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Order Carnivora
General and particular descriptions of
CARNIVOROUS ANIMALS,

BY
EDWARD GRIFFITH, F.L.S.



THE AFRICAN LION.

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GENERAL AND PARTICULAR

DESCRIPTIONS

OF THE

VERTEBRATED ANIMALS,

ARRANGED CONFORMABLY TO THE

Modern Discoveries and Improvements in Zoology.

BY EDWARD GRIFFITH.

ORDER CARNIVORA.

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ADVERTISEMENT.

It has been already stated, in the author's treatise on the order Quadrumana, that his principal inducement to undertake the arduous and extensive task of describing the vertebrated division of the animal world, was for the purpose of publishing the graphic illustrations, which are selected from a very extensive collection of original drawings of animals from nature, in his possession.

In addition to his own collection, the kindness and liberality of a friend have now also supplied him with the use of perhaps the most valuable set of zoological drawings in the kingdom, amounting to about four thousand in number; and it would be highly ungrateful, as well as extremely impolitic, to omit the earliest opportunity of acknowledging, how much the

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present publication on the Carnivora is indebted to the assistance of major Charles Hamilton Smith, not only for the use of his collection, made in different parts of the world, and in the very countries where most of the animals themselves are indigenious, but also for the communication of much interesting and useful information.

If it were proper in this place to give utterance to private feeling, the author would with much pleasure indulge himself in the attempt, to express his estimation of the liberal and friendly treatment he has experienced from major Smith. The reader, however, would probably be but little interested in these personalities, though it is most just and proper that he should be informed on what authority the assertions contained in the work respectively rest; and, for this purpose, care has been taken to insert the major's name in most cases, where it could with propriety be done, so that the present acknowledgment is rather intended as general, for such communication and assistance as could not be more specifically mentioned. Lest, however,

any inaccuracies the work may contain should be improperly attributed, it may be necessary to add, that it has not undergone the revision of major Smith, or of any other naturalist; the major's communications have been made from abroad, and incorporated into the manuscript previously prepared.

Much useful assistance has also been afforded to the present undertaking by J. E. Gray, Esq. with a kindness and alacrity which have rendered it doubly valuable.

ORDER

CARNIVORA.

THE race of animals, which has been already treated of, affords an abundant source of observation and reflection to the thinking mind; to the moral philosopher, as well as to the physical observer of animated nature. We might say, indeed, if such a conclusion be ever venial when applied to the works of the Creator, that the monkeys in general form a disgusting picture. The higher species of them claim a corporeal relationship or connexion with us, which humiliates the pride of man to the dust; while, at the same time, many of them exhibit, in the grossest manner, a variety of those unbounded vicious inclinations, which, when they disgrace a human being, are ever more or less concealed under the mask of hypocrisy, assuming the semblance of virtue.

It has, however, been earnestly, though humbly, attempted here to point out the alleviating circumstance (which seems indeed almost at once to dispel the uneasy reflection arising from the notion of

monkeys being mere varieties of mankind), that, however they may resemble us in body, we are as far removed from them in intellect, as from any other animal: an observation confirmed progressively by experience, as farther opportunity has been afforded of learning their real intellectual pretensions.

The animals at present under consideration, though scarcely less interesting, give birth to very different reflections. The burlesque sedateness of the apes, the amusing vivacity of the monkeys, and the lubricity and general malevolence, which characterise, more or less, the various baboons, must now give place to another theme. In the carnivora nature assumes a different aspect; all is violence and bloodshed, rapacity and death.

A very considerable proportion of the animal world might be included under the epithet carnivorous. Indeed, if the word be taken largely, there is scarcely one of the orders, from which many genera must not be transferred to this; but the limited sense, in which it is here used, confines it to quadrupeds, and to those exclusively, which subsist altogether, or principally, on animal food, and are constantly at war with all their inferiors in strength to obtain sustenance, whence they may properly be called beasts of prey.

It is surely one of the greatest mysteries of Nature, that this murderous necessity should exist; and if we look to revelation for a clew to assist us in escaping the labyrinth, in which our thoughts on this subject are involved, the most useful answer we can

find there is, that information on the point in question does not concern our moral conduct, the great and only object of the Bible, otherwise it would have been more satisfactorily afforded.

Indeed, a reference to the Sacred Volume on points of natural philosophy, physical speculation, or hypothetical conjecture, is seldom attended with a satisfactory result, and is always to be conducted with the greatest caution; for the Bible was not intended to gratify our curiosity on abstract points of science, which are left for the exercise of reason, but to reveal to us the loss of our integrity, a moral code, and a future state. The rest

From man or angel the great Architect
 Did wisely to conceal, and not divulge
 His secrets, to be scann'd by them who ought
 Rather admire; or if they list to try
 Conjecture, he his fabric of the Heavens
 Has left to their disputes, perhaps to move
 His laughter at their quaint opinions wide,
 Hereafter when they come to model heaven,
 And calculate the stars, how they will wield
 The mighty frame, how build, unbuild, contrive
 To save appearances, how gird the sphere
 With centric and eccentric scribbled o'er,
 Cycle and epicycle, orb in orb. MILTON, *Par. Lost.*

To go farther into this subject, would be deviating from the object intended; but thus much may be proper, because the student in nature may sometimes find the evidence of sense appear at first sight to militate against that of faith, and he must

therefore be cautious not to become the dupe of those, who would make science the greatest curse that could visit the Earth, if it were effectual in establishing their own fancied refutation of our religion.

Why then this fair creation should be so much defaced, and murder be introduced by necessity to perform the work of death more expeditiously than casualties, disease, and the restlessness of nature; and why many animals should die, that one may live; are still among those questions, which neither the wisdom of antiquity, the active research of modern times, nor the Sacred Volume itself has satisfactorily answered.

That man is justified in his carnivorous habits, is clear from the express word of God, to be understood perhaps as little short of a command, or we should be disputing His providence, and despising His goodness towards us: and the inferior members of creation are equally justified by the authority of visible nature; an authority naturalists have long and often observed in the peculiarities fitting every animal for that species of sustenance, which it is observed exclusively to seek, and the mode of life it must necessarily follow to maintain its existence.

These peculiarities have been seized upon as substantial and tangible characters, by which to separate and classify the animal kingdom in general; and as the different species, which compose the order now under consideration, are more or less inclined to a carnivorous regimen, so are they more or less fitted

for obtaining it by various personal differences, which have also furnished zoologists with the means of separating the order into minor subdivisions. These will be found so much the more important, when it is considered, that they harmonize in a perfect manner with the intellectual dispositions and inclinations of the animals they distinguish; that the intention of the Creator is made apparent by them; and that they evince each animal to have been made for its habits, and not its habits for the animal. While, therefore, they are confined to a physical description of the person, they may be considered as having equal reference to moral character, and the degree of ferocity may be inferred from the extent of the weapons afforded for making it available.

The extremities and the teeth are perhaps the principal among many personal differences, which distinguish animals of various inclinations; and it is to these, therefore, chiefly that it will be requisite to advert. They are the most obvious, and are sufficient for the intended purpose.

Celerity of motion is an adjunct absolutely necessary to quadrupeds that can live only on flesh; for they would too often lose a supply of food, if escape from them were matter of ease to their prey. Independently, therefore, of their always possessing nails more or less sharp, as distinguished from the obtuse extremities of the hoofed animals, they move only on the toes, without bringing any part of the foot, from the toes to the heel, which is clothed with hair, into contact with the ground, by which means

they are enabled to run much more rapidly. This peculiarity, though common and advantageous to some other animals, is absolutely necessary to those which live altogether on flesh, and from it they are called *digitigrades*.

But as there are many carnivorous animals, which can subsist for a time at least on vegetable food, and to which flesh is but occasionally necessary, such are deprived of a portion of their powers of chase, and are comparatively slow moving. These, which have the entire sole of the hind foot denuded and callous, bring the heel to the ground, and are hence called *plantigrades*.

All the species in the order are included in one or the other of these two divisions; those which are purely carnivorous, in a state of nature, are proper to the first, those which are partially so, to the second.

Many of the plantigrade animals are small, and are calculated for feeding principally on insects and worms; their habits of life are generally subterraneous; and their teeth very different from those of the animals which feed on the flesh of quadrupeds. On these accounts they are separated from the general division of plantigrades, and form a third principal division of the order, under the name of *insectivora*.

To these three principal divisions may be added a fourth, sufficiently distinguishable from the rest. The animals included in it reside on the seashore, or on small islands or rocks, and visit the water occasionally in search of food; but yet they possess all the cha-

acters of the mammalia, that is, they are vertebrated animals, breathe with lungs, have warm red blood, and a heart with two cavities, are viviparous, and suckle their young. All their feet are webbed, and those behind are calculated almost exclusively for swimming, whence they are called *pinnipedia**.

The teeth proper to the order are either altogether carnivorous, altogether insectivorous, or deviating in the different species from the character of perfect fitness for either of those kinds of aliment, so as to be more or less adapted to a vegetable regimen. The various degrees of this deviation constitute the distinguishing characters of the several genera and species.

