, when they need food. The black bear is far the fiercest, and as he keeps more in the vicinity of man than the *Arctus* or Isabelline bear, he does more mischief.

There is another species, *U. malayanus*, the Malay bear, which is found in Chittagong, the Garrow hills, Tenasserim, Aracan, Java, and Borneo, which is much smaller, measuring only about 36 inches, and weighing about 60lbs. It is essentially frugivorous, very easily tamed, and does not take a place among the animals destructive to life, so I pass it by, merely mentioning it.

*Melursus ursinus*, *Ursus labiatus*, or the sloth bear, is rather smaller than the *torquatus*; it has four incisors instead of six in the upper jaw, and a longer muzzle, and possesses a peculiar power of inhaling and puffing out the air from its nostrils. It is black, with a white crescent on the chest, and has very shaggy hair, especially between the shoulders. It is common all over India from the Himalayas to Cape Comorin, except in the desert region of the north-west, but it is found in Kattywar and Cutch. It lives in caves and rocky

and bushy places, and in grass. It is frugivorous and very fond of honey, Mhowa flowers and fruit, and of white ants. It is very fierce, and when wounded attacks readily. It does not, as a rule, eat flesh. It has a peculiar habit of sucking its paws, thus making a humming sound; it also makes a puffing sound when looking for food, and when wounded cries out loudly, but otherwise is silent. It is believed that these bears sometimes carry off women, hence perhaps one of their names, Adam-zad; but this, of course, is a myth.

The period of gestation is six months, and two are brought forth. The mother carries the cubs on her shoulders when little. I have seen a female sloth-bear shot, with two young ones clinging to her, and which could not be persuaded to leave the dead body. They are easily tamed, and I had one which would smoke the bubble-bubble taken from the native's hands, and roll over, shrieking with delight, as it felt the exciting effects of the tobacco-smoke. They rise on their hind legs to attack, but not to hug, as is sometimes stated.

It appears that in 1887, 126 persons and 315 cattle were killed by bears, whilst 1,427 bears were destroyed at a cost of Rs. 6,114, or an average of a little more than  $4\frac{1}{3}$  rupees per head.

*Elephas indicus*, Elephant (Hathi, Fil), is found in most of the large forests of India, from the Terai to the extreme south, and in Ceylon. It is generally harmless, but occasionally the old males become vicious; they then lead solitary lives, and are dangerous to men and animals. These 'rogues' do much damage to crops and plantations, and sometimes to life. For such an individual a special reward is offered, and it often happens that he is not destroyed before having done much mischief. It is said that tuskers that have been in confinement, and have broken loose when must, are the most dangerous of rogue elephants, and a very formidable animal a must elephant certainly is.

The Indian species differs from the African considerably. The African head is narrower and more receding, the ears are much larger, the bone and enamel in the teeth are arranged in lozenges, but in the Indian in parallel lines. The African has three nails, the Indian four on the hind feet; the tail is shorter than that of the Indian; the rugæ on the trunk are more pronounced, and the sound of the trumpeting different. The African males and females both have tusks: the Indian male alone has them: in some cases he has only small tusks like a female, when he is called Mukhna. There are other osteological distinctions, but it is not necessary to mention them here. The height of the Indian elephant is from 9 feet to  $9\frac{1}{2}$  feet, rarely 10 feet; but one recently sent to the Madras Museum is said to be 10 feet 6 inches, while the African may attain to over 11 feet. The elephant is now preserved all over India, except in the case of dangerous rogues, but is caught in numbers in

enclosures, or by noosing, tame elephants assisting in the capture. When the elephant is viciously disposed, he destroys his victim by dashing it on the ground, and then crushing it with his feet and tusks, kicking the body backwards and forwards between the fore and hind feet. In former days, under native governments, the elephant was trained to be executioner, and destroyed the culprit by plucking him limb from limb, and by pressing his feet on the trunk. Stories have been told of elephants not only tearing off the limbs, but eating the flesh of the victims; this, I think, is very improbable.

