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Abstract: This book chapter of 1884 proposes a description of 16 cat species from India. According to the document, the places where the cheetah was most common were Jeypur in Upper India, and Hyderabad in Southern India. Also, the author cites an interesting letter from "Deccanee Bear" in The Asian of the 22nd of July, 1880, giving a description of the snaring of some cheetahs.

body than the rest of Indian otters; tail less than two thirds of the body; nails and toes feebly developed (whence it is classed by Gray in the next genus); fur long and rough, rich chestnut-brown above, golden red below and on the extremities.

SIZE.—Head and body, 20 to 22 inches; tail, 12 to 13 inches.

GENUS AONYX—CLAWLESS OTTERS.

Muzzle bald, oblong; skull broad, depressed, shorter and more globose than in *Lutra*; the molars larger than in the last genus; flesh tooth larger, and with a large internal lobe; first upper premolar generally absent; feet oblong, elongate; toes slender and tapering; claws rudimentary.

No. 199. AONYX LEPTONYX.

The Clawless Otter (Jerdon's No. 102).

NATIVE NAMES.—*Chusam*, Bhotia; *Suriam*, Lepcha.

HABITAT.—Throughout the Himalayas, also in Lower Bengal and in Burmah.

DESCRIPTION.—“Above earthy brown or chestnut brown; lips, sides of head, chin, throat, and upper part of breast white, tinged with yellowish-grey. In young individuals the white of the lower parts is less distinct, sometimes very pale brownish.”—*Jerdon*.

SIZE.—Head and body, 24 inches; tail, 13.

Mason speaks of this species as common in Burmah, and McMaster mentions his having seen in the Sitang River a colony of white-throated otters smaller than *L. nair*, though larger than *L. aurobrunnea*, but he did not secure specimens.

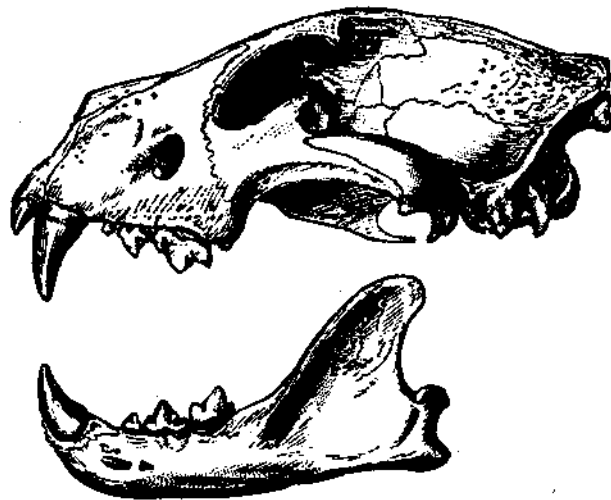
ÆLUROIDEA.

This section includes the Cat family (*Felidae*); the Hyænas (*Hyænidæ*); two families unknown in India, viz. the *Cryptoproctidæ* and the *Protelidæ*; and the Civet family (*Viverridæ*).

FELIDÆ—THE CAT FAMILY.

This family contains the typical carnivores. There is in them combined the greatest power of destruction, accompanied by the simplest mechanism for producing it. All complications of dentition and digestion disappear. Here are the few scissor-like teeth with the enormous canines, the latter for holding and piercing the life out of their prey, the former for chopping up the flesh into suitable morsels for swallowing. Then the stomach is a simple sac, or divided into compart-

ments, and the intestine is short, not more than three times the length of the body, instead of being some twenty times longer, as in some herbivores. This family has the smallest number of molars, a class of tooth which would indeed be useless, for the construction of the feline jaw precludes the possibility of grinding, and therefore a flat-crowned tuberculous tooth would be out of place. As I have before described it, the jaw of a tiger is incapable of lateral motion. The condyle of the lower jaw is so broad, and fits so accurately into its socket, the glenoid cavity, that there can be no departure from the up and down scissor-like action. The true Cats have, therefore, only one molar on each side of each jaw; those in the upper jaw being merely rudimentary, and placed almost at



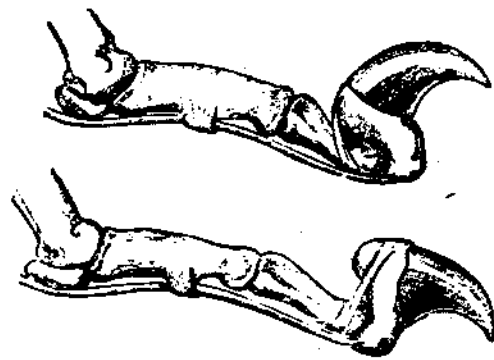
Skull of Tiger (side view).

right angles to the rest of the teeth, and seem apparently of little use; those of the lower jaw are large and trenchant, cutting against the edge of the third upper premolar.

It may interest my readers to know which are premolars and which are molars. This can be decided only by dissection of the jaw of a young animal. True molars only appear as the animal approaches the adult stage. They are never shed, as are all the rest of the teeth, commonly called milk teeth. The deciduous or milk teeth are the incisors, canines, and premolars; they drop out and are replaced, and behind the last premolar comes up the permanent molar.

Another peculiar feature of the Cat family is the power of sheathing

their talons. Claws to a cat are of as great importance to him in the securing of his prey as are his teeth. The badger is a digger, Hodge,

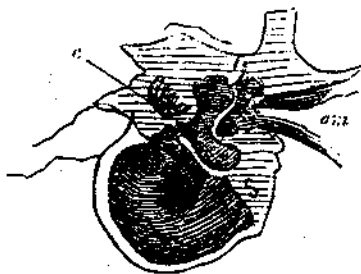


Tendons of Tiger's toe.

who carries his mattock on his shoulder; but the feline is the free-lance whose sword must be kept keen in its scabbard, so by a peculiar arrangement of muscles the points of the claws are kept off the ground, while the animal treads noiselessly on soft pads. Otherwise by constant abrasion they would get so blunted as to fail in their penetrating and seizing power. I give here an illustration of

the mechanism of the feline claw. In the upper sketch the claw is retracted or sheathed; in the lower it is protruded as in the act of striking.

The senses of hearing and smell are much developed, and the bulb of the ear (*bulla tympani*) is here found of the largest dimensions. I have once before alluded to this in writing of the bears, in whom this arrangement is deficient. I give here a section of the auditory apparatus. I do not know whether the engraver has effectually rendered my attempt at conveying an idea, based as it is on dissections by Professor Flower; but if he has failed I think the fault lies in the shakiness of my hand in attempting the fine shading after nearly breaking a saw and losing my temper over a very tough old skull which I divided before commencing my illustration. The great cavity is the *bulla tympani* or bulb of the ear; *a m* is the *auditory meatus* or external hole of the ear. On looking into a dry skull the passage seems to be of no great depth, nor can an instrument be passed directly from the outside into the great tympanic cavity, the hindrance being a wall of bone, *s*, the *septum* which divides the *bulla* into two distinct chambers, the reason for which is not very clear, except that one may suppose it to be in some measure for acoustic purposes, as all animals



with this development are quick of hearing. The communication between the two chambers lies in a narrow slit over the *septum*, the Eustachian tube, *e*, being on the outside of the *septum* and between it and the tympanum or ear drum, *t*.

The above are the chief characteristics of the family. For the rest we may notice that they have but a rudimentary clavicle imbedded among the muscles; the limbs are comparatively short, but immensely muscular; the body lithe and active; the foot-fall noiseless; the tongue armed with rough papillæ, which enables them to rasp the flesh off bones, and their vision is adapted for both night and day.

None of them are gregarious, as in the case of dogs and wolves. One hears sometimes of a limited number of lions and tigers being seen together, but in most cases they belong to one family, of which the junior members have not been "turned off on their own hook" as yet.

No. 200. FELIS LEO.

The Lion (Jerdon's No. 103).

NATIVE NAMES.—*Sher-babbar, Singh, Unthia-bagh.*

HABITAT.—Guzerat and Central India.

DESCRIPTION.—The lion is almost too well known to need description, and there is little difference between the Asiatic and African animal. It may, however, be generally described as being distinguished from other Cats by its uniform tawny colour, flatter skull, which gives it a more dog-like appearance, the shaggy mane of the male, and by the tufted tail of both sexes.

SIZE.—From nose to insertion of tail, 6 to 6½ feet; tail, 2½ to 3 feet; height, 3½ feet.

The weight of one measured by Captain Smee, 8 feet 9½ inches, was (excluding the entrails) thirty-five stone. This must be the one alluded to by Jerdon, but he does not state the extraction of the viscera, which would add somewhat to the weight.



Felis leo (Indian variety).

Young lions when born are invariably spotted; and Professor Parker states that there were in the Zoological Gardens in 1877 three lions which were born in the menagerie about ten years previously, and which showed "indistinct, though perfectly evident, spots of a slightly darker tawny than the general ground-tint on the belly and flanks." He adds: "This is also the case with the puma, and it looks very much as if all the great Cats were descended from a spotted ancestor." The more dog-like head of the lion is well known to all who have studied the physiognomy of the Cats, and I have not only noticed it in drawing the animal, but have seen it alluded to in the writings of others. It was not, however, till lately that I had an opportunity of comparing the skulls of the lion and tiger in the Calcutta Museum, and I am indebted to Mr. Cockburn of the museum, not only for the trouble he took in getting out the various skulls, but for his assistance in pointing out certain peculiarities known to him, but of which I was at the time ignorant. That the skull of the lion is flatter than, and wants the bold curve of, those of the tiger, leopard and jaguar, is a well-known fact, but what Mr. Cockburn pointed out to me was the difference in the maxillary and nasal sutures of the face. A glance at two skulls placed side by side would show at once what I mean. It would be seen that the nasal bones of the tiger run up higher than those of the lion, the apices of whose nasal and maxillary sutures are on a level. On leaving the museum I compared the tiger skulls in my possession with accurate anatomical drawings which I have of the osteology of the lion, and the result was the same. It is said that there is also a difference in the infra-orbital foramen of the two animals, but this I have failed to detect as yet, though asserted by De Blainville in his magnificent work on osteology ('Ostéographie').

From all that has been written of the African and Indian lions I should say that the tiger was the more formidable of the two, as he is, I believe, superior in size. About twenty-two years ago my attention was drawn to this subject by the perusal of Mr. Blyth's article on the *Felidae* in the old *India Sporting Review* of 1856-57. If I am not mistaken there was at that time (1861) a fine skeleton of a lion in the museum, as well as those of several tigers, which I measured. I had afterwards opportunities of observing and comparing skeletons of the two animals in various museums in Europe, though not in my own country, for my stay in England on each occasion of furlough was brief, and in almost every instance I found the tiger the larger of the two. The book in which I recorded my observations, and which also contained a number of microscopic drawings of marine infusoria, collected during a five months' voyage, was afterwards lost, so I cannot now refer to my notes.

I believe there was once a case of a fair fight between a well-matched lion and tiger in a menagerie (Edmonds's, I think). The

two, by the breaking of a partition, got together, and could not be separated. The duel resulted in the victory of the tiger, who killed his opponent.

The lion seems to be dying out in India, and it is now probably confined only to Guzerat and Cutch. I have not been an attentive reader of sporting magazines of late years, and therefore I cannot call to mind any recent accounts of lion-killing in India, if any such have been recorded. At the commencement of this century lions were to be found in the North-West and in Central India, including the tract of country now termed the Central Provinces. In 1847 or 1848 a lioness was killed by a native shikari in the Dumoh district. Dr. Spry, in his 'Modern India,' states that, when at Saugor in the Central Provinces in 1837, the skin of a full-grown male lion was brought to him, which had been shot by natives in the neighbourhood. He also mentions another lioness shot at Rhylee in the Dumoh district in 1834, of which he saw the skin. Jerdon says that tolerably authentic intelligence was received of the presence of lions near Saugor in 1856; and whilst at Seonee, within the years 1857 to 1864, I frequently heard the native shikaris speak of having seen a tiger *without stripes*, which may have been of the present species. The indistinct spots on the lion's skin (especially of young lions), to which I have before alluded, were noticed in the skin of the lioness shot at Dumoh in 1847. The writer says: "when you place it in the sun and look sideways at it, some very faint spots (the size of a shilling or so) are to be seen along the belly."

Lions pair off at each season, and for the time they are together they show great attachment to each other, but the male has to fight for his spouse, who bestows herself on the victor. They then live together till the young are able to shift for themselves. The lioness goes with young about fifteen or sixteen weeks, and produces from two to six at a litter. But there is great mortality among young lions, especially about the time when they are developing their canine teeth. This has been noticed in menageries, confirming a common Arab assertion. In the London Zoological Gardens, during the last twenty years, there has been much mortality among the lion cubs by a malformation of the palate. It is a curious fact that lions breed more readily in travelling menageries than in stationary ones.

No. 201. FELIS TIGRIS.

The Tiger (Jerdon's No 104).