To mention briefly some of the less apparent characters proper to the order, it may be observed, that all the species have the brain much furrowed, and without the third lobe at the back of the head; the orbit or eye-socket is not separated from the temporal fossæ; as may be observed in the several figures of the teeth and occiputs of the different species; the scull is flattened, and the zygomatic arch raised and extended to give more room for the play of the muscles of the jaw, which are consequently so much the more powerful; their most acute sense is generally that of smell, and the pituitary membrane is therefore frequently spread over a great number of bony laminae; their fore-arm does not turn with the

* Cuvier names them amphibia, which is a term too comprehensive, when the seals and walrus only are intended.

same ease as it does among the quadrumana, and they never possess the thumb to the fore feet; their intestines are not voluminous, apparently on account of the substantial nature of their food, and to avoid putrefaction, to which it might be subject if it were too long in passing through the body; and lastly, their jaws can open only vertically, and like a pair of scissors, being destitute of lateral motion.

THE DIGITIGRADES.

The cats form the first, and decidedly the most perfect tribe of carnivorous animals, as, in their natural state, they are exclusively flesh eaters, and are more completely armed than any other. One peculiarity marks them preeminently for predatory habits, that of their claws, which are exceedingly powerful, and which they are enabled to draw up into a sheath between the toes, whence they are called retractile, so as to prevent the points from touching the ground; by which construction they are constantly preserved sharp, and always ready for action, advantages denied to all other animals, at least in so perfect a degree.

Their teeth are more exclusively carnivorous than those of any other animal, and a figure of them, with the jaws and occiput of the principal species, the lion, is given in the plate annexed.

The incisive teeth offer nothing remarkable. They are uniform, except that the next tooth to the canine is longer than the rest, and there are six in each jaw.

The canine teeth are very long and angular, with the edges of the angles toward the inside of the mouth; so that, when the animal has caused them to meet or cross each other in the flesh of its prey, these formidable teeth will cut or tear a way through, by

drawing them back without opening the mouth. Toward the point they are furrowed longitudinally.

The cheek-teeth exhibit all the marks of carnivorous habits: they rise into several lobes or cutting-eminences, which are in shape something like the point of a lancet, or the teeth of a saw; but they differ in size and power. These lobes are cutting on either side, as well as at the point; and they rise from the inner, as well as from the outer edge of the tooth. In other animals, in which the teeth cease to be cutting, and are blunt, rounded, tubercular, or hemispherical, they are more or less fitted for vegetable food*; and, in proportion to the extent, either of cutting or tubercular surface on the cheek-teeth, is the animal more or less inclined to the corresponding sort of aliment. The inner side of the last upper carnivorous tooth, in the cat tribe, has one small lobe, in a slight degree allied to the tubercular form.

A reference to the figure will explain their shape and position more obviously. It will appear by this, that there are three carnivorous cheek-teeth above and below; but there is a fourth cheek-tooth in the upper jaw, altogether differing from the rest, which, from its singular shape, position, and apparent office, may be called an auxiliary tooth. It is situate so as not to be seen, except by opening the mouth wide, and looking upward. It does not protrude from the

* The purely herbivorous animals have no lobes on the cheek-teeth, but they present a regular series and nearly an even surface.

edge of the jaw, like the other teeth, but a little way up the inner inclined surface of it, and takes a direction across the lower part of the last carnivorous tooth. It is flat at the top, and seems to be intended as an anvil to receive the cutting edge of the large lobe of the last lower carnivorous tooth, so as to render it more available in acting on the food. From its situation in the mouth it may easily escape observation*; whence it is not unfrequently said, that the cats have only three cheek-teeth in each jaw. Indeed the tooth in question is so different from the others, that it may be considered as auxiliary to the rest, rather than as either a carnivorous or molar tooth itself; and this notion is strengthened by the observation, that those animals, which have one or more tubercular or flat cheek-teeth at the back of the mouth, employ them occasionally for masticating vegetable food, to which they are in some degree inclined; but this is not at all the case with the feline family, nor is the tooth in question, from its peculiar situation in particular, at all calculated for this purpose †. The second figure on the opposite plate is intended to show these auxiliary teeth.

* Illiger and Cuvier notice it: the former says, “*Molares obducti, fere omnes sectores, supra utrinsecus 4: antici duo conoidei crassiusculi, tertius maximus acie bicuspide, et interius gradu antico laterali parvo auctus, quartus tritorius tuberculatus parvus interior transversus. Infra utrinsecus 3: antici duo compressi simplices, tertius maximus acie bicuspide.*” Cuvier describes it: “*Le quatrième dent est très-petite et placée transversalement en dedans de l’extrémité postérieure de la précédente. Sa couronne est plate.*”

† I am not certain that this auxiliary tooth is found in the lynxes.

The pupil of the eye is in some species oval, and in others circular. It is also capable of much alteration, not only in size, but also in figure, resulting from the degree of light acting upon it, and occasionally from some sudden mental impulse, so as to be sometimes round, sometimes oval, and sometimes a mere vertical line, in the same animal.

There are some positions so universally considered as true, that no one ever thinks of doubting them; and it is, indeed, on such, that all reasoning must be grounded: but we cannot be over scrupulous in admitting, or too nice in investigating, any proposition, before it is classed with those fundamental axioms as self-evident, and therefore not requiring to be demonstrated.

That the pupils of cats are oval, and that *therefore* they are enabled to see in the dark, is an assertion very generally made, and seldom questioned; and some naturalists, observing that the felinae vary in this particular among themselves, have separated them into diurnal and nocturnal species; distinguishing the former by the circular pupil, and the latter by that of an oval figure. It may, nevertheless, be doubted, whether the shape of the eye-pupil be at all connected with the extent of the power of vision; the size of it must, in all probability, be materially so; but it does not appear certain, that those animals which dilate the iris, so as to elongate the pupil, have also the greatest power of contracting the former, and consequently of enlarging the latter, more than others which have the pupil at all times circular.

Major C. Hamilton Smith has favoured me with his observations on this subject. He states, that the diskous or circular eye-pupil is believed to be diurnal, and the lion and tiger are both, in general, associated together on this account; but the lion, although he sees by day, may be said, probably, never to hunt his prey while the Sun is above the horizon, unless pressed in an extraordinary degree. The pupil of his eye is also at all times circular, and always of a yellowish colour. The tiger, on the contrary, will seek his prey by day and by night; and his eye-pupil is capable of either shape, and in the twilight or dark its colour is like a blue-green flame. This remark he made while drawing a specimen of a large Bengal tiger at New York. The room of the menagerie in which it was placed was generally rather dark, and at the time was rendered more so by the gloominess of the weather. The animal was exceedingly vicious, endeavouring, occasionally, to strike his keeper; yet he lay in a stately, and, seemingly, unconcerned attitude, with the cleft pupils of his eyes fixed upon the major while drawing: but if a person passed near him they were changed instantly into a disk, and their colour altered from yellow-green to blue-green. To this facility of expansion and contraction of the pupils, which, in this instance, resulted from a mental excitement, and not from any alteration in the degree of light, may be attributed the diurnal habits of the tiger, as also his disregard of night-fires; while the lion, the eyes of which are not calculated

for the glare of day, cannot bear the effect of fire-light in the dark.

The puma has the pupil constantly circular ; yet this animal is as dangerous by day as by night ; or, to speak more correctly, he will hunt his prey in the trees while the sun is above the horizon.

Of the lynxes, that found in the United States, called by the furriers the chat cervier, has complete cats' eyes ; while the felis Canadensis, which is so nearly allied to it as at most to be a mere variety, has round pupils, yet the habits of both are similar.

The Angora cat, when in little light, has the eye-pupils nearly, if not quite circular ; they form an ellipsis more and more narrow as the light increases, till when exposed to the Sun they are almost linear*.

If, then, it be considered, that the lion has round eye-pupils, though it is generally inactive by day, and hunts principally after sunset ; that the pupils

* If we refer to other genera, we find considerable variety in this particular. To select a few : the genus canis has some species with circular, and others with oval pupils ; the hyænas have them extremely narrow ; the zibet, civet, and genet, have the pupils elongated transversely ; the ichneumons and Caffrarian weasel have them like the cat ; and yet, perhaps, none of these are more particularly nocturnal than the rest of the carnivora, all of which appear to prefer the twilight or night for their predatory excursions. The cloven-footed animals, the horse, and the whale, have transverse elliptical pupils ; and the frugiverous sort, as the lemurs, squirrels, and loris, have them much larger than any other animals, but always circular ; in the genus delphinus it assumes the figure of a heart ; in the toads it is triangular ; and in the allegators and sharks it is lozenge-shaped.

of the tiger assume either shape, and that it is equally active day and night; that the puma, like the tiger, is equally disposed for action at all times, though its eye-pupils, unlike those of that animal, are always circular; that one lynx has the pupils changeable as to shape, while the other has them only varying in size, and that both their habits accord; and lastly that the common cat, which has the pupils varying greatly in shape, though we know it sees with little light, seems to possess in the day a vision as perfect as those animals which merely increase or decrease the size of the pupil, though it continues always round; we seem led to a conclusion, that there is a fallacy in adopting the form of the pupil as a physical characteristic of the disposition and habits of the animal.