The returns for 1887 show that 56 persons and 28 cattle were killed by elephants, while 16 elephants were destroyed, at a cost of Rs. 210. This sum, I find, was given in Assam (Rs. 150) and Burmah (Rs. 60) at the rate of about Rs. 13 per head.

*Rhinoceros indicus*, the great Indian rhinoceros (Gaindha), is found in the Nepal Terai, Bhotan, Purneah, Assam, in dense jungle and swamps. This animal may cause the deaths of a few human beings and cattle in chance encounters, but it does not appear on the roll of wild beasts destructive to life. There are other species, but they are rare, and I pass them all by with this simple reference.

*Bubalus arni*, buffalo (Arna bains), is common in Assam, Bengal, the swamps of the Eastern Terai, Central India, and Ceylon. It is a very powerful animal, with long, scimitar-like horns. The solitary males are very vicious and dangerous, make great havoc among the fields, and occasionally kill men. The same may be said of the bison or gaur, *Bos gavaeus* (bun-parra, gauri gai). This is a powerful animal, sometimes standing six feet high, with massive horns. It is found in the forests from Cape Comorin to the foot of the Himalayas, but not in the Oude, Nepaul, and Rohilkund Terai. It is common in Southern and Central India, but is extinct in Ceylon; an allied species, gayal, mithun, *Bibos frontalis*, is found in Assam. The bisons are naturally timid and wary animals, but the bulls are occasionally dangerous, especially when attacked, and cause the death of a few men. These also are dismissed with this brief notice.

*Sus indicus*, the wild boar (jungly soor, bara soor, and other local names), is common all over India from the Himalayas to Cape Comorin. It differs somewhat from the wild boar of Europe in being not quite so massive; it has a lighter head and limbs, is very fleet and brave, and very fierce when opposed or wounded. It lives in the open country, in grassy plains, among sugar-canes and other light cover, also in the jungle. It is much hunted and is well-known. Hog-hunting, whether with the short, leaded spear of Bengal, or the long spear of Madras and Bombay, is regarded as the best of all sports. The boars of Bengal are generally considered to be the largest and finest; they are said to attain a height of nearly forty inches, but from thirty to thirty-six inches is more common.

The head, though finer than that of the European species, is armed with most formidable tusks, with which it is capable of inflicting severe and deadly wounds. Nothing can exceed the savage and determined aspect of a good boar at bay. His limbs, though short, carry him at a great pace, and his endurance is equal to his speed. The tail, it is to be noticed, is always quite straight and tufted. Great numbers are killed by sportsmen, but they are still very numerous, and do considerable damage to the crops, and, as the returns show, are not free from bloodguiltiness. They do not naturally take a place among the creatures destructive to life, but as a certain number of deaths of men and animals are caused by them, they claim this brief passing notice here.

In the deaths of the 1,169 persons assigned to 'other animals' in 1886, I find that 74 were caused by wild boars, but probably the number exceeded that. It is further recorded that of 2,644 cattle killed by 'other animals,' 46 deaths were caused by wild boars. It appears that 1,002 wild boars were destroyed. These returns are obviously so partial and incomplete that they can be only taken as approximations to the truth.

The crocodile, erroneously called alligator, is destructive to men and cattle, and in some places, such as the Sunderbunds, is very numerous and dangerous, often seizing human beings who come to the river to bathe. Cattle are taken when drinking or swimming across the nullahs. I once saw a man, directly after he had been seized when swimming across a nullah, holding on to a cow's tail. The crocodile caught him by the leg, and with such determination that the limb was severed at the knee-joint; the man, notwithstanding, was dragged on shore, still holding on, though faint and exhausted. He was brought to the hospital at Dacca, and his thigh amputated, but he died of the shock. With their large peg-like teeth they inflict frightful wounds, tearing the flesh and crushing the bones. They seldom relinquish their hold, and the victim is dragged down, drowned, and devoured at leisure. To enable the crocodile to hold its prey under water without swallowing any itself, it has an apparatus of floodgates at the back of its mouth, composed of flaps, which meet and completely close the passage. The nostrils are on the surface of the snout; they close like valves, and the creature can remain long enough under water to drown any animal. There are three species found in Indian waters: *C. biporcatus* or *porosus*, *C. palustris*, and *C. pondicerianus*. They are known as Muggurs, Kumbeers; whilst the Gavial or Gharial, *Gavialis gangeticus*, is called Nakir, Gharial, Goh, &c. This saurian, though generally a fish-eater, has been known to kill men; the remains of human beings, ornaments of women and children, have been found in its stomach. I once saw a man who had been bitten by a gharial, when I was travelling in India with H.R.H. the