NATIVE NAME.—*Bagh, Sher*, Hindi; *Sela-vagh, Go-vagh*, Bengali; *Wuhag*, Mahrathi; *Nahar* in Bundelkund and Central India; *Tut* of the hill people of Bhagulpor; *Nongya-chor* in Gorukpore; *Puli* in Telegu

and Tamil, also *Pedda-pulli* in Telegu; *Parain-pulli* in Malabar; *Huis* in Caranese; *Tagh* in Tibet; *Suhtong* in Lepcha; *Tukh* in Bhotia.

These names are according to Jerdon. *Bagh* and *Sher* all Indian sportsmen are familiar with. The Gonds of the Central Provinces call it *Pullial*, which has an affinity with the southern dialects.

HABITAT.—The tiger, as far as we are concerned, is known throughout the Indian peninsula and away down the eastern countries to the Malayan archipelago. In Ceylon it is not found, but it extends to the Himalayas, and ranges up to heights of 6000 to 8000 feet. Generally speaking it is confined to Asia, but in that continent it has a wide distribution. It has been found as far north as the island of Saghalien, which is bisected by N. L. 50°. This is its extreme north-eastern limit, the Caspian Sea being its westerly boundary. From parallel 50° downwards it is found in many parts of the highlands of central Asia.

DESCRIPTION.—A large heavy bodied Cat, much developed in the fore-quarters, with short, close hair of a bright rufous ground tint from every shade of pale yellow ochre to burnt sienna, with black stripes arranged irregularly and seldom in two individuals alike, the stripes being also irregular in form, from single streaks to loops and broad bands. In some the brows and cheeks are white, and in all the chin, throat, breast, and belly are pure white.

All parts, however, whether white or rufous, are equally pervaded by the black stripes. The males have prolonged hairs extending from the ears round the cheeks, forming a ruff, or whiskers as they are sometimes called, although the true whiskers are the labial bristles. The pupil of the tiger's eye is round, and not vertical, as stated by Jerdon.

SIZE.—Here we come to a much-vexed question, on which there is much divergence of opinion, and the controversy will never be decided until sportsmen have adopted a more correct system of measurement. At present the universal plan is to measure the animal as it lies on the ground, taking the tape from the tip of the nose to the end of the tail. I will undertake that no two men will measure the same tiger with equal results if the body be at all disturbed between the two operations. If care be not taken to raise the head so as to bring the plane of the skull in a line with the vertebrae, the downward deflection will cause increased

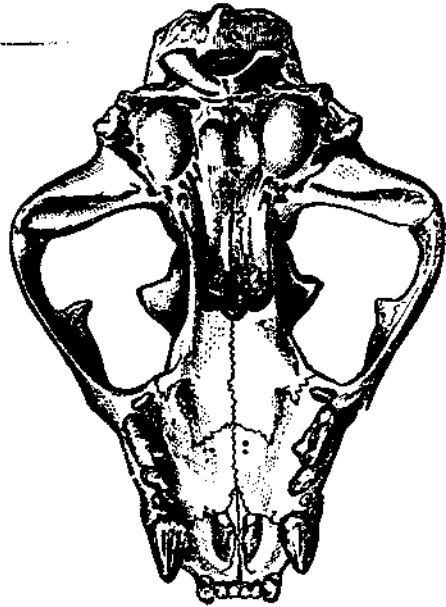


measurement. Let any one try this on the next opportunity, or on the dead body of a cat. Care should be taken in measuring that the head be raised, so that the top of the skull be as much as possible in a line with the vertebrae. A stake should be then driven in at the nose and another close in at the root of the tail, and the measurement taken between the two stakes, and not round the curves. The tail, which is an unimportant matter, but which in the present system of measurement is a considerable factor, should be measured and noted separately. I am not a believer in tails (or tales), and have always considered that they should be excluded from measurements except as an addition. I spoke of this in 'Seonee' in the following terms: "If all tigers were measured honestly, a twelve-foot animal would never be heard of. All your big fellows are measured from stretched skins, and are as exaggerated as are the accounts of the dangers incurred in killing them—at least in many cases. But even the true method of measuring the unskinned animal is faulty; it is an apparent fact that a tail has very little to do with the worthiness of a creature, otherwise our bull-dogs would have their caudal appendages left in peace. Now every shikari knows that there may be a heavy tiger with a short tail and a light bodied one with a long tail. Yet the measurement of each would be equal, and give no criterion as to the size of the brute. Here's this tiger of yours; I call him a heavy one, twenty-eight inches round the fore-arm, and big in every way, yet his measurement does not sound large (it was 9 feet 70 inches), and had he six inches more tail he would gain immensely by it in reputation. The biggest panther I ever shot had a stump only six inches long; and according to the usual system of measuring he would have read as being a very small creature indeed." Tails do vary. Sir Walter Elliot was a very careful observer, and in his comparison of the two largest males and two largest females, killed between 1829 and 1833, out of 70 to 80 specimens, it will be seen that the largest animal in each sex had the shortest tail:—

	Adult Male.		Adult Female.	
	ft. in.	ft. in.	ft. in.	ft. in.
Length of head and body	6 2	5 6	5 3½	5 2
Length of tail	3 1½	3 3	2 11	3 2
	9 3½	8 9	8 2½	8 4

Campbell, in his notes to 'The Old Forest-Ranger,' gives the dimensions of a tiger of 9 ft. 5 in. of which the tail was only 2 ft. 10 in. From the other detailed measurements it must have been an enormous tiger. The

number of caudal vertebræ in the tiger and lion should be twenty-six. I now regret that I did not carefully examine the osteology of all short-tailed tigers which I have come across, to see whether they had the full complement of vertebræ. The big tiger in the museum is short by the six terminal joints = three inches. This may have occurred during life, as in the case of the above-quoted panther; anyhow the tail should, I think, be thrown out of the calculation. Now as to the measurement of the head and body, I quite acknowledge that there must be a different



Tiger's skull (under part).

standard for the sportsman and for the scientific naturalist. For the latter the only reliable data are derived from the bones. Bones cannot err. Except in very few abnormal conditions the whole skeleton is in accurate proportion, and it has lately struck me that from a certain measurement of the skull a true estimate might be formed of the length of the skeleton, and approximately the size of the animal over the muscles. I at first thought of taking the length of the skull by a craniometer, and seeing what portion of the total length to the posterior edge of the sacrum it would be, but I soon discarded the idea on account of the variation in the supra-occipital process.

I then took the palatal measurement, from the outer

edge of the border in which the incisors are set to the anterior inside edge of the brain-hole, or foramen magnum, and I find that this standard is sufficiently accurate, and is 5.50 of the length taken from the tip of the premaxillaries to the end of the sacrum. Therefore the length of this portion of any tiger's skull multiplied by 5.50 will give the measurement of the head and body of the skeleton.

For the purpose of working out these figures I applied to all my sporting friends for measurements of their largest skulls, with a view to settling the question about tigers exceeding eleven feet. The museum possesses

the skeleton of a tiger which was considered one of the largest known, the cranial measurement of whose skull is 14.50 inches, but the Maharajah of Cooch Behar showed me one of his skulls which exceeded it, being 15 inches. Amongst others I wrote to Mr. J. Shillingford of Purneah, and he most kindly not only drew up for me a tabular statement of the dimensions of the finest skulls out of his magnificent collection, but sent down two for my inspection. Now in the long-waged war of opinion regarding the size of tigers I have always kept a reserved attitude, for if I have never myself killed, or have seen killed by others, a tiger exceeding ten feet, I felt that to be no reason for doubting the existence of tigers of eleven feet in length vouched for by men of equal and in some cases greater experience, although at the same time I did not approve of a system of measurement which left so much to conjecture.

There is much to be said on both sides, and, as much yet remains to be investigated, it is to be hoped that the search after the truth will be carried on in a judicial spirit. I have hitherto been ranged on the side of the moderate party; still I was bound to respect the opinion of Sir Joseph Fayrer, who, as not only as a sportsman but as an anatomist, was entitled to attention; and from my long personal acquaintance I should implicitly accept any statement made by him. Dr. Jerdon, whom I knew intimately, was not, I may safely assert, a great tiger shikari, and he based his opinion on evidence and with great caution. Mr. J. Shillingford, from whom I have received the greatest assistance in my recent investigations, and who has furnished me with much valuable information, is on the other hand the strenuous assertor of the existence of the eleven-foot tiger, and with the magnificent skulls before me, which he has sent down from Purneah, I cannot any longer doubt the size of the Bengal tiger, and that the animals to which they belonged were eleven feet, *measured sportsman fashion*—that is round the curves. The larger of the two skulls measures 15.25 inches taken between two squares, placed one at each end; a tape taken from the edge of the premaxillaries over the curve of the head gives 17.37 inches; the width across the zygomatic arches, 10.50.* The palatal measurement, which is the test I proposed for ascertaining the length of the skeleton, is 12.25, which would give 5 feet 7.37 inches; about 3.7 inches larger than the big skeleton in the Museum. This may seem very small for the body of an animal which is supposed to measure eleven feet, but I must remind my readers that the bones of the biggest tiger look very small when denuded of the muscles; and the present difficulty I have to contend with is how to strike the average rate for the allowance to be added to skeleton for muscles, the chief stumbling block being the system which has hitherto included the tail in the measurement. If all tigers had been measured as most other animals (except felines)

* At Mr. Shillingford's request, I made over this skull to the Calcutta Museum.

are—i.e. head and body together, and then the tail separately—I might have had some more reliable data to go upon; but I hope in time to get some from such sportsmen as are interested in the subject. I have shown that the tail is not trustworthy as a proportional part of the total length; but from such calculations as I have been able to make from the very meagre materials on which I have to base them, I should allow one 250th part of the total length of skeleton for curves and muscles.

In addition to a careful study of De Blainville's 'Ostéographie,' where the bones are figured in large size to scale, I have made many careful measurements of skulls belonging to myself and friends, and also of the skulls and skeletons in the Calcutta Museum (for most willing and valuable assistance in which I am indebted to Mr. J. Cockburn, who, in order to test my calculations, went twice over the ground); and I have adopted the following formula as a tentative measure. I quite expect to be criticised, but if the crude idea can be improved on by others I shall be glad.

I now give a tabular statement of four out of many calculations made, but I must state that in fixing an arbitrary standard of 36 inches for tail, I have understated the mark, for the tails of most tigers exceed that by an inch or two, though, on the other hand, some are less.

Formula.—Measure from the tip of the premaxillaries or outer insertion of the front teeth (incisors) along the palate to the nearest inner edge of the foramen magnum. Multiply the result by 5.50. This will give the length of the skeleton, excluding the tail. Divide this result by 2.50, and add the quotient to the length for the proportionate amount of muscles and gain in curves. Add 36 inches for tail.

	Palatal measurement multiplied by 5.50.	Add one 250th part of tail for curves and muscles.	Total.	Total.	Total in feet and inches.	REMARKS.
Mr. Shillingford's tiger	67.37	26.94	36.00	130.31	10 10	Mr. S——'s tiger's tail was over 3 ft. 2 ins., which would make it 11 ft.
Big tiger in museum. Maharajah of Cooch Behar's tiger	63.52 66.00	25.40 26.40	36.00 36.00	124.92 128.40	10 4½ 10 8¼	Nearly 10 ft. 5 in. The Maharajah writes to me that it measured on the ground 9 ft. 11 in. See further on.
A medium-sized one of my own	55.75	23.10	36.00	116.85	9 8½	

It will be seen that my calculation is considerably out in the Cooch Behar tiger, so I asked the Maharajah to tell me, from the appearance of the skull, whether the animal was young or old. He sent it over to me, and I have no hesitation in saying that it was that of a young tiger, who, in another year, might have put on the extra nine inches; the parietal sutures, which in the old tiger (as in Mr. Shillingford's specimens) are completely obliterated, are in this one almost open. It must be remembered that the bones of the skull do not grow in the same ratio to the others, and that they attain their full size before those of the rest of the body. Therefore it is only in the case of the adult that accurate results can be calculated upon. Probably I have not done wisely in selecting a portion of the skull as a standard—a bone of the body, such as a femur or humerus might be more reliable—but I was driven to it by circumstances. Sportsmen, as a rule, do not keep anything but the skull, and for general purposes it would have been of no use my giving as a test what no one could get hold of except in a museum.

I have always understood that the tiger of the plains grew to a greater size, that is in length, than the tiger of hilly country. I have never shot a tiger in Lower Bengal, therefore I cannot judge of the form of the beast, whether he be more lanky or not. If an eleven-foot Bengal tiger be anything like as robust in proportion as our Central Indian ones, I should say he was an enormous creature, but I believe the Central and Southern tiger to be the heavier one, and this is borne out by an illustration given by Mr. Shillingford in one of his able letters, which have called forth so much hostile criticism. He compares one of his largest with the measurement of a Southern India tiger:—

Locality of Tiger.	Length.	Girth of Chest.	Girth of Head.	Tail.	Round Fore-arm.	Height.	Total of feet and inches.
Parneah . .	ft. in. 11 0	ft. in. 4 6	ft. in. 2 10	ft. in. 3 4	ft. in. 2 2	ft. in. 3 7	ft. in. 27 5
Southern India.	10 2	6 1	3 5	3 1	2 10	3 9	29 4

The shorter tiger has an advantage of nearly two feet in all-round measurement.