A very prevailing, if not a generic, character distinguishes a large proportion of the felinæ, which is, a white spot on the back of the ears. Those that are uniform in colour, as the lion, the puma, and the black species, as well as the common varieties of the domestic cat, seem to be without it; but it is certainly to be found in the tiger, panther, jaguar, ounce, hunting-leopards, ocelots, lynxes, and several others.

The head of the cat tribe is very short and round; the tongue is aculeated, with the prickles inclining backward; their ears are small and acuminate; their tail varies considerably in length in the different species; they have five toes on the fore feet, and four only on those behind.

THE LION. -

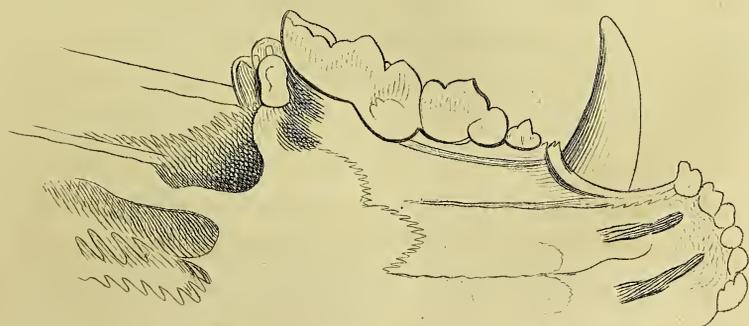
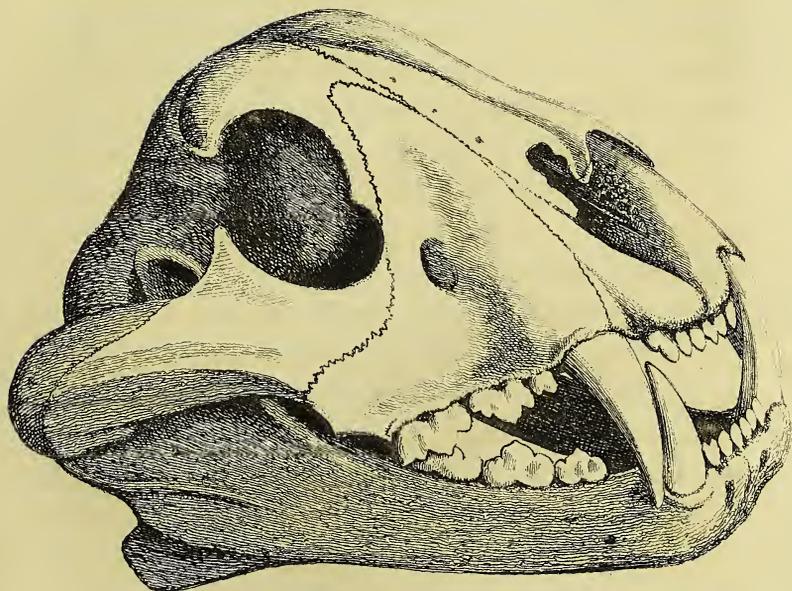
Le Leon. FELIS LEO.

The superior bodily powers possessed by the lion, joined to his carnivorous regimen, and consequent predacious habits, while they place him at the head of the beasts of prey, make him also the undisputed tyrant and universal dread of the plains and forests, and point obviously to the situation in which he must be placed, in any artificial arrangement of the animal kingdom, as the first and most important species of the order carnivora.

Verbal description, or even the best of figures, will convey but an inadequate notion of this tremendous beast. The rhetorician and the painter alike fail in describing and depicting the terrific work of Nature exhibited in the lion. Even in a state of confinement, and with perfect security to the spectator, he cannot be contemplated by those, the acuteness of whose feeling is not blunted by habit, without a lively excitement of the passions. If he be but slightly irritated, so as to erect and shake his bushy mane, and to exhibit the change of countenance which a peculiar mobility of the muscles of the face enables him to effect; the timid shrink back from the sight; the bold are obliged to summon reason, the parent of true courage, to their assistance, and

TEETH OF THE GENUS

FELIS.



THE UPPER JAW REVERSED.

the thinking, ever anxious to discover the object to be attained by the means employed, are led into idle speculation on the works of the Creator; and are obliged at last to confess, that, although in the aggregate there is abundance to show, that his mercy is over all his works, yet, when examined in detail, his economy is sometimes partially obscure.

It may be necessary once more to observe, that a long description will not be given of those animals, which are represented in the plates; that the figures form the principal object of this work; and that the descriptions are rather intended to illustrate them, than the figures to illustrate the descriptions. To these, therefore, we refer.

There appear to be at least three distinct varieties of the lion; viz. the African, which is much the most common; the Asiatic, and the black-maned lions. The first of these is represented in the vignette, and a figure of each of the other varieties will be given hereafter. The observations immediately following may be considered applicable to the species in general.

The period of gestation of the lioness is about four months, and the young, when first born, are very small in proportion to their adult size. They arrive at maturity in about five years, and are then nearly eight feet in the length of the body, with a tail of about four feet. If we judge from the length of their nonage, and from their size and general constitution, as observed by Buffon, it should seem probable, that the average life of this animal does not

exceed twenty-five years; though it has been said, that some have been kept in a state of confinement for nearly three times this period. The mane appears to increase as the lion advances in age, and not to depend for its growth on that of the animal. The female is without it altogether. The lion laps in drinking, but turns the tongue downwards, contrariwise to the dog.

The characters of the lion and the tiger have been of late considered as perfectly similar. This assertion, contradicted by the ancients and early moderns, has wholly arisen from some remarks made by travellers to the Cape. No doubt, where similar appetites, similar propensities, similar means, and similar circumstances occur, a great similarity of character must be found. Although individuals are observed to be more undaunted and ferocious, in proportion to the increased distance at which they may be found from the habitations of mankind, more especially the civilized races, yet the lion, when compared with the tiger, is a noble animal; he possesses more confidence, and more real courage; he likewise differs in his permanent attachment to his mate, and protection of his young; while the tiger shows no partiality beyond the period of heat in the female, and is himself frequently the first and greatest enemy to his own offspring. The former of these *traits* of character is substantiated by a great variety of authors and testimonies, and denied only by the assertion of the colonists of the Cape, who report that the lion, when he fancies himself unperceived,

will flee from the hunters ; but it must be remembered, that the lion is generally pursued by day, and it is probable, that he bears the glare of an African sun, reflected from a sandy soil, with great inconvenience. It is, therefore, as unjust to tax this animal with cowardice, because he wishes to avoid a contest, at a period when his sight is much deteriorated, as it would be to rate the hunter for his timidity, because he will not chase the lion in the dark.

The roar of the lion,

“ A blast so loud and dread,
Were ne'er prophetic sounds so full of wo,”

to be properly felt, must be heard. When in the act of seizing his prey, the deep thundering tone of the roar is heightened into a horrid scream, which accompanies the fatal leap on the unhappy victim. This power of voice is said to be useful to the animal in hunting, as the weaker sort, appalled by it, flee from their hiding-places, in which alone they might find security, as the lion does not hunt by scent, and seek for it in ineffectual flight, which generally exposes them to the sight of their enemy, and consequently to certain death.

The lion is capable of carrying off with ease a horse, a heifer, or a buffalo. The mode of its attack is generally by surprise, approaching slowly and silently, till within a leap of the predestined animal, on which it then springs, or throws itself with a force, which is thought in general to deprive its victim of life before the teeth are employed. It is said, this

blow will divide the spine of a horse, and that the power of its teeth and jaws will break the largest bones.

When the flight of its intended victim does not compel the lion to pursue by dint of speed, a certain deliberative mode of action seems peculiar to it, especially when it is induced to attack during day, as in the case of Von Wyk, the Dutch African boor, as related by Lichtenstein. He says, " My wife was sitting within the house, near the door ; the children were playing about her ; and I was without, near the house, busied in doing something to a waggon, when suddenly, though it was mid-day, an enormous lion appeared, came up, and laid himself quietly down in the shade, upon the very threshold of the door. My wife, either frozen with fear, or aware of the danger attending any attempt to flee, remained motionless in her place, while the children took refuge in her lap. The cry they uttered attracted my attention, and I hastened toward the door ; but my astonishment may well be conceived, when I found the entrance to it barred in such a way. Although the animal had not seen me, unarmed as I was, escape seemed impossible ; yet I glided gently, scarcely knowing what I meant to do, to the side of the house, and up to the window of my chamber, where I knew my loaded gun was standing. By a most happy chance I had set it in the corner, close by the window ; and, still more fortunately, the door of the room was open, so that I could see the whole danger of the scene. The lion was beginning to move, per-

haps with the intention of making a spring. There was no longer any time to think. I called softly to the mother not to be alarmed; and, invoking the name of the Lord, fired my piece. The ball passed directly over the hair of my boy's head, and lodged in the forehead of the lion, immediately above his eyes, which shot forth, as it were, sparks of fire, and stretched him on the ground, so that he never stirred more."