Duke of Edinburgh in 1870. The following is an extract from my diary:—

‘Before leaving camp this morning a camel-man was brought in with a severe wound in the left thigh; he was wading across the Mohan when he was suddenly seized by a large gharial, and dragged down. Some sepoy went to the rescue, and one of them so severely wounded the creature that it let go and tried to make its escape. The man followed, thrusting his bayonet into it, and having fired all his (six) cartridges, clubbed his musket, and belaboured it until the stock was broken. The brute, by this time, was so far *hors de combat* that it turned over as though dead, was dragged on shore, and brought into camp with the injured man, from whom a portion of integument, about five inches in circumference, had been torn away, leaving a severe wound. The gharial was sixteen feet in length. On being opened the stomach was found empty, with the exception of a number of pebbles from the size of a marble to that of a hen’s egg. These are useful in digestion, and are probably always found in the stomach of the gharial. The incident settles the question whether the gharial takes other food than fish.’

The curator of the Riddell Museum, Agra, reported that the following had been found in the stomach of a large gharial taken near that city:—‘About a dozen large bunches of hair (probably human), sixty-eight pebbles, averaging in size from nearly three inches to one inch in diameter, one large bangle, twenty-four fragments of vitreous armlets, five bronze finger-rings, one small silver neck-charm (a small defaced coin with a metal loop), one gold bead, one largish bead of black stone, thirty small red necklace-beads.’ These things, says the reporter, must have been on the body of some woman, if not more than one, who had been devoured. These facts prove that the gharial sometimes preys upon human beings.

The difference between the crocodile and alligator is chiefly this: the head of the alligator is broader, the snout shorter, and the arrangement of the teeth not quite the same, while the feet are only semi-palmate. In both, the size of the jaws is tremendous; when opened they close with a powerful snap. I have seen a mortally wounded crocodile close its teeth so firmly on a log of wood that they were with difficulty withdrawn. The teeth are deciduous and renewable, therefore the mouth is always armed. Crocodiles attain a great size, up to fifteen, eighteen, twenty feet or more in length, and are found in many Indian rivers, estuaries, lakes, and tanks, or marshes. All are bloodthirsty creatures; but they are said to be fonder of carrion than of fresh food. The larger species, *C. biporcatus*, is found near the sea and in the large rivers and Sunderbunds. *C. palustris*, which is smaller, occurs in the swamps and pools. The gharial is more of a fish-eater, has a very different head and mouth, the jaws being long

and narrow, with rows of closely-set teeth. It occurs in the rivers high up, even to near the foot of the hills, or in the rapids.

The shark, *Carcharias gangeticus*, is a fierce and bold fish, ascending the Hooghly, doubtless as far as the tidal water flows, especially during the season when the freshets from the hills fill the river. It occasionally seizes people at the bathing ghâts, though it does not often succeed in carrying off the victim, who is generally rescued by other bathers, but inflicts dangerous, often mortal, wounds. It is usually in April or May that these accidents occur near the ghâts where formerly the dead were thrown into the water, and where the sharks were wont to seek their food. Since municipal arrangements have provided for the complete cremation of all human bodies brought to the ghâts, that supply of food for the sharks has failed, and they have turned their attention to the living at the neighbouring bathing ghâts. Up to 1872, when I left Calcutta, no precaution had been taken to prevent these accidents. The staking off a portion of the ghât, as is done in the Sunderbunds, against crocodiles, would be sufficient; but, simple as the expedient is, it had not been resorted to. The people go on bathing at the same places perfectly unconcerned. Indeed, shortly after a person has been bitten, the ghât is again fully occupied by bathers.