Sir Joseph Fayrer has also been called in question for his belief in twelve feet tigers, but what he says is reasonable enough. "The tiger should be measured from the nose along the spine to the tip of the tail, as he lies dead on the spot where he fell, before the skin is removed. One that is ten feet by this measurement is large, and the full-grown male does not often exceed this, though no doubt larger individuals (males) are

occasionally seen, and I have been informed by Indian sportsmen of reliability that they have seen and killed tigers over twelve feet in length." ('Royal Tiger of Bengal,' p. 29).

Sir Joseph Fayrer in a letter to *Nature*, June 27, 1878, brings forward the following evidence of large tigers shot by sportsmen whose names are well known in India.

Lieutenant-Colonel Boileau killed a tiger at Muteara in Oude, in 1861, over 12 feet; the skin when removed measured 13 feet 5 inches.

Sir George Yule has heard once of a 12-foot tiger fairly measured, but 11 feet odd inches is the largest he has killed, and that twice or thrice.

Colonel Ramsay (Commissioner) killed in Kumaon a tiger measuring 12 feet.

Sir Joseph Fayrer has seen and killed tigers over 10 feet, and one in Purneah 10 feet 8 inches, in 1869.

Colonel J. Sleeman does not remember having killed a tiger over 10 feet 6 inches in the skin.

Colonel J. MacDonald has killed one 10 feet 4 inches.

The Honourable R. Drummond, C.S., killed a tiger 11 feet 9 inches, measured before being skinned.

Colonel Shakespeare killed one 11 feet 8 inches.

However, conceding that all this proves that tigers do reach occasionally to eleven and even twelve feet, it does not take away from the fact that the average length is between nine and ten feet, and anything up to eleven feet is rare, and up to twelve feet still more so.*

VARIETIES OF THE TIGER.—It is universally acknowledged that there is but one species of tiger. There are, however, several marked varieties. The distinction between the Central Asian and the Indian tiger is unmistakable. The coat of the Indian animal is of smooth, short hair; that of the Northern one of a deep furry pelage, of a much richer appearance.

There is an idea which is also to be found stated as a fact in some works on natural history, that the Northern tiger is of a pale colour with few stripes, which arises from Swinhoe having so described some specimens from Northern China; but I have not found this to be confirmed in those skins from Central Asia which I have seen. Shortly before leaving London, in 1878, Mr. Charles Reuss, furrier, in Bond

* Since writing the above I have to thank "Meade Shell" for the measurements of the skull of a tiger 11 ft. 6 in. The palatal measurement is 12 inches, which, according to my formula, would give only 10 ft. 8 in.; but it must be remembered that I have allowed only 3 ft. for the tail, whereas such a tiger would probably have been from 3½ to 4 ft., which would quite bring it up to the length vouched for. The tail of a skeleton of a much smaller tiger in the museum measures 3 ft. 3½ in., which with skin and hair would certainly have been 3½ ft. Until sportsmen begin to measure bodies and tails separately it will, I fear, be a difficult matter to fix on any correct formula.—R. A. S. See Appendix C.

Street, showed me a beautiful skin with deep soft hair, abundantly striped on a rich burnt sienna ground, admirably relieved by the pure white of the lower parts. That light-coloured specimens are found is true, but I doubt whether they are more common than the others. Of the varieties in India it is more difficult to speak. Most sportsmen recognise two (some three)—the stout thick-set tiger of hilly country, and the long-bodied lankier one of the grass jungles in the plains. Such a division is in consonance with the ordinary laws of nature, which we also see carried out in the thick-set muscular forms of the human species in mountain tracts.

Some writers, however, go further, and attempt subdivisions more or less doubtful. I knew the late Captain J. Forsyth most intimately for years. We were in the same house for some time. I took an interest in his writings, and helped to illustrate his last work, and I can bear testimony to the general accuracy of his observations and the value of his book on the Highlands of Central India; but in some things he formed erroneous ideas, and his three divisions, based on the habits of the tiger, is, I think, open to objection, as tending to create an idea of at least two distinct varieties.

Native shikaris, he says, recognise two kinds—the *Lodhia Bagh* and the *Oontia Bagh* (which last I may remind my readers is one of the names of the lion). The former is the *game-killing* tiger, retired in his habits, living chiefly among the hills, retreating readily from man. "He is a light-made beast, very active and enduring, and from this, as well as his shyness, generally difficult to bring to bag."

I grant his shyness and comparative harmlessness (I once met one almost face to face)—and the nature of the ground he inhabits increases the difficulty in securing him—but I do not think he physically differs from his brother in the cattle districts. Mr. Sanderson says one of the largest tigers he had killed was a pure game-killer.

"The cattle-lifter again," says Forsyth, "is usually an older and heavier animal (called *Oontia Bagh*, from his faintly striped coat, resembling the colour of a camel), very fleshy and indisposed to severe exertion."

His third division is the man-eater. However, this is merely a classification on the habits of the same animal. I think most Central India sportsmen will agree with me when I say that many a young tiger is a cattle-eater, with a rich coloured hide, although it often happens that an old tiger of the first division, when he finds his powers for game failing by reason of age or increased bulk, transfers himself from the borders of the forest to the vicinity of grazing lands and villages, and he ultimately may come into the third division by becoming a man-eater. So that the *Lodhia* becomes the *Oontia* (for very old tigers become lighter in colour), and may end by being an *Adam-khor*, or man-eater. Tige's roam a great deal at times, and if in their

wanderings they come to a suitable locality with convenience of food and water, they abide there, provided there be no occupant with a prior claim and sufficient power to dispute the intrusion. We had ample proof of this at Seonee. Close to the station, that is, within a short ride, were several groups of hills which commanded the pasture lands of the town. Many a tiger has been killed there, the place of the slain one being occupied ere long by another. On the other hand, if a tiger be accommodated with lodgings to his liking, he will stay there for years, roaming a certain radius, but returning to his home; and it is the knowledge of this that so often enables the hunter to compass his destruction. As long therefore as there are human habitations, with their usual adjuncts of herds and flocks, within a dozen miles of the jungle tiger's haunts, so long there will always be the transition from the game-killer to the cattle-lifter and the man-eater. Colour and striping must also be thrown out of the question, for no two individuals of any variety agree, and the characteristics of shade and marking are common to all kinds. The only reliable data therefore are derived from measurements, and from these it may be proved that the grass-jungle tiger of Bengal, though the longer animal, is yet inferior in all round measurement and probably in weight to the tiger of hilly country—see Mr. Shillingford's comparison quoted by me above. Let also any one compare the following measurements of one given by Colonel Walter Campbell with a tiger of equal length shot in the grassy plains of Bengal:—

	ft.	in.
Length from point of nose to end of tail	9	5
Ditto of tail	2	10
Height from heel to shoulder	3	2
Extreme length from shoulder to point of toe	3	11
From elbow to point of toe	2	0
Girth of body just behind the shoulder	5	3
Ditto of forearm	2	7
Ditto of neck	3	0
Circumference of head	3	3

This is a remarkably short-tailed tiger. If the concurrence of evidence establishes the difference beyond doubt, then we may say that there are two varieties in India—the hill tiger, *Felis tigris*, var. *montanus*; and the other, inhabiting the alluvial plains of great rivers, *Felis tigris*, var. *fluviatilis*. Dr. Anderson says he has examined skulls and skins of those inhabiting the hill ranges of Yunnan, and can detect no difference from the ordinary Indian species.

The tigress goes with young for about fifteen weeks, and produces from two to five at a birth. I remember once seeing four perfectly formed cubs, which would have been born in a day or two, cut from a tigress shot by my brother-in-law Col. W. B. Thomson in the hills

adjoining the station of Seonee. I had got off an elephant, and, running up the glen on hearing the shots, came unpleasantly close to her in her dying throes. When about to bring forth, the tigress avoids the male, and hides her young from him. The native shikaris say that the tiger kills the young ones if he finds them. The mother is a most affectionate parent as a rule, and sometimes exhibits strange fits of jealousy at interference with her young. I heard an instance of this some years ago from my brother, Mr. H. B. Sterndale, who, as one of the Municipal Commissioners of Delhi, took a great interest in the collection of animals in the Queen's Gardens there. Both tiger and leopard cubs had been born in the gardens, and the mother of the latter shewed no uneasiness at her offspring being handled by strangers as they crept through the bars and strayed about; but one day, a tiger cub having done the same, the tigress exhibited great restlessness, and, on the little one's return, in a sudden accession of jealous fury she dashed her paw on it and killed it. I am indebted to Mr. Shillingford for a long list of tigresses with cubs killed during the years 1866 to 1880. Out of 53 cubs (18 mothers) 29 were males and 22 females, the sex of two cubs not being given. This tends to prove that there are an equal number of each sex born—in fact here the advantage is on the side of the males. I have heard it asserted that tigresses are more common, and native shikaris account for it by saying that the male tiger kills the cubs of his own sex; but I have not seen anything to justify this assertion, or the fact of there being a preponderance of females. Mr. Sanderson, however, writes: "Male and female cubs appear to be in about equal proportions. How it is that amongst mature animals tigresses predominate so markedly I am unable to say."

Tigresses have young at all seasons of the year, and they breed apparently only once in three years, which is about the time the cubs remain with their mother.

For the following interesting memorandum I have to thank Mr. Shillingford:—

	Feet.
" Cubs one year old measure	{ Males 4½ to 5½ Females 4 to 5
Ditto two years old	{ Males 5½ to 7 Females 5 to 6½
Ditto three years old	{ Males 7 to 8½ Females 6½ to 7½

"When they reach three years of age they lose their 'milk' canines, which are replaced by the permanent fangs, and at this period the mother leaves them to cater for themselves."

The cubs are interesting pets if taken from the mother very young. I have reared several, but only kept one for any length of time. I have given a full description of Zalim and his ways in 'Seonee.' He was

found by my camp followers with another in a nullah, and brought to me. The other cub died, but Zalim lived to grow up into a very fine tiger, and was sent to England. I never allowed him to taste raw flesh. He had a little cooked meat every day, and as much milk as he liked to drink, and he throve well on this diet. When he was too large to be allowed to roam about unconfined I had a stout buffalo-leather collar made for his neck, and he was chained to a stump near the cook-room door. With grown-up people he was perfectly tame, but I noticed he got restless when children approached him, and so made up my mind to part with him before he did any mischief.

I know nothing of the habits of the tiger of the grass plains, but those of the hill tiger are very interesting, the cattle lifter especially, as he is better known to men. Each individual has his special idiosyncrasy. I wrote of this once before as follows: "Strange though it may seem to the English reader that a tiger should have any special character beyond the general one for cruelty and cunning, it is nevertheless a fact that each animal has certain peculiarities of temperament which are well known to the villagers in the neighbourhood. They will tell you that such a one is daring and rash; another is cunning and not to be taken by any artifice; that one is savage and morose; another is mild and harmless. There are few villages in the wilder parts of the Seonee and Mandla districts without an attendant tiger, which undoubtedly does great damage in the way of destroying cattle, but which avoids the human inhabitants of the place. So accustomed do the people get to their unwelcome visitor that we have known the boys of a village turn a tiger out of quarters which were reckoned too close, and pelt him with stones. On one occasion two of the juvenile assailants were killed by the animal they had approached too near. Herdsmen in the same way get callous to the danger of meddling with so dreadful a creature, and frequently rush to the rescue of their cattle when seized. On a certain occasion one out of a herd of cattle was attacked close to our camp, and rescued single-handed by its owner, who laid his heavy iron-bound staff across the tiger's back; and, on our rushing out to see what was the matter, we found the man coolly dressing the wounds of his cow, muttering to himself: 'The robber, the robber! My last cow, and I had five of them!' He did not seem to think he had done anything wonderful, and seemed rather surprised that we should suppose that he was going to let his last heifer go the way of all the others.

"It is fortunate for these dwellers in the backwoods that but a small percentage of tigers are man-eaters, perhaps not five per cent., otherwise village after village would be depopulated; as it is the yearly tale of lives lost is a heavy one."^{*}

* 'Seonee.'