In that most affecting account, which Mr. Mungo Park gives of his last and fatal journey to the interior of Africa, will be found another instance of that sort of deliberation in the lion, which characterises him in the day, and sometimes gives time to men, when exposed to this animal, to anticipate its purpose, by destroying or escaping from it.—“ We had not proceeded above a mile, before we heard on our left a noise, very much like the barking of a large mastiff, but ending in a hiss like the fuf of a cat. I thought it must be some large monkey, and was observing to Mr. Anderson, ‘ what a bouncing fellow that must be,’ when we heard another bark nearer to us, and presently a third still nearer, accompanied with a growl. I now suspected, that some wild animal meant to attack us, but could not conjecture of what species it was likely to be. We had not proceeded a hundred yards farther, when, coming to an opening in the bushes, I was not a little surprised to see three lions coming toward us. They were not so red as the lion I formerly saw in Bambara, but of a dusky colour, like the colour of an ass. They were

very large, and came bounding over the long grass, not one after another, but all abreast of each other. I was afraid, if I allowed them to come too near us, and my piece should miss fire, that we should be all devoured by them. I therefore let go the bridle, and walked forwards to meet them. As soon as they were within a long shot of me, I fired at the centre one. I do not think I hit him ; but they all stopped, looked at each other, and then bounded away a few paces, when one of them stopped, and looked back at me. I was too busy in loading my piece to observe their motions as they went away, and was very happy to see the last of them march slowly off amongst the bushes. We had not proceeded above half a mile farther, when we heard another bark and growl close to us among the bushes. This was doubtless one of the lions before seen, and I was afraid they would follow us till dark, when they would have too many opportunities of springing on us unawares. I therefore got Mr. Anderson's call, and made as loud a whistling and noise as possible. We heard no more of them."

The lion, though he may frequently be considered as amiable for his generosity, is nevertheless extremely capricious in the exercise of it ; and whatever animal falls within his reach should calculate very little on its exercise. Some visitors of the public exhibitions of lions in this country (more really savage than this animal, as the dictates of their respective natures are different), have occasionally thrown to the beast in its den cats, dogs, &c. alive,

in order to be gratified with the sight of their being torn in pieces; and it has happened, in a few instances, that the lion has not only spared, but fostered and kept for years the intended victim of brutal curiosity.

Major Smith has met with eleven instances of different lions, which have protected and fostered dogs, and but a single one of the tiger exhibiting a similar kindness of disposition.

In a state of confinement, they have frequently shown unequivocal marks of gratitude and affection toward their feeder and keeper, as in the case mentioned by Seneca, of which he was personally witness, of a lion, to whom a man, who had formerly been his keeper, was exposed for destruction in the amphitheatre at Rome, and who was not only instantly recognised, but defended and protected by the grateful beast. Indeed, those animals which are exhibited as public shows, when they have been for some time accustomed to restraint, will, in general, not only become obedient to their feeder and keeper, but even show a considerable degree of liking toward him, though in such cases it is necessary for the man to exercise caution and discretion, and not to expose himself to the animal when feeding, or when its irritability is at all excited.

I am told, on the most respectable authority, that the keeper of a lion, which was exhibited about the country at fairs a few years ago, was in the habit of putting his head into the mouth of the beast, having previously put on a worsted cap, to defend himself

from being lacerated by the animal's tongue ; and Major Smith informs me he has seen a young man stand upon a lioness, drag her round the cage by the tail, open her jaws, and thrust his head between her teeth.

A keeper of wild beasts at New York had provided himself, on the approach of winter, with a fur cap. The novelty of this costume attracted the notice of the lion, which, making a sudden grapple, tore the cap off his head as he passed the cage ; but perceiving that the keeper was the person whose head he had thus uncovered, he immediately lay down. The same animal once hearing some noise under its cage, passed its paw through the bar, and actually hawled up the keeper, who was cleaning beneath ; but as soon as he perceived he had thus ill-used his master, he instantly lay down upon his back in an attitude of complete submission.

The lion, while feeding, will exhibit a more disinterested courage than most of the carnivora. When the prey is thrown to him at one corner of the cage, and the keeper holds up a stick at the bars of the opposite side, the animal will instantly quit his food to attack the disturber of his meal ; but if the same thing be done to the tiger, he will lie close upon his food, snort, give shrill barkings, and at most just rise to fly at the stick, and then drop upon his meat again.

Unlike some of the carnivorous animals, which appear to derive a gratification from the destruction of animal life beyond the mere administering to the

cravings of appetite, the lion, when once satiated, ceases to be an enemy. Hence very different accounts are given by travellers of the generosity or cruelty of its nature, which result, in all probability, from the difference in time and circumstances, or degree of hunger, which the individual experienced when the observations were made upon it. There are certainly many instances of a traveller having met with a lion in the forest during day,

Who glared upon him, and went surly by,
Without annoying him :

But when urged by want, this tremendous animal is as fearless as he is powerful ; and in a state of confinement, or when not exposed to the extremity of hunger, generally exhibits tokens of a more tender feeling than is to be met with in the tiger, and most of the felinæ.

In the instances quoted from Mr. Park and Von Wyk, it seems probable, that the animals were not much pressed by hunger, and were not prowling about for prey, but were led into the situations in which they are described accidentally, or their actions would have been quicker and more determined.

The perseverance of this animal, when bent upon destruction, is exemplified in the case of a Hottentot, who was endeavouring to drive his master's cattle into a pool of water, enclosed between two ridges of rock, when he espied a huge lion couching in the midst of the pool. Terrified at the unexpected sight of such a beast, which seemed to have its eyes fixed

upon him, he instantly took to his heels. In doing this, he had presence of mind enough to run through the herd, concluding that, if the lion should pursue, he would seize upon the first beast that presented itself. In this, however, he was mistaken. The lion broke through the herd in pursuit of the Hottentot, who, on turning round, and perceiving that the monster had singled him out, breathless, and half dead with fear, scrambled up one of the tree-aloes, in the trunk of which had luckily been cut a few steps, the more readily to come at some birds' nests, that the branches contained. At the same moment the lion made a spring at him, but, missing his aim, the animal fell upon the ground. In surly silence he walked round the tree, casting at times a dreadful look toward the poor Hottentot, who had crept behind the nests. It is here requisite to observe, that these nests belong to a small bird called the sociable grosbeak, that lives in a state of society with the rest of its species, constructing a whole republic of nests in one clump, and under one cover. One of these collections of nests sometimes extends through a space ten feet in diameter, and contains a population of several hundred individuals. It was under the cover of one of these structures that the Hottentot screened himself from the view of the lion. Having remained silent and motionless for a great length of time, he ventured to peep over the sides of the nest, hoping that the lion had departed, when, to his astonishment and terror, his eyes met those of the animal, which, as the man afterwards

expressed himself, flashed fire at him. In short, the lion laid himself down at the foot of the tree, and did not move from the place for twenty-four hours. At the end of this time, becoming parched with thirst, the beast went to a spring at some distance in order to drink. The Hottentot now, with trepidation, ventured to descend, and ran off to his home.”

As human population increases, and particularly where the arts of civilization advance, as at the extremity of southern Africa, the destructive races of animals proportionably disappear; and even from Lybia, as Dr. Shaw states, the Romans drew fifty times as many lions for their horrid amusement in the amphitheatres, as are now to be found in that country. They appear to have been formerly spread over the three ancient continents, as they are called, but are now confined to Africa, and some neighbouring parts of Asia.

The vignette represents the African lion. This variety is found most plentiful in the northern parts of Africa; but there seems every reason to conclude, that the same inhabits also the southern parts of that great continent, as well as Syria.

THE ASIATIC, OR YELLOW LION.

Two young officers of his Majesty's 8th regiment of Light Dragoons, during one of the late campaigns in India, went out one morning on a hunting excursion; and, having quitted their elephants, were walking near a jungle; one, who was more experienced in the country than his companion, suddenly observed a recent track, of what he took to be a tiger; instinctively looking back toward the jungle, they hastened forward in the direction of it, and in the middle of a field found the mangled remains of a nyl-ghau, or, as it is pronounced, neel-ghy (*antilope picta, et trago-camelus*). They were surprised to observe no less than three distinct tracks, all leading to the prey, but from different parts of the jungle; and justly concluded, that there were more than one of these fierce animals near them. While returning to their elephant and their party, among whom was one of the gentlemen who have charge of the elephants belonging to the East India Company, they were astonished to see a lion come out to the edge of the jungle, open his jaws, and stretch himself, and then coolly return into the cover. Having mounted their elephant, a large female, they returned into the juugle with more courage than wisdom; but they had scarcely advanced a few yards when the lion sprang at them; and the elephant, wheeling round,

fled to the plain, but with a severe wound in the hough. The next day a regular hunting party, with a considerable force of elephants, was mustered, and when the line was formed, the half hamstrung elephant, trembling with anxiety, and giving numerous proofs of her extreme uneasiness, was yet so keen as to be always her whole length before the others in the clearing of the jungle*. Before night three lions were killed, and thus, for the first time, the presence of the lion in India was satisfactorily established.

The Asiatic lion is of a uniform yellow colour. The mane, which is more scanty than in the African variety, is also entirely yellow. In physiognomy as well as character they seem to agree, but the Asiatic is rather the smaller of the two.