Among the deaths assigned to 'other animals' in 1886, 237 human beings and only 17 cattle were ascribed to crocodiles; the latter is probably far from representing the real mortality. It is satisfactory to read that 628 crocodiles were destroyed. One human death is assigned to a shark, and the report states that 502 sharks were destroyed in the Hooghly at Calcutta. This is the only instance where one feels moved to raise the question of possible exaggeration.

Having described or enumerated the animals which destroyed so many human lives during 1886, it remains only to give such statistics of the 'other animals,' and their victims as the information available will admit of. The returns show that 1,169 persons and 2,644 head of cattle were killed by them, and, as far as the imperfect information afforded goes, it would appear that the character and distribution of the destroyed and the destroyers were as follows:—

In the case of 204 persons killed by 'other animals' it is not stated what the animals were; but of the remainder, 1 death was due to a panther, 74 to wild boars, 3 to bison, 29 to buffaloes, 554 to jackals, 18 to mad jackals, 4 to dogs, 22 to mad dogs, 1 to a mad camel, 3 to bulls, 1 to a bear, 1 to a wasp, 1 to a shark, 2 to wild cats, 1 to a nilgai, 237 to crocodiles, and 13 to scorpions: 41 of these deaths were due to hydrophobia.

Of the 2,644 cattle killed, in 2,199 cases it is not stated what the animals were that caused death; but of the remainder, 46 were attributed to wild boars, 6 to buffaloes, 133 to jackals, 37 to mad jackals,

195 to dogs, 17 to crocodiles, 3 to panthers, 7 to black leopards, and 1 to a wild cat: 37 of the deaths were due to hydrophobia.

Of 6,852 'other animals' destroyed, 3,098 are not specified; 5 were panthers, 1,002 wild boars, 140 jackals, 1,467 dogs, 9 scorpions, 1 mad camel, 502 sharks (in Calcutta), 628 crocodiles.

The term 'cattle' may be taken to include buffaloes, oxen, camels, goat, sheep, horses, ponies, and donkeys. In some of the returns only the larger animals, in others the goats and sheep also, are included. Of course, the foregoing details give only an approximation to the real numbers, but sufficient to show that the destruction of life and property is great.

The returns of 1887, when compared with those of past years, do not show much improvement, for wild animals still abound in many localities, and human beings are killed by them at about the same rate as during former years. Evidently, then, further preventive measures are needed, and the question it concerns us to ask is, what can be done to mitigate, if not altogether obviate this, to some extent, preventable evil, which, however, is not so easily dealt with as might be imagined. Government aid is needed, but the people should bestir themselves and rely more on their own resources, for the evil cannot be stayed whilst they are apathetic, and predacious animals continue to abound. 'Tigers must prey,' and as long as they exist in such numbers as at present, men and cattle will be their victims.

Government may give rewards for and otherwise aid in the destruction of noxious animals, but until the people do something towards protecting themselves, they will continue to suffer. As education makes them more self-confident and less superstitious, as civilisation extends cultivation and diffuses humanising influences, it is to be hoped that wild beasts will gradually diminish, when men, ceasing to worship, will help to exterminate, the creatures which destroy them. Meanwhile, all reasonable help should be given in preserving life and property. Sanitary science has reduced the death-rate from disease in the British army in India to one-fourth of its former proportions; were this death-cause dealt with in the same vigorous spirit, there can be little doubt that the results would be equally satisfactory. Like many other public questions, it is one—though not entirely—of money, and more expenditure may be required before the evil can be overcome.