Tigers are also eccentric in their ways, showing differences in disposition under different circumstances. I believe that many a shikari passes at times within a few yards of a tiger without knowing it, the tendency of the animal being to crouch and hide until the strange-looking two-legged beast has passed. The narrowest escape I ever had is an instance. I had hunted a large tiger, well known for the savageness of his disposition, on foot from ravine to ravine on the banks of the Pench, one hot day in June, and, giving him no rest, made sure of getting him about three o'clock in the afternoon. He had been seen to slip into a large nullah, bordered on one side by open country, a small water-course draining into it from the fields; here was one large *boyr* bush, behind which I wished to place myself, but was persuaded by an old shikari of great local reputation to move farther on. Hardly had we done so when our friend bounded from under the bush and disappeared in a thicket, where we lost him. Ten days after this he was killed by a friend and myself, and he sustained his savage reputation by attacking the elephant without provocation—a thing a tiger seldom does. I had hunted this animal several times, and on one occasion saw him swim the Pench river at one of its broadest reaches. It was the only time I had seen a tiger swim, and it was interesting to watch him powerfully breasting the stream with his head well up. Tigers swim readily, as is well known. I believe it is not uncommon to see them take to the water in the Sunderbunds; and a recent case may be remembered when two of them escaped from the King of Oude's Menagerie, and one swam across the Hooghly to the Botanical Gardens.

There has been some controversy about the way in which tigers kill their prey. I am afraid I cannot speak definitely on the subject, although I have on several occasions seen tigers kill oxen and ponies. I do not think they have a uniform way of doing it, so much depends upon circumstances—certain it is that they cannot smash in the head of a buffalo with a stroke, as some writers make out, but yet I have known them make strokes at the head, in a running fight, for instance, between a buffalo and a tiger—in which the former got off—and in the case of human beings. Of two men killed by the same tiger, one had his skull fractured by a blow; the other, who was killed as we were endeavouring to drive the tiger out of the village, was seized by the loins. He died immediately; the man with the fractured skull lingered some hours longer. Another case of a stroke at the head happened once when I had tied out a pony for a tiger that would not look at cows, over which I had sat for several successive nights. A tiger and tigress came out, and the former made a rush at the *tattu*, who met him with such a kick on the nose that he drew back much astonished; the tigress then dashed at the pony, and I, wishing if possible to save the plucky little animal's life, fired two barrels into her, rolling her over just

as she struck at his head. But it was too late; the pony dropped at the blow and died—not from concussion, however, but from loss of blood, for the jugular vein had been cut open as though it had been done with a knife. So much for the head stroke, which is, I may say, exceptional. As a general rule I think the tiger bears down his victim by sheer weight, and then, by some means which I should hesitate to define, although I have seen it, the head is wrenched back, so as to dislocate the vertebrae. One evening two cows were killed before me. I was going to say the tiger sprang at one, but correct myself—it is not a spring, but a rush on to the back of the animal; he seldom springs all fours off the ground at once. I have never seen a tiger get off his hind legs except in bounding over a fallen tree, or in and out of a ravine. In this case he rushed on to the cow and bore it to the ground; there was a violent struggle, and in the dusky light I could not tell whether he used his mouth or paws in wrenching back the head, which went with a crack. The thing was done in a minute, when he sprang once more to his feet, and the second cow was hurled to the ground in like manner. As his back was turned to me I fired somewhat hastily, thinking to save the cow, but only wounded the tiger, which I lost. Both the cows, however, had their necks completely broken. I cannot now remember the position of the fang-marks in the throat. On another occasion I came across five out of a herd that had been killed, probably by young tigers; every one had the neck broken.

Mr. Sanderson says that herdsmen have described to him how they have noticed the operation: "Clutching the bullock's fore-quarters with his paws, one being generally over the shoulder, he seizes the throat in his jaws from underneath and turns it upwards and over, sometimes springing to the far side in doing so, to throw the bullock over and give the wrench which dislocates its neck. This is frequently done so quickly that the tiger, if timid, is in retreat again almost before the herdsmen can turn round." This account seems reliable. A tiger may seize by the nape in order to get a temporary purchase, but it would be awkward for him to pull the head back far enough to snap the vertebral column.

Now for a few remarks in conclusion. I have written more on the subject than I intended. That tigers are carrion feeders is well known, but that sometimes they prefer high meat to fresh I had only proof of once. A tiger killed a mare and foal, on which he feasted for three days; on the fourth nothing remaining but a very offensive leg; we tied out a fine young buffalo calf for him within a yard or two of the savoury joint. The tiger came during the night and took away the leg, without touching the calf; and, devouring it, fell asleep, in which condition we, having tracked him up the nullah, found and killed him.

The tiger is not always monarch over all the beasts of the field. He

is positively afraid of the wild dog (*Cuon rutilans*), which readily attacks him in packs. Then he often finds his match in the wild boar. I have myself seen an instance of this, in which the tiger was not only ripped to death, but had his chest-bone gnawed and crushed, evidently after life was extinct.

Buffalos in herds hesitate not in attacking a tiger; and I saw one instance of their saving their herdsman from a man-eater. My camp was pitched on the banks of a stream under some tall trees. I had made a *détour* in order to try and kill this man-eater, and had sent on a hill tent the night before. I was met in the morning by the *Ahalasi* in charge, with a wonderful story of the tiger having rushed at him, but as the man was a romancer I disbelieved him. On the other side of the stream was a gentle slope of turf and bushes, rising gradually to a rocky hill. The slope was dotted with grazing herds, and here and there a group of buffalos. Late in the afternoon I heard some piercing cries from my people of "*Bagh! Bagh!*" The cows stampeded, as they always do. A struggle was going on in the bush, with loud cries of a human voice. The buffalos threw up their heads, and, grunting loudly, charged down on the spot, and then in a body went charging on through the brushwood. Other herdsmen and villagers ran up, and a charpoy was sent for and the man brought into the village. He was badly scratched, but had escaped any serious fang wounds from his having, as he said, seen the tiger coming at him, and stuffed his blanket into his open mouth, whilst he belaboured him with his axe. Anyhow but for his buffalos he would have been a dead man in three minutes more.

THE PARDS OR PANTHERS.

To these are commonly assigned the name of Leopard, which ought properly to be restricted to the hunting leopard (*Felis jubata*), to which we have also misappropriated the Indian name *Chita*, which applies to all spotted cats, *Chita-bagh* being spotted tiger. The same term, derived from the adjective *chhita*, spotted or sprinkled, applies in various forms to the other creatures, such as *Chital*, the spotted deer (*Axis*), *Chita-bora*, a kind of speckled snake, &c. *Leopardus* or lion-panther was, without doubt, the name given by the ancients to the hunting leopard, which was well known to them from its extending into Africa and Arabia. Assuredly the prophet Habakkuk spoke of the hunting chita when he said of the Chaldeans: "That bitter and hasty nation . . . their horses also are swifter than the leopards," for the pard is not a swift animal, whereas the speed of the other is well known.

The name was given to it by the ancients on the supposition that it

was a cross between the lion and the pard, from a fancied resemblance to the former on account of the mane or ruff of hair possessed by the hunting leopard. Apparently this animal must have been more familiar to our remote ancestors than the pard, for the name has been attached for centuries to the larger spotted Cats indiscriminately. I have not time just now to attempt to trace the species of the leopard which formerly graced the arms of the English kings, but I should not be surprised if it were the guepard or chita. The old representations were certainly attenuated enough; and the animal must have been familiar to the crusaders, as we know it was before them to the Romans.

Mr. Blyth, who speculated on the origin of the name, in one of his able articles on the felines of India in the *India Sporting Review* of April 1856, makes no allusion to the above nor to the probable confusion that may have arisen in the middle ages over the spotted Cats. Although the term leopard, as applied to panthers, has the sanction of almost immemorable custom, I do not see why, in writing on the subject, we should perpetuate the misnomer, especially as most naturalists and sportsmen are now inclined to make the proper distinction. I have always avoided the use of the term leopard, except when speaking of the hunting chita, preferring to call the others panthers.

Then again we come on disputed ground. Of panthers how many have we, and how should they be designated? I am not going farther afield than India in this discussion beyond alluding to the fact that the jaguar of Brazil is almost identical with our pard as far as marking goes, but is a stouter, shorter-tailed animal, which justifies his being classed as a species; therefore we must not take superficial colouring as a test, but class the black and common pards together; the former, which some naturalists have endeavoured to made into a separate species (*Felis melas*), being merely a variety of the latter. They present the same characteristics, although Jerdon states that the black is the smaller animal. They have been found in Java to inhabit the same den, according to Professor Reinwardt and M. Kuhl, and they inter-breed, as has been proved by the fact that a female black pard has produced a black and a fulvous cub at the same birth. This is noticed by Mr. Sanderson in his book, and he got the information from the director of the Zoological Society's Menagerie at Amsterdam. "Old Foggy," a constant contributor to the old *India Sporting Review*, a good sportsman and naturalist, with whom Blyth kept up a correspondence, wrote in October 1857 that, "in a litter of four leopard cubs one was quite black; they all died, but both the parents were of the ordinary colour and marking; they were both watched at their cave, and at last shot, one with an arrow through the heart. Near a hill village a black male leopard was often seen and known to consort with an ordinary female. I have observed them myself once, if not twice."

An observant sportsman. "Hawkeye," in one of his letters to the *South of India Observer*, remarks that "on one occasion a gentleman saw an old leopard accompanied by two of her offspring, one red, the other black." He also says he has never known "of two black leopards in company," but black pards have bred in zoological gardens. I am told that cubs have been born in the Calcutta Garden, but they did not live. General MacMaster, in his notes on Jerdon, makes the pertinent remark: "If however black panthers are only accidental, it is odd that no one has yet come on a black specimen of one of the larger cats, *F. leo tigris*." I see no reason why such should not yet be discovered; he was perhaps not aware that the jaguar of Brazil, which comes next to the tiger, has been found black (*Felis nigra* of Erxleben). A black tiger would be a prize. General MacMaster relates that he once watched a fine black cat basking in the sun, and noticed that in particular lights the animal exhibited most plainly the regular brindled markings of the ordinary gray wild or semi-wild cat. These markings were as black or blacker than the rest of his hair. His mother was a half-wild gray brindle.

I think we have sufficient evidence that the black pard is merely a variety of the common one, but now we come to the pards themselves, and the question as to whether there are two distinct species or two varieties; Blyth, Jerdon and other able naturalists, although fully recognizing the differences, have yet hesitated to separate them, and they still remain in the unsatisfactory relation to each other of varieties. I feel convinced in my own mind that they are sufficiently distinct to warrant their being classed, and specifically named apart. It is not as I said before, that we should go upon peculiarities of marking and colour, although these are sufficiently obvious, but on their osteology and also the question of interbreeding and production. Grant their relative sizes, one so much bigger than the other, and the difference in colour and marking, has it ever been known that out of a litter of several cubs by a female of the larger kind, one of the smaller sort has been produced, or *vice versa*? This is a question that yet remains for investigation. My old district had both kinds in abundance, and I have had scores of cubs, of oth sorts, brought to me—cubs which could be distinguished at a glance as to which kind they belonged to, but I never remember any mixture of the two. As regards the difference in appearance of the adults there can be no question. The one is a higher, longer animal, with smooth shiny hair of a light golden fulvous, the spots being clear and well defined, but, as is remarked by Sir Walter Elliot, the strongest difference of character is in the skulls, those of the larger pard being longer and more pointed, with a ridge running along the occiput, much developed for the attachment of the muscles, whereas the smaller pard has not only a rougher coat, the spots being more blurred, but it is

comparatively a more squat built animal, with a rounder skull without the decided occipital ridge. There is a mass of evidence on the point of distinctness—Sir Walter Elliot, Horsfield, Hodgson, Sir Samuel Baker, Johnson (author of 'Field Sports in India'), "Mountaineer," a writer in the *Bengal Sporting Review*, even Blyth and Jerdon, all speak to the difference, and yet no decided separation has been made. There is in fact too much confusion and too many names. For the larger animal *Felis pardus* is appropriate, and the *leopardus* of Temminck, Schreber and others is not. Therefore that remains; but what is the smaller one to be called? I should say *Felis panthera* which, being common to Asia and Africa, was probably the panther of the Romans and Greeks. Jerdon gives as a synonym *F. longicaudata* (Valenciennes), but I find on examination of the skulls of various species that *F. longicaudata* has a complete bony orbit which places it in Gray's genus *Catolynx*, and it is too small for our panther. We might then say that we have the pard, the panther, and the leopard in India, and then we should be strictly correct. Some sportsmen speak of a smaller panther which Kinloch calls the third (second?) sort of panther, but this differs in no respect from the ordinary one, save in size, and it is well known that this species varies very much in this respect. I am not singular in the views I now express. Years ago Colonel Sykes, who was a well known naturalist, said of the pard: "It is a taller, stronger, and slighter built animal than the next species, which I consider the panther."

The skull of the pard in some degree resembles that of the jaguar, which again is nearest the tiger, whereas that of the panther appears to have some affinity to the restricted cats. In disposition all the pards and panthers are alike sanguinary, fierce and incapable of attachment. The tiger is tameable, the panther not so. I have had some experience of the young of both, and have seen many others in the possession of friends; and though they may, for a time, when young, be amusing pets, their innate savageness sooner or later breaks out. They are not even to be trusted with their own kind. I have known one to turn on a comrade in a cage, kill and devour him, and some of my readers may possibly remember an instance of this in the Zoological Gardens at Lahore, when, in 1868, a pard one night killed a panther which inhabited the same den, and ate a goodly portion of him before dawn. They all show more ferocity than the tiger when wounded, and a man-eating pard is far more to be dreaded than any other man-eater, as will be seen farther on from the history of one I knew.