The distinctness of the two varieties may be inferred from this circumstance, that a lioness of the Asiatic breed, which was in Exeter 'Change, was frequently offered to the African lion, which is also kept there, and was constantly refused, while his attachment still remains unaltered for the lioness of his own country in the same menagerie, which has produced several litters, the fruits of their intercourse. Major Smith has known two other instances of the same kind.

* This was probably from a desire of vengeance in the sagacious animal, which continued lame, and was afterwards sold at a considerable loss.

THE BLACK-MANED LION.

The opposite figure is from a very curious and singular variety, the drawing of which was also communicated by Major Smith. It was nearly the size of the common African lion; but, when compared therewith, was rather thicker altogether, and quite as heavy; the head and muzzle were broader and more pug-shaped; the under jaw was more projecting; the ears larger, slightly acuminate, and black. In character it was more uneasy and restless. The mane was perfectly black, and covered half the back, and the whole length of the belly. It was taken at the Cape, and was presented to Lady Castlereagh.



Major C. H. Smith del.

THE BLACK MANE'D LION.



TORTOISHELL TIGER.

FELIS TIGRIS, var.



THE BENGAL TIGRESS, LA TIGRESSE.

FELIS TIGRIS, L.

THE TIGER. LE TIGRE.

Felis Tigris.

Beneficence, however capriciously exercised, may be said occasionally to exhibit itself in the lion; but the ferocious character of the tiger in its natural state presents no such palliation. When its appetite is satisfied, the former seems no longer delighted with blood; but butchery appears to afford gratification to the latter, even after its hunger has been satiated.

This animal is met with occasionally in Africa, but it is the scourge of Asia and the Indian Islands. Equal to the lion in stature, though generally inferior in strength, it wants not courage and ferocity to attack that animal; but although the combat is sometimes furious, it generally falls a victim to its temerity in so doing, unless some disparity of age or other circumstance should bring the strength and power of the two animals more to a level. Its swiftness and strength enable it to seize a man while on horseback, and to drag, or rather to carry him in its mouth by bounds and leaps into a jungle or forest, in spite of all efforts to prevent it, short of musketballs; indeed, the weight of a man, or even of a more ponderous animal, in its mouth, does not appear to incommode or delay the ordinary swiftness of the beast.

Mr. Marsden informs us, that the tigers in Sumatra prove to the inhabitants there, both in their journeys and even their domestic occupations, most fatal and destructive enemies. The number of people usually slain by these rapacious tyrants of the woods is almost incredible. Whole villages are sometimes depopulated by them. Yet, from a superstitious prejudice, it is with difficulty they are prevailed upon, by a large reward which the India Company offers, to use methods of destroying them, till they have sustained some particular injury in their own family or kindred, and their ideas of fatalism contribute to render them insensible to the risk. Their traps, of which they can make variety, are very ingeniously contrived. Sometimes they are in the nature of strong cages, with falling doors, into which the beast is enticed by a goat or dog inclosed as a bait. Sometimes they manage so, that a large beam is made to fall in a groove across the tiger's back; at other times it is noosed about the loins with strong ratans, or led to ascend a plank, nearly balanced, which, turning when it has passed the centre, lets the animal fall upon sharp stakes prepared below. Instances have occurred of a tiger being caught by one of the former modes, which had many marks in its body of the partial success of this last expedient. The tigers of Sumatra are very large and strong. They are said to break the leg of a horse or buffalo with a stroke of the fore-paw, and the largest prey they kill is, without difficulty, dragged by them into the woods. This they usually perform on the second night, being

supposed, on the first, to gratify themselves with sucking the blood only. Time is by this delay afforded to prepare for their destruction; and to the methods already enumerated, besides shooting them, may be added that of placing a vessel of water, strongly impregnated with arsenic, near the carcass, which is fastened to a tree, to prevent its being carried off. The tiger having satiated itself with the flesh, is prompted to assuage its thirst with the tempting liquor at hand, and perishes in the indulgence.

Buffon's assertion, however, that the nature of the tiger is perfectly incapable of improvement, is rather too strong, as many instances have evinced since the time that Buffon wrote. A full-grown tiger was lately in the possession of some of the natives at Madras, who exhibited it held merely by a chain: it was, indeed, kept muzzled, except when it was allowed (which was occasionally done) to make an attack on some animal, in order to exhibit the mode of its manœuvring in quest of prey. For the purpose of this exhibition a sheep, in general, was fastened by a cord to a stake, and the tiger being brought in sight of it immediately crouched, and moving almost on its belly, but slowly and cautiously, till within the distance of a spring from the animal, leapt upon and struck it down almost instantly dead, seizing it at the same moment by the throat with its teeth; the tiger would then roll round on its back, holding the sheep on its breast,

and, fixing the hind claws near the throat of the animal, would kick or push them suddenly backwards, and tear it open in an instant. Notwithstanding, however, the natural ferocity of these animals, in general, the individual in question was so far in subjection, that, while one keeper held its chain during this bloody exhibition, another was enabled to get the carcass of the sheep away by throwing down a piece of meat previously ready for the purpose*.

Mr. Cross has had instances of tigers, taken quite young, and bred up in a state of confinement, exhibiting nearly as much gentleness as the lion under similar circumstances; by showing attachment to their keeper, and, in one instance, to a dog, which was exposed to one of them; so that their nature appears, in some degree, capable of training and education; and the furious character attributed to the tiger must be considered as applicable to it only in a wild and unfettered condition.

The tiger, in a state of nature, may be deemed a sanguivorous animal, as it always sucks the blood of its victim previously to tearing or eating it; and, after having so done with one animal, will leave the carcass and seize on any other that may come in sight, suck the blood of this also with the most horrid avidity, which will induce it almost to bury

* This is related to me by a particular friend, an officer in the India Company's service, who witnessed the exhibition.

its face and head in the body of its prey; and thus proceed in the work of destruction, though it might seem to have gorged enough to satisfy the most voracious appetite.

Tiger hunting is a fertile source of amusement, particularly to the great men of the East, and may be called a royal sport; a sport which, in addition to the usual excuse pleaded for hunting, in general, has a real recommendation from the service it does to mankind. The indefensible pastime of setting the tiger, in a state of confinement, to fight with the buffalo, and sometimes with men, as a punishment for crimes, is also much in use; a practice which, to a far greater extent, formerly disgraced even the Augustan age of the western world, and has left almost imperishable memorials of its prevalence, and of its importance to the people, in the now bloodless amphitheatres of Italy.

Tiger skins vary as to the number of stripes, and brightness of the colours, which latter abates in some degree when the animal is living under restraint, and much more when a skin is dried and prepared for commercial purposes. The tigress produces four or five young at a time, and has been known to breed when confined. In common with the lion and the rest of the genus it possesses all the characteristics of the cat.

The opposite group is taken from a drawing by Major Smith; it represents a tigress, six years old, which was confined in New York, where the drawing

was made, and where she produced the three cubs, which were of a pale gray colour, with obscure dusky transverse bars, and greenish eyes. When first born they did not exceed the size of a kitten three months old. The mother died in consequence of swallowing a shinbone of beef, three days after she had brought forth the cubs.

THE WHITE TIGER.

The white appears to be a distinct variety, and not accidental, or resulting from albinism; at least the number of specimens known show that it is by no means uncommon. One was exhibited in London some time ago, in which no indications of stripes were perceptible under any angle of light. There are drawings of the heads of two similar animals in Surgeons' College, and Major Smith has met with no less than five.

THE CHINESE, OR TORTOISESHELL TIGER.

Felis nebulosa.

The opposite figure is from a very curious and unique specimen, which was for several months in the possession of Mr. Cross, at Exeter 'Change.

In the bulk of his body, and the size of his head, he was equal to the Bengal tiger; but his legs were shorter, and appeared still stronger; his tail was also much thicker, and his colour somewhat browner and duller. He was fierce in disposition, but was less active and lively than the Bengal species; nor did his eye convey that treacherous watchfulness of glance observed in the latter animal. He was said to have been brought from Canton; and Major Smith thinks he has seen the same species figured in some original Chinese drawings.

It is to be regretted, that this animal was not described during its life, as there scarcely seems a doubt of its being a distinct species, or an hereditary variety; and I am not aware that there is any original memorial extant, except the drawing whence the plate was taken, and another in the possession of Major Smith.

THE PANTHER, AND THE LEOPARD. LA PANTHERE, ET
LE LÉOPARD.

Felis pardus, et Felis leopardus.

These, if they be distinct, as well as some other species of the felinæ, are by no means clearly defined, or satisfactorily described.

It may be useful to premise, that the word *panther* was applied by the Greeks to an animal very different from that we call by the name, and which was in all probability a species of hyæna*; and that the words *panthera* and *pardus* of the Augustan age, and *leopardus*† of the latter eras of the Roman empire, may possibly be synonymous, and not indicate different species; at least no specific characters have been pointed out by which to distinguish them, though they have long been separated and treated as distinct species by modern naturalists.

Pliny says, in his time the words *variæ* and *pardi* were applied to all this family; the former to distinguish the females, and the latter the males: and in a previous passage he observes, that the *panthera*

* Cuvier *Ossemens fossiles*: but I do not find his authority for this assertion.