A variety of measures have, at different times, been resorted to with a certain amount of success. The subject was well worthy of Government help, for it is of national importance that measures should be devised for diminishing this loss of life. It would be difficult to estimate the value of property destroyed, for that of 55,000 head of cattle is not the mere money value alone, but represents food lost and tillage prevented; and who can pretend to formulate the money equivalent—albeit life has never been set very high in India—of 25,000 human

lives? But one may imagine the despondency and desolation of the survivors, the deteriorating effect on cultivation and the industrial energy of the communities which sustain these losses, as well as the paralysing effects on progress, comfort, and prosperity.

Without relating all that has been done in the past, it is right to say that measures of some kind have long been in force for the destruction of noxious animals. In March 1864, the Secretary of State, noticing the destruction caused by tigers, wolves, and other wild animals, thought it not improbable that the failure of rewards in producing the desired effect might be owing to the villagers being deprived of arms through the operation of the general Disarming Act. He therefore commended the subject to the consideration of the Government of India, and desired that, if deemed necessary, the inhabitants of those villages which suffered most from the ravages of wild beasts, might be allowed to retain such arms as were necessary for the protection of themselves and their property. This despatch being circulated throughout the Government of Bengal, to the several Divisional Commissioners in the Lower Provinces, a discussion took place as to the adequacy or otherwise of the authorised rewards, resulting in some cases in their enhancement. The Bengal Government suggested that strychnine might be used without risk, by being introduced into the body of a cow or other animal after it had been killed by a tiger. But nothing was said to lead to the conclusion that the operation of the Arms Act had contributed to aggravate the evils complained of.

It would occupy too much space to recount all the enactments respecting rewards offered for the destruction of wild animals during past years; suffice it to say that it has been the subject of frequent resolutions and orders. In some districts, where left to the discretion of local authorities, its importance has been differently estimated according to the circumstances of the locality or the views of the administrators. No doubt, good has been and probably more would have been done, had there been better organisation of the methods for attaining the desired object. A resolution published a few years ago seems in principle to provide for all that is required.

The papers now before the Government of India conclusively establish the fact that the evil is a very serious one. The loss of life, though probably not quite accurately reported (it is understated) is certainly enormous. Nowhere is the destruction of life by wild beasts so great as in the Lower Provinces of Bengal. In other provinces, as cultivation and civilisation have advanced, wild beasts have diminished in numbers. In the Punjab and in most parts of Bombay, the presence of the more dangerous species is now stated to have become exceedingly rare. In the opinion of the Governor-General in Council, this serious mortality could be very largely reduced by the extirpation of these animals in the neighbourhood of human habitations. This should be first attempted, and every reasonable means be taken to secure their destruction whenever they make their appearance near towns or villages. The system of rewards hitherto in force in all the provinces seems to be the most effective means by which the Government can accelerate the work, and



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local governments and administrations are empowered to increase, within the limits of their respective budget allotments, the rate of the authorised rewards whenever such a measure is considered desirable ; but rewards should only be given for killing destructive, and not merely wild, animals.

All over India the authorities concur that the evil is great and needs remedy. Various rewards are offered in different localities, full price being given for adult animals, half, or less, for cubs. Some think the rewards should be continued, others that they should be given up or offered only in special cases. Some think them too high, others too low ; a variety of opinions exist as to modes of dealing with the evil, but even the independent States, such as the Nizam's and Jeypore, have proclaimed rewards for the destruction of noxious animals. It cannot be said that the subject has been ignored. The question is how best to carry on the war against these creatures. What is needed is a system laid down on general principles for the whole country, to be carried out in detail according to the requirements of each particular district. There should be a Department, with a responsible chief and subordinate agents, for whom certain rules should be laid down, to be carried out steadily and perseveringly, whilst leaving much to the discretion of the local authorities, who should be enjoined to give encouragement to those who are entrusted with the duty of destroying the wild animals, but insisting on the work being carried on uniformly everywhere. Ample means exist if sought for, for constituting such a Department, and if it were entrusted to a selected officer, as in the case of the Dacoity and Thuggie Departments, it is probable that in a few years the result would be as good in respect of noxious animals as it has been in respect of thugs and dacoits.

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