No. 202. FELIS PARDUS.

The Pard (Jerdon's No. 105).

NATIVE NAMES.—*Tendua*, *Chita* or *Chita-bagh*, *Adnara*; Hindi, *Honiga*; Canarese, *Asnea*; Mahratti, *Chinna-puli*; Telegu, *Burkal*; Gondi, *Bay-heera*; and *Tahr-hay* in the Himalayas.

HABITAT.—Throughout India, Burmah, and Ceylon, and extending to the Malayan Archipelago.

DESCRIPTION.—A clean, long limbed, though compact body; hair close and short; colour pale fulvous yellow, with clearly defined spots in rosettes; the head more tiger-like than the next species; the skull is longer and more pointed, with a much developed occipital ridge.

SIZE.—Head and body from $4\frac{1}{2}$ to $5\frac{1}{2}$ feet; tail from 30 to 38 inches.

This is a powerful animal and very fierce as a rule, though in the case of a noted man-eater I have known it exhibit a curious mixture of ferocity and abject cowardice. It is stated to be of a more retiring disposition than the next species, but this I doubt, for I have frequently come across it in the neighbourhood of villages to which it was probably attracted by cattle. It may not have the fearlessness or impudence of the panther, which will walk through the streets of a town and seize and devour its prey in a garden surrounded by houses, as I once remember, in the case of a pony at Seonee, but it is nevertheless sufficiently bold to hang about the outskirts of villages. Those who have seen this animal once would never afterwards confuse it with what I would call the panther. There is a sleekness about it quite foreign to the other, and a brilliancy of skin with a distinctness of spots which the longer, looser hair does not admit of. But with all these external differences I am aware that there will be objection to classifying it as a separate species, unless the osteological divergences can be satisfactorily determined, and for this purpose it would be necessary to examine a large series of authenticated skulls of the two kinds.

The concurrence of evidence as to the habits of this species is that it is chiefly found in hilly jungles preying on wild animals, wild pigs, and monkeys, but not unfrequently, as I know, haunting the outskirts of villages for the sake of stray ponies and cattle. The largest pard I have ever seen was shot by one of my own shikaris in the act of stalking a pony near a village. I was mahseer-fishing close by at the time, and had sent on the man, a little before dusk, to a village a few miles off, to arrange for beating up a tiger early next day. Jerdon says this is the kind most common in Bengal, but he does not say in what parts of Bengal, and on what authority. I have no doubt it abounds in Sontalia

and Assam, and many other hilly parts. At Colgong, Mr. Barnes informed him that many cases of human beings killed by pards were known in the Bhaugulpore district. At Seonee we had one which devastated a tract of country extending to about 18 miles in diameter. He began his work in 1857 by carrying off a follower of the Thakur of Gurwarra, on whom we were keeping a watch during the troublous times of the mutiny. My brother-in-law, Colonel Thomson and I, went after him under the supposition that it was a tiger that had killed the man, and it was not till we found the body at the bottom of a rocky ravine that we discovered it was a pard. During the beat he came out before us, went on, and was turned back by an elephant and came out again a third time before us; but we refrained from firing as we expected a man-eating tiger. I left Seonee for two years to join the Irregular Corps to which I had been posted, and after the end of the campaign, returned again to district work, and found that the most dreaded man-eater in the district was the pard whose life we had spared. There was a curious legend in connection with him, like the superstitious stories of Wehr wolves in Northern Europe. I have dealt fully with it in "Seonee," and Forsyth has also given a version of it in the 'Highlands of Central India,' as he came to the district soon after the animal was destroyed. Some of the aborigines of the Satpura Range are reputed to have the power of changing themselves into animals at will, and back again into the human form. The story runs, that one day one of these men, accompanied by his wife, came to a glade in the jungle where some nilgai were feeding. The woman expressed a wish for some meat, on which the husband gave her a root to hold, and to give him to smell on his return. He changed himself into a pard, killed one of the nilgai, and came bounding back for the root; but the terrified woman lost her nerve, flung away the charm, and rushed from the place. The husband hunted about wildly for the root, but in vain; and then inflamed with rage he pursued her, and tore her to pieces and continued to wreak his vengeance on the human race. Such was the history of the man-eating panther of Kahani, as related in the popular traditions of the country, and certainly everything in the career of this extraordinary animal tended to foster the unearthly reputation he had gained. Ranging over a circle, the radius of which may be put at eighteen miles, no one knew when and where he might be found. He seemed to kill for killing's sake, for often his victims—at times three in a single night—would be found untouched, save for the fatal wound in the throat. The watcher on the high machaun, the sleeper on his cot in the midst of a populous village, were alike his prey. The country was demoralized; the bravest hunters refused to go after him; wild pigs and deer ravaged the fields; none would dare to watch the growing crops. If it had been an ordinary panther who would have cared? Had not

each village its Shikari? men who could boast of many an encounter with tiger and bear, and would they shrink from following up a mere animal? Certainly not; but they knew the tradition of Chinta Gond, and they believed it. What could they do?

On the morning of the second day, after leaving Amodagurh, the two sportsmen neared Sulema, a little village not far from Kahani, out of which it was reported the panther had taken no less than forty people within three years. There was not a house that had not mourned the loss of father, or mother, or brother, or sister, or wife or child, from within this little hamlet. Piteous indeed were the tales told as our friends halted to gather news, and the scars of the few who were fortunate enough to have escaped with life after a struggle with the enemy, were looked at with interest; but the most touching of all were the stories artlessly told by a couple of children, one of whom witnessed the death of a sister, and the other of a brother, both carried off in broad daylight, for the fell destroyer went boldly to work, knowing that they were but weak opponents.* I was out several times after this diabolical creature, but without success; as I sat out night after night I could hear the villagers calling from house to house hourly, "*Jāgtē ho bhiya! jāgtē ho!*" "Are you awake, brothers? are you awake!" All day long I scoured the country with my elephant, all night long I watched and waited. My camp was guarded by great fires, my servants and followers were made to sleep inside tents, whilst sentries with musket and bayonet were placed at the doors; but all to no purpose. The heated imagination of one sentry saw him glowering at him across the blazing fire. A frantic camp-follower spoilt my breakfast next morning ere I had taken a second mouthful, by declaring he saw him in an adjoining field. Then would come in a tale of a victim five miles off during the night, and then another, and sometimes a third. I have alluded before to his cowardice; in many cases a single man or boy would frighten him from his prey. On one occasion, in my rounds after him, I came upon a poor woman bitterly crying in a field; beside her lay the dead body of her husband. He had been seized by the throat and dragged across the fire made at the entrance of their little wigwam in which they had spent the night, watching their crops. The woman caught hold of her husband's legs, and, exerting her strength against the man-eater's, shrieked aloud. He dropped the body and fled, making no attempt to molest her or her little child of about four years of age. This man was the third he had attacked that night.

He was at last killed, by accident, by a native shikari who, in the dusk, took him for a pig or some such animal, and made a lucky shot; but the tale of his victims had swelled over two hundred during the three years of his reign of terror.

* 'Seonee.'

No. 203. FELIS PANTHERA.

The Panther.

NATIVE NAMES.—*Chita*, *Gorbacha*, Hindi; *Beebeo-bagh*, Mahrathi, *Bibla*, of the Chita-catchers; *Ghur-hay* or *Dheer-hay* of the hill tribes; *Kerkal*, Canarese.

HABITAT.—India generally, Burmah and Ceylon, extending also into the Malayan countries.

DESCRIPTION.—Much smaller than the last, with comparatively shorter legs and rounder head; the fur is less bright; the ground-work often darker in colour, and the rosettes are more indistinct which is caused by the longer hairs intermingling and breaking into the edges of the spots; tail long and furry at the end. According to Temminck the tail is longer than that of the last species, having 28 caudal vertebrae against 22 of the other; if this be found to be the normal state, there will be additional grounds for separating the two.

SIZE.—Head and body, 3 to 3½ feet; tail, 2½ feet; height from 1½ to 2 feet.

This animal is more common than the pard, and it is more impudent in venturing into inhabited places. This is fortunate, for it is seldom a man-eater, although perhaps children may occasionally be carried off. I have before mentioned one which killed and partially devoured a pony in the heart of a populous town, and many are the instances of dogs being carried off out of the verandahs of Europeans' houses. A friend of mine one night being awake by a piteous howl from a dog, chained to the centre pole of his tent, saw the head and shoulders of one peering in at the door; it retreated but had the audacity to return in a few minutes. Jerdon and other writers have adduced similar instances. It is this bold and reckless disposition which renders it easier to trap and shoot. The tiger is suspicious to a degree, and always apprehensive of a snare, but the panther never seems to trouble his head about the matter, but walks into a trap or resumes his feast on a previously killed carcase, though it may have been moved and handled. There is another thing, too, which shows the different nature of the beast. There is little difficulty in shooting a panther on a dark night. All that is necessary is to suspend, some little distance off, a common earthen *gharra* or water pot, with an oil light inside, the mouth covered lightly with a sod, and a small hole knocked in the side in such a way as to allow a ray of light to fall on the carcase. No tiger would come near such an arrangement, but the panther boldly sets to his dinner without suspicion, probably from his familiarity with the lights in the huts of villages.

I may here digress a little on the subject of night shooting. Every one who has tried it knows the extreme difficulty in seeing the sights of



FELIS PANTHERA

[From a fine specimen in the Regent's Park Gardens.]

P. S. P. P.

the rifle in a dark night. The common native method is to attach a fluff of cotton wool. On a moonlight night a bit of wax, with powdered mica scattered on it, will sometimes answer. I have seen diamond sights suggested, but all are practically useless. My plan was to carry a small phial of phosphorescent oil, about one grain to a drachm of oil dissolved in a bath of warm water. A small dab of this, applied to the fore and hind sights, will produce two luminous spots which will glow for about 40 or 50 seconds or a minute.

Dr. Sal Müller says of this species that it is occasionally found sleeping stretched across the forked branch of a tree, which is not the case with either the tiger or the pard. According to Sir Stamford Raffles, the *Rimau-dahan* or clouded panther (miscalled tiger) *Felis macrocelis*, has the same habit.

I would remark in conclusion that in the attempt to define clearly the position of these two animals the following points should be investigated by all who are interested in the subject and have the opportunity.

First the characteristics of the skull:—

viz.—Length, and breadth as compared with length of each, with presence or absence of the occipital ridge.

2ndly.—Number of caudal vertebrae in the tails of each.

3rdly.—Whether in a litter, from one female, cubs of each sort have been found.

No. 204. FELIS UNCIA.

The Ounce or Snow Panther (Jerdon's No. 106).



Felis uncia.

NATIVE NAMES.—*Iker*, Tibetan; *Sah*, Bhotia; *Phak*, Lepcha; *Burred-hay*, Simla hillmen; *Thurwag* in Kunawur. *The Snow-Leopard* of European sportsmen.

HABITAT.—Throughout the Himalayas, and the highland regions of Central Asia.

DESCRIPTION.—Pale yellowish or whitish isabelline, with small spots on the head and neck, but large blotchy rings and crescents, irregularly dispersed on the shoulders, sides and haunches; from middle of back to root of tail a medium irregular dark band closely bordered by a chain of oblong rings; lower parts dingy white, with some few dark spots about middle of abdomen; limbs with small spots; ears externally black; tail bushy with broad black rings.

SIZE.—Head and body about 4 feet 4 inches; tail, 3 feet: height, about 2 feet.

I have only seen skins of this animal, which is said to frequent rocky ground, and to kill *Barhel*, *Thar*, sheep, goats, and dogs, but not to molest man. This species is distinguishable from all the preceding felines by the shortness and breadth of the face and the sudden elevation of the forehead—*Gray*. Pupil round—*Hodgson*.

No. 205. FELIS DIARDII *vel* MACROCELIS.

The Clouded Panther (Jerdon's No. 107).

NATIVE NAMES.—*Tungmar*, Lepcha; *Zik*, Bhotia; *Lamchitta*, of the Khas tribe (*Jerdon*). *Rimau dahan* of Sumatra.

HABITAT.—Nepal, Sikim, Assam, Burmah, and down the Malayan Peninsula to Sumatra, Java and Bornea.