† The root of this word indicates that the ancients were in error concerning it. We know of no breed between the lion and the panther, as the word *leopardus* seems to indicate.



Griffith

THE LEOPARD. LE LEOPARD.

FELIS LEOPARDUS.

and the tiger are almost the only spotted or striped beasts, the rest being uniform in colour, though it varies in the different species. By the whole context of the quotation from this writer, given in the subjoined note*, it appears probable, that the moderns have been incorrect in applying the word *pardus* specifically, as it was originally used only to denote a sexual distinction in the whole genus.

Modern zoologists have fallen into so many certain errors in describing these species as distinct, that the probability of their identity is rather strengthened by applying to their authority on this subject. To select a few instances.

Linneus gives as the specific characters of the panther, “*Felis, caudâ elongatâ, corpore maculis superioribus orbiculatis, inferioribus virgatis.*” With a long tail, the upper part of the body covered with

* *Panthera et tigris macularum varietate propè solæ bestiarum spectantur, cæteris unus ac suus cujusque generis color est leonum, tantum in Syriâ niger. Pantherus in candido breves macularum oculi. Ferunt odore earum mire sollicitari quadrupedes cunctas, sed capitis torvitate terreri. Quamobrem occultata eo, reliquas dulcedine invitatas corripunt. Sunt qui tradunt in armo iis similæ lunæ esse maculam, crescentes in orbes, et cavantem pari modo cornua. Nunc varias, et pardos, qui mares sunt, appellant in eo omni genere, creberrimo in Africâ Syriâque. Quidam ab iis pantheras solo candore discernunt, nec adhuc aliam differentiam inveni. *Plinii Nat. Hist. lib. x.**

In another passage mention is made of the *pardi*, *pantheræ*, *leones*, et similia. Now, unless *pardi* and *pantheræ* were applied to the two sexes of the spotted cats, they could not have been synonymous, as the moderns have made them.

orbicular spots, the lower part with stripes. This short description, it has been well observed, is inapplicable to any known species of the genus. Perhaps it is nearer to the servals than to any other. His characters of the leopard are, “*Felis, caudâ mediocri, corpore fulvo, maculis subcoadunatis nigris.*” “With a moderate tail, a fulvous body covered with subcontiguous black spots.” Dr. Shaw observes: “In the 12th edition of the *Systema Naturæ*, the panther and leopard seem to be confounded by Linneus himself, who appears to have considered them as the same species, under the name of *pardus*.” And if we consider the description given to the panther to be irrelevant and factitious, it follows, that Linneus has only described one species of the large spotted cats found in Asia and Africa, which must include the *variæ et pardi* and *leopardi* of the Romans.

Buffon, the brilliancy of whose work has blinded mankind to his imperfections, imbibed an idea, which he never seems to have lost sight of, that the American animals were degenerate, and less in size than the species of the old world belonging to the same order: hence, probably, he was led into a misunderstanding, or too willingly confirmed in error, on this subject. He has mistaken the jaguar, which he describes from an ocelot; and refers the former animal, because probably it was a large species, to the panther of the ancients; transposing his figures accordingly. The furriers and exhibitors of wild beasts have imbibed this error; and the jaguar of



Griffiths

THE BLACK LEOPARD.

FELIS LEOPARDUS, var.



THE HUNTING LEOPARD. LE GUEPARD.

FELIS JUBATA.

America has altogether usurped the name of panther from the species of the old world, to which it was originally applied.

Pennant's description of the panther so nearly accords with the jaguar of America, both in person and disposition, that there scarcely seems a doubt of this animal's being the type, whence his description was taken.

Dr. Shaw states, that the leopard is best distinguished from the panther by its paler yellow colour*; and that a true distinctive mark between them is by no means easy to communicate, either by description, or even by figure; but, he adds, the leopard is considerably the smaller of the two. He therefore makes the principal difference to consist in size and colour. A very fine animal is now exhibiting at Exeter 'Change, under the name of leopard, which is much larger, as well as brighter, than any other leopards in that menagerie; and should therefore, according to Shaw, seem to be the panther. But I am informed, that the animal in question was taken in India; and that all those which come from Asia are much brighter in colour than those from Africa, which is confirmed by inspection of the African specimens there; and that the females have more white about them than the other sex: and Mr. Cross, who has had opportunities of inspecting probably some hundreds of specimens, insists, that he

* But Pliny says: "Quidam ab iis pantheras *solo candore* discernunt, nec adhuc aliam differentiam inveni."

has never observed any specific difference between those brought from Asia and Africa among themselves, except that the Asiatic are generally larger and brighter; and except also, that some individuals constantly carry their long tail curved outwards, and others inwards, the latter of which they call ring-tailed leopards. It seems probable, therefore, that Dr. Shaw's leading specific distinctions of size and colour, apply rather to the Asiatic and African varieties, than to distinct species found in both those continents. The figures, however, in the General Zoology, neither illustrate the author's position on this subject, nor throw any light on the question; for they are merely copied from Buffon, and that which is called the panther is properly referable to the jaguar.

Lichtenstein, in a note communicated to Major Smith, describes the panther as resembling the jaguar in having the same number of rows of spots, but differing in having no full spots on the dorsal line. If this be correct, then is the existence of the panther established as distinct from the leopard; but I do not find, that full spots on the dorsal line always make a specific character of the jaguar; and the Asiatic leopard here figured is distinguished by this peculiarity, though it does not in other respects resemble the American animal. When, therefore, it is said, that the panther much resembles the jaguar, it is always to be strongly suspected, that the type, whence the observations are taken, is an American animal. If the contrary be clearly established, and

the animal be found to have large, round or oval, open marks of black, with a central spot, on the sides and back, and a tail longer than from its insertion to the ground, it may be concluded that it is the real panther.

Major Smith has no drawing of a real panther, that he can depend on, in his very extensive collection.

Lastly, that indefatigable investigator Cuvier, says, he was long in doubt whether the panther and leopard were distinct; but a comparison of a great number of skins, as well as observations on the numerous animals sent to the French Museum, have satisfied him that they are different; and he accordingly describes the panther as having six or seven rows of rose-like spots in transverse lines, the tail longer, and the head larger than the jaguar, and the ground colour of the fur paler. The leopard he describes as a little less than the panther, though with the same proportions; but the spots as much more numerous, forming ten transverse lines.

The opinion of Cuvier is certainly deserving the greatest attention; but it may be observed, that his enumeration of the six or seven rows of spots in the panther, and of ten in the leopard, is not so certainly intelligible as might be desired, when it is considered, that the spots or marks in question have really little or no parallelism. Notwithstanding, therefore, this respectable authority, it seems very probable, that the panther and leopard are one and the same species, which branches into two varieties, the Asiatic and

the African*; the former of which is brighter in colour, and probably something larger, than the latter; and that the females of both are paler, and less than the other sex. If this be so, the name panther should be retained, and that of leopard dismissed, as founded in an erroneous position.

The figure is from a specimen which was some time ago at Exeter 'Change: but it must not be concluded, that the marks exhibited by this animal, or any other individual of the species, convey a strict or minute idea of the specific characters, for it is very difficult to find any two skins of the large spotted cats found in the world, which correspond with any precision; and independent of this general difference, and of sexual peculiarity, the same animal will vary considerably when adult from its appearance during nonage, and will then exhibit spots which were not visible before. Thus it is scarcely possible to select any fixed determinate peculiarities, by which in a few words, or a single period, any animal may be known. Even generic characters pass from one genus through some one or more species into another, so as to render it uncertain to which of the genera, if either, such intermediate species properly belong; but the difficulty is much greater as it regards specific descriptions, which are generally grounded on external marks or size, the former of which in parti-

* Cicero, in his letters to Atticus, speaks of the panther of Africa and the Asiatic panther, as if they were different.

cular may be said never to accord precisely in any two individuals*.

These animals, though occasionally found in some parts of Asia, are much more common in Africa; and are to the latter continent almost as destructive as the tiger is to the former. They seem, however, to have more respect, dictated by fear, for the human species, and will seldom attack a man unless provoked, or much pressed by hunger; but they are cruelly destructive to the inferior animal creation.

For the purpose of taking them, it is usual for the hunter to construct a hiding-place within musket-shot of a tree, on which is suspended some flesh as a bait for the unconscious beast, which receives the ball while in the act of taking it. The hunter, for greater caution, then waits till the following day, when a dog, properly trained, is sent forward to track the animal to its retreat. If it be still alive, the dog generally falls a victim, and saves the hunter from exposing himself, until he is satisfied that the beast is no longer capable of mischief.

The female of the panther or leopard is gravid nine weeks, and the young when born are blind, and remain so about nine days afterward; but the American jaguar, which appears to have been confounded so much with this animal, is produced with the eyes open, and the mother is pregnant nearly four months.

* Whence considerable difficulty has arisen, and some uncertainty remains, in identifying the drawings, made use of for this work, with the figures and descriptions hitherto published, taken from other types.

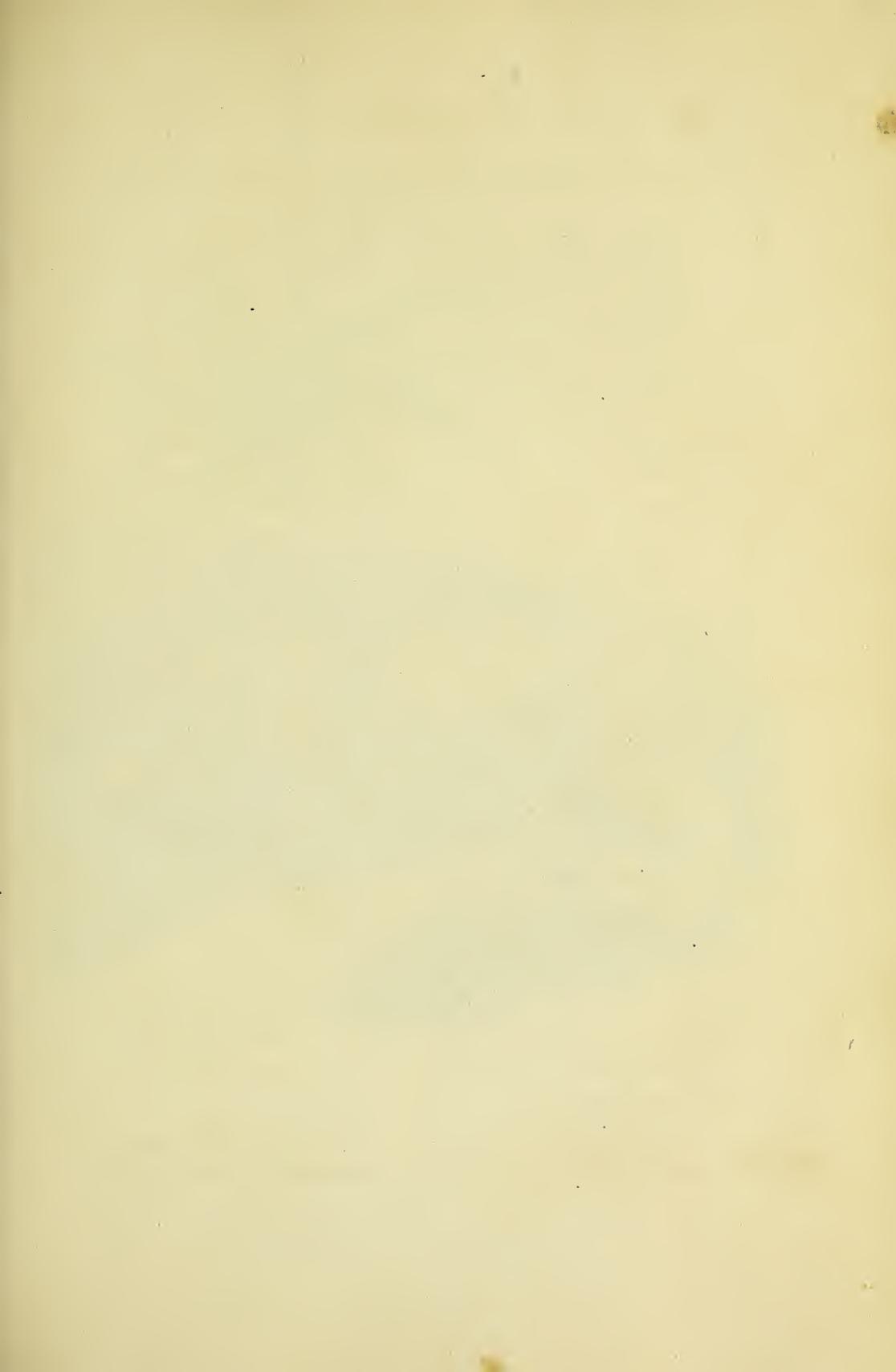
THE OUNCE. L'ONCE*.

Felis uncia.

In Dr. Gmelin's edition of the *Systema Naturæ* the ounce is described with the following specific characters: "Felis caudâ elongatâ, corpore albido; maculis irregularibus nigris:" which accord pretty well with the figure here given. Buffon also describes the ounce at some length, and gives a figure of it; but Cuvier seems to doubt the existence of this animal as a distinct species. After taking much pains to ascertain the truth, he states his opinion to be, that the *once* of Buffon is no other than a variety of the panther, because he has never been able to meet with an animal or a skin corresponding with Buffon's description; he therefore omits it in his catalogue of cats, both in the *ossements fossils*, and in the *règne animal*.

The figure of the ounce here represented is from a specimen brought from the shores of the Gulf of Persia, which was in the Tower of London. It is very distinct from all the other species in make, marks, and general appearance; and corresponds with Buffon's figure, which has been copied by

* Buffon says, the word *once* is a corruption from *lynx* or *lunx*, and that he retained the name because the animal in question has some affinity to the lynx.





THE ONCE. L' ONCE.

FELIS UNCA.

Schreber, Shaw, and others. It was about the size of a panther or leopard.

Major Smith has also met with a skin of this species brought from the Gulf of Persia, from which he has made a drawing in his collection. He conjectures it to be a mountain species; and, from the length of the fur, which is shaggy, one that resides in the higher snowy regions of northern Persia.

The ounce, as well as some others of the cat tribe, appears to be employed in India for field sports. The Persians are said to carry this animal with them across a horse, and to start it at the sight of game, which, in general, it soon overtakes by rapid bounds or leaps, and returns with it to its keeper.

THE MELAS*.

Felis melas, Peron.

A large species of this genus was sent from Java to Paris, and deposited in the menagerie there, which is described as black with deeper black spots. It was about the size of the panther, but the legs were shorter. The spots were single, and not in oilets or clusters, which separates it from most, if not all the other species; but the head was observed to be shaped like that of the panther.

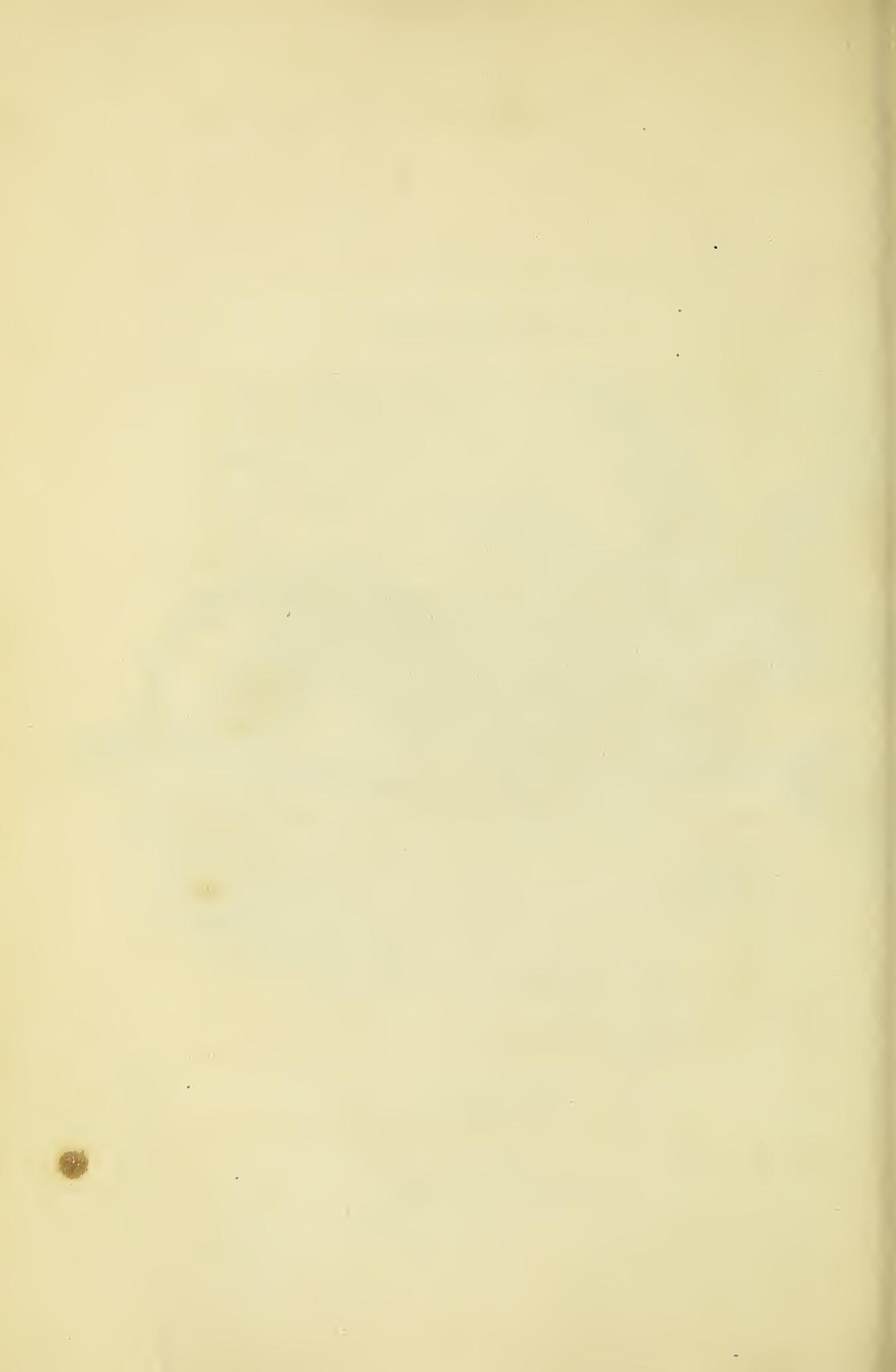
The opposite figure, from Major Smith's collection, represents an animal which was exhibited in Mr. Bullock's museum, and was said to have been brought from Java. It was long, low, strong built, with a head something elongated, of a brown black colour, with blacker specks. The eyes inserted were bluish, but the melas of Peron is stated to have had eyes of a silvery white. There seems, however, little reason to doubt the identity of the two species.