DESCRIPTION.—A short-legged long-bodied animal, with a very elongated skull; the upper canines are the longest in comparison of all living felines, and in this respect it comes nearest to the extinct species *Felis smilodon*. The ground-work of the colouring is a pale buff, with large, irregular, cloud-like patches of black. Blyth remarks that the markings are exceedingly beautiful, but most difficult to describe, as they not only vary in different specimens, but also in the two sides of one individual. Jerdon's description is as follows: "Ground colour variable, usually pale greenish brown or dull clay brown, changing to pale tawny on the lower parts, and limbs internally, almost white however in some. In many specimens the fulvous or tawny hue is the prevalent one; a double line of small chain-like stripes from the ears, diverging on the nape to give room to an inner and smaller series; large irregular clouded spots or patches on the back and sides edged very dark and crowded together; loins, sides of belly and belly marked with irregular small patches and spots: some black lines on the cheeks and sides of neck, and a black band across the throat; tail with dark rings, thickly furred, long; limbs bulky, and body heavy and stout; claws very powerful." Hodgson stated that the pupil of the eye is round, but Mr. Bartlett, whose opportunities of observation have been much more frequent, is positive that it is oval.

SIZE.—Head and body, 3½ feet; tail, 3 feet, but Jerdon states it grows to a larger size.

This is one of the most beautiful of all the cat family. It is not, however, one of the most elegant in form and motion, but its colouring is exquisite; it is quite an arboreal feline, and is found only in forests, frequently sleeping or lying in wait across the forked branches of trees, from which habit it acquires its Malayan name, *dahan*, signifying the forked branch of a tree. The young seem to be easily tamed, according to Sir Stamford Raffles, who describes two which he had in confinement. Dr. Jerdon also states the same, he having procured a young one in the



Felis Diardii.

neighbourhood of Darjeeling. In the Zoological Gardens in London there was a very fine specimen about four years ago. Professor Parker says of it: "It was not always to be seen, as it was kept during the day fastened up in one of the sleeping apartments at the back of a cage in the lion-house, and was left out only for about half an hour before the gardens closed. It was well worth stopping to see. As soon as the iron door of its cell was raised, it would come out into the large cage with a peculiar sailor-like slouch, for owing to the shortness of its legs, its gait was quite different to that of an ordinary cat, and altogether less elegant. The expression of the face, too, was neither savage nor majestic nor intelligent, but rather dull and stupid. It was fond of

assuming all sorts of queer attitudes. Brehm describes one as lying prone on a thick branch placed in its cage, with all four legs hanging down straight, two on each side of the branch—certainly a remarkable position for an animal to assume of its own free will.

The type of this animal constitutes the genus *Neofelis* of Gray, containing two species, this and the *Neofelis (leopardus) brachyurus* of Formosa.

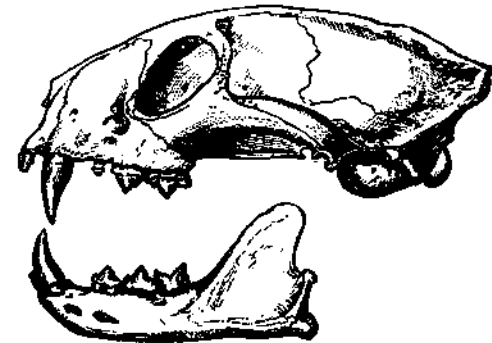
No. 206. FELIS VIVERRINA.

The Large Tiger-Cat (Jerdon's No. 108).

NATIVE NAMES.—*Mach-bagral*, *Bagh-dasha*, Bengali; *Bunbiral*, *Khufya-bagh*, Hindi; *Handoon-deeva*, Singhalese.

HABITAT.—India generally, Burmah, the Malay countries, and Ceylon. Jerdon says he has not heard of it in Central India nor in the Carnatic, nor farther west of Nepal. I have been, however, informed that a wild cat was killed lately at Jeypore in the act of carrying off an infant of four months old. I know of no cat, save this species, capable of such a proceeding. The child was rescued alive.

DESCRIPTION.—"Of a mouse gray colour, more or less deep and sometimes tinged with tawny, with large dark spots, more or less numerous, oblong on the back and neck and in lines, more or less rounded elsewhere, and broken or coalescing" (but never ocellate: *Blyth*); "cheeks white; a black face stripe; beneath dull white; chest with five or six dark bands; belly spotted," (whence the name *celi-*



Skull of *Felis viverrina*.

dogaster applied by Temminck) "tail with six or seven dark bands and a black tip" (sometimes spots only); "feet unspotted."—*Jerdon*.

SIZE.—Head and body 30 to 34 inches; tail only 10 to 13; height about 15 or 16; weight according to Hodgson and Jerdon, about 17 lbs.

The frontal and jugal bones in old specimens of this species are united by a bar which forms a complete bony orbit—a peculiarity possessed, as I have before observed, by *F. longicaudata*, but by few other felines. *Felis rubiginosa*, *F. planiceps*, and *F. Elliotti* are also cats of this type, which Gray has separated into the genus *Viverriceps*.

This large cat is not uncommon near Calcutta, and is reputed to live much on fish and fresh-water shells, but also I should say on larger game. According to some authors (Buchanan-Hamilton, for instance), it is fierce and untameable, but Blyth states that he had several big toms, quite tame, and in the Surrey Zoological Gardens there was many years ago a very fine male which he had frequently handled and had even on his lap. He relates, however, in another part, that a newly caught male of this species killed a tame young leopardess of twice its own size, having broken through the partition of a cage, but he did not eat any portion of her. The Prince of Wales took home a very fine specimen of this cat among his collection of living animals.

Mr. Rainey writes of the ferocity of this cat in the following terms: "I can testify to the existence of the above qualities in this animal (*Felis viverrina*, Bennett), which is rather abundant in these parts, generally taking up its quarters in low, swampy jungle, where it often carries off calves, for which the leopard (*F. leopardus*, Linn.), undeservedly gets credit. Lately, a couple of months ago, a pair of them at night broke into a matted house, and went off with a brace of ewes, which had half-a-dozen lambs between them, born only a short time before their mothers met with their bloody end. I have caught this species in traps, and when let loose in an indigo vat with a miscellaneous pack of dogs, they have invariably fought hard, and at times proved too much for their canine adversaries, so that I have had to go to their rescue, and put an end to the fight, by a spear-thrust, or a heavy whack on the back of the head with a stout club. Some years ago one got into my fowl-house at night, and just as I opened the door to enter inside, it made a fierce jump at me from a perch on the opposite side. I had just time to put the barrel of my gun forward, on the muzzle of which it fell, and had its chest blown to atoms, as I pulled the trigger instantly it alighted there."

No. 207. FELIS MARMORATA.

The Marbled Tiger-Cat (Jerdon's No. 109).

HABITAT.—The Sikim Himalayas, Assam, Burmah, and the Malayan countries.

DESCRIPTION.—"Size of a domestic cat, but with stouter limbs and a much longer and thicker tail, of uniform thickness throughout and reaching back to the occiput when reflected; the upper canines are not remarkably elongated as in *F. macroceloides* (*macrocelis*); ears rather small and obtusely angulated, with a conspicuous white spot on their hinder surface" (*Blyth*). "Ground colour dingy-fulvous, occasionally yellowish grey; the body with numerous elongate wavy black spots, somewhat clouded or marbled; the head and nape with some narrow blackish lines, coalescing into a dorsal interrupted band; the thighs and

part of the sides with black round spots; the tail black, spotted, and with the tip black; belly yellowish white."—*Jerdon*.

SIZE.—Head and body, 18 to 24 inches; tail, 14 to 16.

This beautiful little cat is almost a miniature of the clouded panther, and Blyth confuses the Malayan name of the latter, and applies it to this species, which probably arose from his quoting as a synonym, *F. diardii*, which, however, in the same paper he repudiates, as the description of the



Felis marmorata.

size of *F. diardii* clearly proved a much larger animal. This is the type of Grey's genus *Catolynx*, the other species in India being *F. charltoni*. The genus is peculiar from the resemblance of the nasal bones to those of the lynx, and from the complete or nearly complete bony orbit; the skull differs, however, greatly from the *viverriceps* form, being much more spherical with very short nasal bones. There is an admirable illustration in De Blainville's 'Ostéographie' of it under the name of *F. longicaudata*. Very little is known as yet of the habits of this cat.

No. 208. FELIS BENGALENSIS.

The Leopard-Cat (Jerdon's No. 110).

NATIVE NAMES.—*Bun Beral*, Bengali; *Jungli Bilao*, *Chhita Bilao*, Hindi; *Thet-kyoung* in Arakan; *Lhan-rahm-manjur*, Mahrathi; *Wagati*, Mahratti of the Ghats.

HABITAT.—India generally, in hilly parts; Assam, Burmah, and the Malay countries; also Ceylon.

DESCRIPTION.—About the size of the domestic cat, but with extremely

variable colouring and a short, thick, cylindrical tail reaching, when turned back, above half way up the spine. Blyth says of it: "In general the ground hue is pale fulvous, with under parts of the purest white, richly marked with deep black; black lines on the crown and nape; angular spots on the body wholly or partially black, or, *en rosette*, with deeper fulvous within and round; black spots on the limbs and tail; sometimes the body markings unite more or less into longitudinal streaks and rarely a marbled appearance is assumed on the upper parts."

SIZE.—Head and body, 24 to 26 inches; tail 11 to 12.

It is useless to lay down, as in Jerdon, a very accurate description of the markings of this cat, for it varies to such an extent as to have given rise to at least sixteen synonymous names, if not more. You will find the same cat repeated over and over again in Gray's catalogue, and a different name in almost every book of natural history; it figures at large as *Felis Bengalensis*, *undata*, *Javanensis*, *Sumatrana*, *minuta*, *torquata*, *Nipalensis*, *wagati*, *pardochrous*, *undulata*, *Ellioti*, *Horsfieldi*, *inconspicua*, *Chinensis*, *Reevesii*, and *Diarüi*. Blyth pertinently remarks: "The varieties of this handsome little cat are endless, and nominal species may be made of it, *ad libitum*, if not rather *ad nauseam*."

This is a very savage animal, and not tameable. Jerdon and Blyth both agree in this from specimens they kept alive. Hutton also writes: "I have a beautiful specimen alive, so savage that I dare not touch her." I should like to possess a young one, having been successful with many so-called savage animals. I had a wild-cat once which was very savage at first, but which ultimately got so tame as to lie in my lap whilst I was at work in office or writing, but she would never allow me to touch or stroke her; she would come and go of her own sweet will, and used to come daily, but she would spit and snarl if I attempted a caress. Blyth says that in confinement it never paces its cage, but constantly remains crouched in a corner, though awake and vigilant; but I have always found that the confinement of a cage operates greatly against the chance of taming any wild animal. Sir Walter Elliot says that the Shikaris attribute to it the same habit as that which used erroneously to be ascribed to the glutton, viz., that of dropping from trees on to its prey and eating its way into the neck. It preys chiefly on small game—poultry, hares, and is said to destroy small deer. McMaster relates he "saw one carry off a fowl nearly as large as itself, shaking it savagely meanwhile, and making a successful retreat in spite of the abuse, uproar, and missiles which the theft caused." Dr. Anderson says it is essentially arboreal, and the natives assert it lives on birds and small mammals, such as *Squirrels* and *Tupaia*. According to Hutton it breeds in May, producing three or four young in caves or beneath masses of rock.

No. 209. FELIS JERDONI.

The Lesser Leopard-Cat (Jerdon's No. 111).

HABITAT.—Peninsula of India, probably also Assam and Burmah.

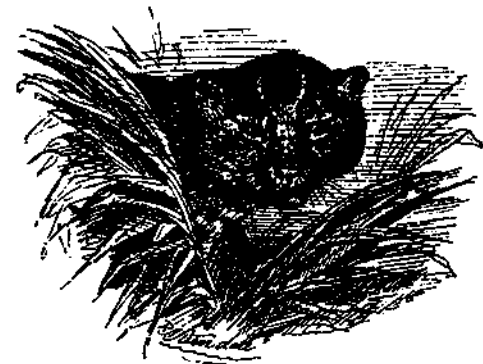
DESCRIPTION.—"Very like *F. Bengalensis*; but smaller, the ground colour of the upper part grey, untinged with fulvous" (*Blyth*). A few small distinct black spots; spots of sides of legs round, long in the centre of the back; tail and feet dark greyish brown, but slightly spotted, if at all; chin, throat, and under parts white, with black spots.

No. 210. FELIS AURATA.

The Bay Cat (Jerdon's No. 112).

HABITAT.—The Nepal and Sikkim Himalayas, probably also Assam; and as it occurs in the Malayan islands, it should be found in Burmah. It is likewise an African species, Gold Coast.

DESCRIPTION.—Deep bayred above, paler below; a few indistinct dark spots on the hind legs and sides; throat white; inside of ears black; the head beautifully striped with black, white and orange; the cheeks are yellowish, with two black streaks; a pale black edged line over the eyes; whiskers black, with white tips; claws black, Jerdon says that the lower surface in some is reddish white, with large and small maroon spots.



Felis aurata.

SIZE.—Head and body, 31 inches and over; tail, 19. There is a fine illustration of this cat in Cassell's 'Natural History,' edited by Professor Martin Duncan, vol. ii., page 58.

Very little is known of the habits of this cat. Mr. Hodgson's first specimen "was caught in a tree by some hunters in the midst of an exceedingly dense forest. Though only just taken it bore confinement very tranquilly, and gave evident signs of a tractable disposition, but manifested high courage, for the approach of a huge Bhotea dog to its cage excited in it symptoms of wrath only, none of fear." That it is found in Burmah is extremely probable, as it inhabits the Malay countries,

and the Rev. J. Mason speaks of a tiger cat in Tenasserim, "which the Karens call the *Fire Tiger* from the colour of its skin, which is of an uniform red."

No. 211. FELIS RUBIGINOSA.

The Rusty-spotted Cat (Jerdon's No. 113).

NATIVE NAME.—*Namali pelli*, Tamil.—*Jerdon*.

HABITAT.—Southern India and Ceylon. Jerdon says he never saw or heard of it in Central India, or on the Malabar Coast, but I got it at Seonee in the Central Provinces.

DESCRIPTION.—Size of a small domestic cat, with a tail half the length of the body; colour greyish with a rufous tinge, or greenish grey tinged with rufous; the under parts white, with large rufous spots; ears small; four well defined dark brown or black lines along the forehead and nape, and three along the back, the latter being interrupted into longish spots; a series of rusty coloured spots on the sides; fur very short; tail uniform in colour, more rufous than the body, sometimes indistinctly spotted; insides of limbs with large brown spots; feet reddish grey above with black soles, whiskers long and white.

SIZE.—Head and body, 16 to 18 inches; tail, 9½.

Jerdon says: "This very pretty little cat frequents grass in the dry beds of tanks, brushwood, and occasionally drains in the open country and near villages, and it is said not to be a denizen of the jungles. I had a kitten brought to me when very young, in 1846, and it became quite tame, and was the delight and admiration of all who saw it. Its activity was quite marvellous, and it was very playful and elegant in its motions. When it was about eight months old I introduced it into a room where there was a small fawn of the gazelle, and the little creature flew at it the moment it saw it, seized it by the nape, and was with difficulty taken off. I lost it shortly after this. It would occasionally find its way to the rafters of bungalows and hunt for squirrels."

Jerdon doubted the existence of this cat in Central India, but, in 1859 or 1860, I had two kittens brought to me by a Gond in the Seonee district, and I kept them for many months. They became perfectly tame, so much so that, although for nine months of the year I was out in camp, they never left the tents, although allowed to roam about unconfined. The grace and agility of their motions was most striking. I have seen one of them balance itself on the back of a chair, and when one of the pair died it was ludicrous to see the attempts of a little gray village cat, which I got to be a companion to the survivor, to emulate the gymnastics of its wild comrade. At night the little cats were put into a basket, and went on with the spare tents to my next halting place; and on my arrival next morning I would find them frisking about the tent roof between the two canvasses, or scrambling up the trees

under which we were pitched. Whilst I was at work I usually had one in my lap and the other cuddled behind my back on the chair. One day one of them, which had been exploring the hollows of an old tree close by, rushed into my tent and fell down in convulsions at my feet. I did everything in my power for the poor little creature, but in vain, it died in two or three minutes, having evidently been bitten by a snake. The survivor was inconsolable, refused food, and went mewing all over the place and kept rolling at my feet, rubbing itself against them as though to beg for the restoration of its brother. At last I sent into a village and procured a common kitten, which I put into the basket with the other. There was a great deal of spitting and growling at first, but in time they became great friends, but the villager was no match for the forester. It was amusing to see the wild one dart like a squirrel up the walls of the tent on to the roof; the other would try to follow, scramble up a few feet, and then, hanging by its claws, look round piteously before it dropped to the ground.

No. 212. FELIS TORQUATA.

The Spotted Wild-Cat (Jerdon's No. 114).

NATIVE NAME.—*Lhan-rah-manjur*, Mahrathi.

HABITAT.—North-Western, Central, and Southern India.

DESCRIPTION.—Ground colour pale greyish fulvous or cat-grey, with numerous round black spots, smaller on the head, nape, and shoulders; longitudinal lines on the occiput; cheek striped; breast spotted, but belly free from spots; on the limbs distinct cross bands; within the arms one or two broad black streaks; tail tapering more or less, and marked with a series of well-defined rings and a black tip; smallish ears, as in the domestic cat, reddish outside with a small dusky tuft at tip; paws black underneath.

SIZE.—Head and body, from 16 to 24 inches; tail, about half the length.

Blyth first obtained this from Hansi, where it was stated to frequent open sandy plains, living on field rats. Jerdon at Hissar and in the Central Provinces. At Hissar he found it among low sand-hills, where it appeared to feed on the jerboa-rat (*Gerbillus indicus*), which is common there. Sykes seems to have confused this species with a domestic variety run wild, as the habits differ from the present species.

No. 213. FELIS MANUL.

The Black-chested Wild-Cat.

HABITAT.—Tibet, Central and Northern Asia.

DESCRIPTION.—Rufescent pale grey; chest and front of neck and part of belly sooty black, "terminating forward near the ears horn-wise

or crescent-wise; on the crown of the head several series of black dots are disposed more or less linearly and length-wise. On the cheeks, from eyes to articulation of jaws, are two sub-parallel zig-zag lines of jet black; five to seven straighter lines, less deep in hue, cross the lower back and blend gradually with the caudal rings, which, including the black tip, are about nine in number. These rings of the tail are narrow, with large intervals, diminishing towards its tip, as the interstices of the dorsal bars do towards the base of the tail; the black caudal rings are perfect, save the two basal, which are deficient below, whilst the two apical on the contrary are rather wider below and nearly or quite connected there. Outside the arms and sides are two or three transverse black bars, more or less freckled with the grey hairs of the body; ears outside grey, like the back, but paler, small and much rounded. The young show the marks more clearly" (*Blyth*, abridged from *Hodgson*).

SIZE.—Head and body, 22 to 24 inches; tail, 10 to 11 inches.

This animal which is allied to the European wild-cat, was first discovered by Pallas, who, however, has left little on record concerning its habits beyond that it is found in woody rocky countries preying on the smaller quadrupeds.

No. 214. FELIS SCRIPTA.

HABITAT.—Thibet.*

No. 215. FELIS SHAWIANA.

The Yarkand Spotted Wild-Cat.

NATIVE NAME.—*Motun*, Turki.

HABITAT.—Turkistan, Yarkand.

DESCRIPTION.—"General colour pale greyish fulvous above, the back rather darker than the sides; under parts white; the body marked throughout with rather small black spots which are largest on the abdomen, smaller and closer together on the shoulders and thighs, tending to form cross lines on the latter, and indistinct on the middle of the back; anterior portion of the face and muzzle whitish; cheek stripes of rusty red and black; hairs mixed; ears rather more rufous outside, especially towards the tip, which is blackish brown and pointed; the hairs at the end scarcely lengthened; interior of ears white; there are some faint rufous spots at the side of the neck; breast very faintly rufous, with one narrow brownish band across; inside of limbs mostly white; a black band inside the forearm, and a very black spot behind the tarsus; tail dusky above near the base, with five or six black bars above on the posterior half, none below, the dark bars closer together

* Milne-Edwards describes this animal in his 'Recherches sur les Mammifères,' page 341.

towards the tip; fur soft, moderately long, purplish grey towards the base."

SIZE.—Apparently exceeds that of the common cat, and equals *F. chaus*; the tail about half the length of the body.

I have taken the above description from Mr. W. T. Blanford ('Report on the Second Yarkand Mission: Mammalia') who has first described and named this new species. There is also an excellent plate in the same portion of the report, which unfortunately is published at an almost prohibitive price, and to be obtained at the Government Press. The black spots on the belly have been inadvertently left out; otherwise the plate is excellent, as are all the others, especially the osteological ones.

No. 216. FELIS CHAUS.

The Common Jungle-Cat (Jerdon's No. 115).

NATIVE NAMES.—*Katas* (according to Jerdon, but I have always found this applied to the *Paradoxurus*), *Jangli-billi*, *Ban-bilao*, Hindi; *Ban beral*, Bengali; *Birka*, Bhagalpor Hill Tribes; *Maut-bek*, Canarese; *Kada-bek* or *Bella-bek* of Waddars; *Mota lahn manjur*, Mahrathi; *Bhaoga* Mahrathi of the Ghats; *Jinki-pilli*, Telegu; *Cheru-pali*, Malabarese (*Jerdon*); *Khyoung-Tsek-koon* in Arakan.

HABITAT.—Common all over India from 7,000 or 8,000 feet of elevation in the Himalayas, down to Cape Comorin and the Island of Ceylon. It is also found in Assam and Burmah. This species appears to have a wide range, as it has been found also in Persia, on the borders of the Caspian and in Egypt.

DESCRIPTION.—Larger somewhat, and more lanky than the domestic cat. The general appearance of the fur a rusty or grizzly grey; the hairs being pale fulvous brown with dark tips; more rufous on the sides of the abdomen and neck, the lower parts being white; faint transverse stripes, occasionally broken into spots on the sides, but these markings disappear with old age, and are more difficult to trace in the deeper furred specimens from cold countries; the markings are darker on the limbs, and there is a distinct black bar on the forearm near the elbow; inside are two or three dark stripes; the feet are blackish underneath; often a dark bar across the chest, and sometimes faint spots on the belly; rufous stripes on the cheek; a dark stripe ascends from the eye, especially in the young animal, and it has sometimes faint stripes on the nape mingling on the forehead; the ears are slightly tufted, dark externally, white within; the tail, which is short, is more or less ringed from the middle to the tip, which is black. Melanoid specimens have been found.

SIZE.—Head and body about 26 inches; tail, nine to ten; height at shoulder, 14 to 15 inches.

This rather common cat is, in some degree, related to the lynxes, sufficiently distinct, yet resembling the latter in its tufted ears, short tail, long limbs, and some few peculiarities of the skull.

Jerdon says of it: "It frequents alike jungles and the open country, and is very partial to long grass and reeds, sugar-cane fields, corn fields, &c. It does much damage to game of all kinds—hares, partridges, &c., and quite recently I shot a pea fowl at the edge of a sugar-cane field when one of these cats sprang out, seized the pea fowl, and after a short struggle (for the bird was not dead) carried it off before my astonished eyes, and in spite of my running up, made good his escape with his booty. It must have been stalking these birds, so immediately did its spring follow my shot." Blyth writes: "In India the *chaus* does not shun, but even affects populous neighbourhoods, and is a terrible depredator among the tame ducks and poultry, killing as many as it can get at, but I have not known him to attack geese, of which I long kept a flock out day and night, about a tank where ducks could not be left out at night on account of these animals. A pair of them bred underneath my house, and I frequently observed them, and have been surprised at the most extraordinary humming sound which they sometimes uttered of an evening. Their other cries were distinguishable from those of the domestic cat." This species will, however, interbreed with the domestic cat. According to Hodgson it breeds twice a year in the woods, producing three or four kittens at a birth. It is said to be untameable, but in 1859, at Sasseram, one of the men of my Levy caught a very young kitten, which was evidently of this species. I wrote at the time to a friend about a young mongoose which I had just got, and added, "It is great fun to see my last acquisition and a little jungle cat (*Felis chaus*) playing together. They are just like two children in their manner, romping and rolling over each other, till one gets angry, when there is a quarrel and a fight, which, however, is soon made up, the kitten generally making the first advances towards a reconciliation, and then they go on as merrily as ever. The cat is a very playful, good tempered little thing; the colour is a reddish-yellow with darker red stripes like a tiger, and slightly spotted; the ears and eyes are very large; the orbits of the last bony and prominent. What is it? *Chaus* or *Bengalensis*?* I am not as yet learned in cats when very young. If it be a real jungle cat—which my shikaris declare it to be—it strangely belies the savage nature of its kind, as Thomson says:—

The tiger darting fierce
Impetuous on the prey his glance has doom'd
The lively shining leopard speckled o'er
With many a spot the beauty of the waste
And scorning all the taming arts of man.

* Both reputed to be untameable.

"Poets are not always correct. Tigers have often been tamed, though they are not to be depended on."

Now we come to the true Lynxes, which are cats with very short tails, long limbs, tufted ears, the cheeks whiskered almost as long as Dundreary's, and feet the pads of which are overgrown with hair. Some naturalists would separate them from the other cats, but the connection is supplied by the last species which, though possessing certain features of the lynx, yet interbreeds with the true cats. The lynx was well known to the ancients, and was one of the animals used in the arena from its savage disposition, and its sight was considered so piercing as to be able to penetrate even stone walls! There are no true lynxes in India proper; we must look to the colder Trans-Himalayan countries for them. The following is from Thibet:—

NO. 217. FELIS ISABELLINA.

The Thibetan Lynx.

HABITAT.—Thibet.

DESCRIPTION.—"Pale isabella-brown, with scarcely a trace of markings, but in some the spots come out even conspicuously in summer *pelage*, especially on the limbs and belly, and the crown and middle of the back are generally more or less infuscated, occasionally very much so; in some the face is almost white, with traces of frontal streaks, and there is always (the same as in the European lynx) a short, narrow, dark streak on each side of the nose towards its tip."—*Blyth*.

This species is similar in some respects to the European animal, but the principal difference lies in the feet, the pads of which in the Thibetan species are prominent and bare, with short, close fur between them, whereas in the European lynx the long fur completely conceals the pads, and the latter is the larger animal. There is a very good photograph of *F. isabellina* in Kinloch's 'Large Game Shooting in Thibet and the North-West' taken from a carefully stuffed specimen. The author says: "On the 4th of July 1866, I was hunting *Oves Ammon* on the high ground between Hanle and Nyima, when I suddenly came upon a female lynx with two young cubs. I shot the mother, and as the cubs concealed themselves among some rocks, I barricaded them in, and went on with my hunting. On arriving in camp I sent men back to try and catch the cubs; in this they succeeded, and brought them to me. They were about the size of half grown cats, and more spiteful vicious little devils cannot be imagined; they were, however, very handsome, with immense heads and paws. For two or three days they refused all food; but at the end of that time they fed quite ravenously from the hand. They soon became very tame and playful,

though always ready to set their backs up if at all teased, or if a dog came near them."

The next species differs from the typical lynx in wanting the ruff of hair round the face, and also in having the pads of the feet bald. The skull is that of a lynx, but the processes of the frontals and intermaxillæ are not quite so much produced, and they do not entirely separate the nasal from the maxillæ. There is a good illustration to be found in De Blainville's 'Ostéographie.'

NO. 218. FELIS CARACAL.

The Red Lynx (Jerdon's No. 116).

NATIVE NAME.—*Siagosh*, Persian, i.e., black ear.

HABITAT.—Scattered throughout India generally, Assam (Burmah and Ceylon?), but it has also a much wider range, being found throughout Africa, Syria, and Arabia, and also in Persia.

DESCRIPTION.—Colour sandy fulvous, varying somewhat in individuals; paler beneath, in some almost white; tail the same colour as the body, with a black tip; the lower parts with some obscure spots, more or less distinct on the belly, flanks and insides of limbs; ears black externally, with a long dark ear tuft, white inside; a small blackish spot on the upper lip, and another above the eye, also a line down each side of the nose. In some individuals faint bars and caudal rings are discernible, and the chest is obscurely banded.

SIZE.—Head and body, 26 to 30 inches; tail, 9 or 10; height, 16 to 18 inches.

This handsome lynx is found, though not very common, in most parts of the Indian Peninsula, although Jerdon states that it is unknown in the Himalayas, Bengal, and the eastern countries. In those parts where it abounds it is very destructive to small game, such as gazelles, the smaller deer and hares. It also catches such birds as pea-fowl, francolin, cranes, &c., frequently springing at them from the ground as they fly over. They are easily tamed. I had a young one at Seoncee, and the natives of some parts are said to train them for sporting purposes in the manner in which the hunting leopard is trained.

Blyth says a brace of siagosh are often pitted against each other by the natives who keep them, a heavy wager pending as to which of the two will disable the greater number out of a flock of tame pigeons feeding, before the mass of them can rise out of reach, and ten or a dozen birds are commonly struck down right and left.

"It is a most sanguinary creature, yet the keepers manage them with facility, and slip the hood over their eyes with extreme dexterity, while they are engaged with their prey. In general they become quite tame to persons they know, and often sufficiently so to bear handling by a

stranger: Much as I have seen of them I never heard one utter a sound, except hissing and growling."

With regard to this last assertion of Mr. Blyth's I may say that the caracal differs very much from the European lynx, who, according to Tschudi, betrays his presence by horrible howlings audible at a great distance. Professor Kitchen Parker writes that the specimen now in the Zoological Gardens is a most cantankerous beast.* "If the American



Felis caracal.

lynx, who is unfortunate enough to live in the same cage with him, dares to come betwixt the wind and his nobility, or even if he, in the course of his peregrinations, should, by chance, get sufficiently near his companion to be annoyed with the sight of so vulgar a beast, he immediately arches his back, lays back his ears, uncovers his great canines, and swears in a most fearful manner until the other unlucky animal is quite cowed, and looks as meek as its feline nature will allow it, evidently deprecating the anger of my lord; and although not

* I can bear witness to this, having lately made his acquaintance.

conscious of having done wrong, quite ready to promise faithfully never to do it again."

We now take up the last member of the Cat family; one differing so much in certain respects as to have been classed by some authors as a separate genus, to which Wagner gave the name of *Cynaelurus*, or dog-cat, which, however, is not appropriate, as the animal, though having the slender form of the greyhound, and in having the claws of its middle front toes but imperfectly retractile, is, in its anatomy and all osteological features, a true cat. As I have before remarked it is to this animal alone that the name leopard should be applied, the peculiar ruff or shagginess of hair on the neck having given rise to the ancient superstition that this animal was a cross between the lion and the pard, whence its name Leo-Pardus. There are three varieties found in Africa and India—one, the maneless leopard, is confined to Africa, where also is found in the south a woolly variety with light brown spots. The maned leopard is found all over South-West Asia, including India.

NO. 219. FELIS JUBATA.

The Hunting Leopard (Jerdon's No. 117).

NATIVE NAMES.—*Chita*, Hindi; *Yuz* of the Chita-catchers; *Kendua-bagh*, Bengali; *Laggar* in some parts; *Chita Puli*, Telegu; *Chircha* and *Sivungi*, Canarese.

HABITAT.—Central or Southern India, and in the North-West from Kandeish, through Scinde and Rajpootana, to the Punjab. It is also found in all Africa, with Syria and Arabia, and throughout Asia Minor. In India the places where it is most common are Jeypur in Upper India, and Hyderabad in Southern India.

DESCRIPTION.—A tall, slim animal, with body much drawn in at the flanks like a greyhound; purely cat-like head with short round ears; long tail, much compressed at the end; in colour a bright rufous fawn, more or less deep, sometimes what Blyth calls a bright *nankeen*, dotted with numerous small black spots which are single, and not in rosettes, as in the pards; a black streak from the corner of the eye down the face; ears black at base externally, the rest whitish; the tail



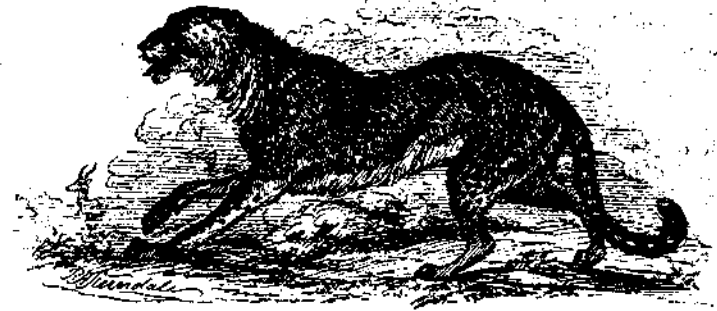
Skull of *Felis jubata*.

spotted, but having three or four black rings at the tip: the extreme tip is always white; the hair of the belly is lengthened with a shaggy

fringe-like appearance; the fur generally is coarse; the nozzle is black, whereas in the tiger it is pink, and in a pard dusky pink; the pupils of the eye contract circularly.

SIZE.—Head and body, about 4½ feet; tail, 2½; height, 2½ to 2¾ feet.

This animal is one of the most interesting of all the felines, both as regards its appearance, disposition, habits, and the uses to which it can be put. Throughout India it is in much request as a necessary appanage to regal state; and, therefore, a class of men devote themselves to the trapping of this creature which, when trained, finds a ready sale at the courts of Indian nobles. For this purpose the adult animal is always caught, it being considered by the chita-catchers that a young leopard would never turn out well for the purposes of the chase. A similar idea prevails amongst the falconers of Hindustan regarding nestlings, and it is surprising how soon a large adult and apparently savage animal



Felis jubata.

can be reduced to a state of comparative slavery and obedient to the orders of his keepers.

Dr. Jerdon describes one which he brought up from its earliest infancy; his bungalow was next to the one I inhabited for a time at Kampti, and consequently I saw a good deal of Billy, as the leopard was named. At my first interview I found him in the stables amongst the dogs and horses, and, as I sat down on his charpoy, he jumped up alongside of me, and laid down to be scratched, playing and purring and licking my hands with a very rough tongue. He sometimes used to go out with his master, and was gradually getting into the way of running down antelope, when Dr. Jerdon was ordered off on field service.

The mode of hunting with the chita is so well known, and has been so frequently described, that I think I need not attempt a description.

Its habits in a state of nature, and the mode of capture, are more to the purport of this work. It is said by shikarees to feed only once every third day, when, after gorging itself, it retires to its den for the other two. On the morning of the third day he visits some particular tree, which the animals of his species in the neighbourhood are in the habit of frequenting. Such trees are easily to be recognised by the scoring of the bark on which he whets his claws. Here, after having relieved himself in various ways and played about with such of his comrades as may be there, they go off on a hunting expedition.

There is an interesting letter from "Deccanee Bear" in *The Asian* of the 22nd of July, 1880, giving a description of the snaring of some of these animals, and the remarks he makes about their rendezvous at a particular tree, corroborates what has been asserted by other writers. He says: "Arrived at the spot the bullocks were soon relieved of their burden, and then work commenced. The nooses were of the same kind as those used for snaring antelope, made from the dried sinews of the antelope. These were pegged down in all directions, and at all angles, to a distance of 25 to 30 feet from the tree. The carts and bullocks were sent off into a road about a mile away. An ambush was made of bushes and branches some fifty or sixty yards away, and here, when the time came, I and three Vardis ensconced ourselves. I have sat near some dirty fellows in my life, but the stench of those three men baffles description; you could cut it with a knife. I could not smoke, so had to put up with the several smells until I was nearly sick. At last the sun commenced to sink, and the men who were looking round in all directions, suddenly pointed in the direction of the north. Sure enough there were four cheetahs skying away and playing together about 400 yards off; they came closer and closer, when they stopped about 100 yards off, looking about as if they suspected danger. However, they became reassured, and all raced away as hard as they could in the direction of the tree. Two were large and the other two smaller; the larger had the best of the race, and were entangled by all four feet before they knew where they were. The Vardis made a rush. I did the same, but in a second was flat on the ground, having caught my feet in the nooses. One of the men came and released me from my undignified position, and I could then see how the cheetahs were secured. A country blanket was thrown over the heads of the animal, and the two fore or hind legs tied together. The carts had come up by this time; a leather hood was substituted for the blanket—a rather ticklish operation, during which one man was badly bitten in the hand. The cheetahs know how to use their teeth and claws. Having been securely fastened on the carts, and the nooses collected, we started for camp, which we reached about eight in the evening. I was much pleased

with what I had seen and learnt, but it took me a long time to get the smell of the Vardis out of my head. The next morning I went to see the cheetahs and found that they had been tied spread-eagle fashion on the carts, and with their hoods firmly tied. They were a pair, and in all probability the parents of the two smaller ones. Women and children are told off to sit all day long close to the animals, and keep up a conversation, so that they should get accustomed to the human voice. The female was snarling a good deal, the male being much quieter; they go through various gradations of education, and I was told they would be ready to be unhooded and worked in about six months' time. The man who had his hand bitten was suffering from considerable inflammation. I had him attended to, and, after rewarding them with 'baksheesh,' I let them proceed on their way rejoicing."

Chita kittens are very pretty little things, quite grey, without any spots whatever, but they can always be recognised by the black stripe down the nose, and on cutting off a little bit of the soft hair I noticed that the spots were quite distinct in the under fur. I have not seen this fact alluded to by others. As a rule the young of all cats, even the large one-coloured species, such as the lion and puma, are spotted, but the hunting leopard is externally an exception, although the spots are there lying hid. I had several of them at Seonee.

HYÆNIDÆ—THE HYÆNAS.

The second family of the *Æluroidæ* contains only one genus, the *Hyæna*, which, though somewhat resembling the dog in outward appearance, connects the cat with the civet. The differences between the *Felidæ* and the *Viverridæ*, setting aside minor details, are in the teeth, and the possession by the latter of a caudal pouch. My readers are now familiar with the simple cutting form of the feline teeth, which are thirty in number. The civets have no less than forty, and the grinders, instead of having cutting scissor-like edges, are cuspidate, or crowned with tubercles. Now the hyæna comes in as an intermediate form. He has four more premolars than the typical cat, and the large grinding teeth are conical, blunt and very powerful, the base of the cone being belted by a strong ridge, and the general structure is one adapted for crushing rather than cutting. Professor Owen relates that an eminent engineer, to whom he showed a hyæna's jaw, remarked that the strong conical tooth, with its basal ridge, was a perfect model of a hammer for breaking stones.

Of course, such a formation would be useless without a commensurate