* From *μελας*, black.



THE MELAS?

FELIS MELAS, Perou?



THE ASIATIC SERVAL*. LE CHAT PARD.

Felis Serval Asiatica.

The *Mémoires* of the French academicians contain one on an Asiatic species of the felinæ, which they name *chat pard*. The ground-colour of it was ferruginous, with the under part of the animal white; and the whole body was covered with black spots, which were rather long on the back, but rounder and more numerous on the sides and legs. It measured two feet six inches, and the tail eight inches. Buffon afterward described an animal, which he identifies with the *chat pard* above named, and to which he gives the name of serval. He says, it is found in India and Thibet.

The specific character of the spots, being oval on the back, and rounder on the sides and belly, applies strictly to the animal figured on the opposite plate, which was brought from India, and lately exhibited at Exeter 'Change. Although, therefore, this animal differs considerably from that represented by Mons. F. Cuvier, in the great lithographic work on the French menagerie; the native country of which is unknown, and which he identifies with the *chat pard*

* Called maraputé by the inhabitants of Malabar, according to Buffon.

of the academicians ; we have ventured to apply their name to our animal, and to retain Buffon's synonyme for its English appellation.

It is true, that the serval of Buffon has been separated and made distinct from the chat pard of the academicians, but the short specific characters given of each, and especially the assertion, that both of them were natives of India, seem to render it very probable, that the species here figured was that intended by both these descriptions ; and as the animal alluded to by the Baron Cuvier, and figured by his relation, corresponds so very nearly with a drawing of Major Smith's, from a specimen taken at the Cape, which is next described, there seems the strongest reason to conclude, that the African species is the serval of these illustrious naturalists.

THE CAPE SERVAL OF HAMILTON SMITH.

Felis Galeopardus? Cuvier.

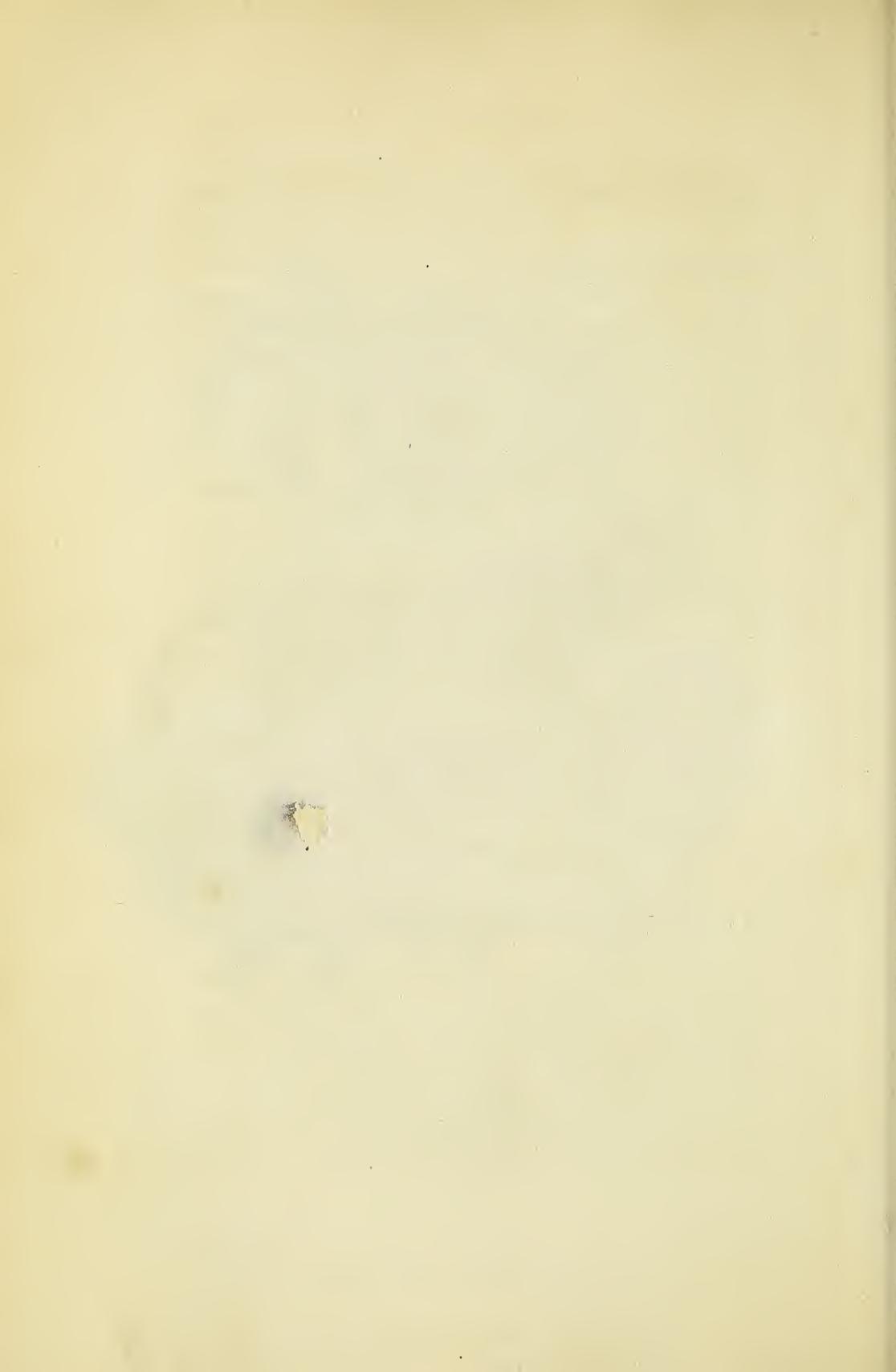
Felis Serval Capensis.

This species of the Cape cat is communicated to me by Major Smith. It certainly is very similar to the serval of F. Cuvier, before-mentioned, and cannot, we think, be a distinct species. He saw it at Baltimore ; but it was stated to have come from South Africa. It was near four feet long, and the tail



THE SERVAL. LE SERVAL.

FELIS SERVAL.



thirteen inches. The colour was a bright yellow ochre; the ears were large, pointed, and black, with white spots at the back; the forehead spotted; the iris of the eyes blueish. From behind the ears extended three diverging black streaks on each side; the first pointing to the shoulder, the second to the flank, and the third toward the croup; on the back, particularly near the tail, were two or three large black streaks; the tail was yellow at the base, but becoming paler toward the tip, with nine black annuli: the shoulders and rump had long, irregular, black marks, forming on the sides something like three transverse stripes; the insides of the limbs, and the belly, were white, with a black bar across the throat. The major engaged himself (some time ago) to lend the drawing to Mr. Themminck, who will probably give a figure of it.

THE CAPE CAT OF FORSTER. CHAT D P.

Felis Capensis. Gm.

Dr. Forster is the first describer of this beautiful animal, from a small specimen. Another, measured by Mr. Pennant, was almost three feet in length, exclusive of the tail. The length of the occiput, and elliptical shape of the head, are very remarkable in this species. The ears are very large and pointed, the markings a mixture of streaks, running longitu-

dinally, and spots; the tail is shorter than the body, and annulated. It is described as an inhabitant of trees, with the manners of the wild cat; but Dr. Forster's specimen, which was young, was quite tame. As it has been already well figured, it is not thought necessary to give one here. It is much like the genet, and it has been strongly suspected, that it is no other than that animal; but we are certainly not warranted, on account of mere similarity, in placing it in a different genus from that in which its describers have arranged it.

In Daniell's *Sketches of the Native Tribes, Animals, &c. of Southern Africa*, he has figured a cat, which may, perhaps, be referred to this species. The back and sides of this animal are covered with a number of blotches, or irregularly lengthened large streaks; but the under parts appear to be without any marks. It is said to be called the Cape tiger-cat, but no verbal description is given of it. From the lengthened figure of the jaws and occiput it has all the appearance of the genet, or a species of *viverra*, as Cuvier seems at first to have conjectured was the case with Forster's cat. Had the generic characters of the teeth been given, this would at once have determined the question.

THE JAVA CAT. LE CHAT DE JAVA.

Felis Javanensis. Leschenault.

Java is known to contain at least two or three species of the wild cat: the largest of these, which is that here indicated, has lately been elaborately described by Dr. Horsfield. It seems nearly allied to the Bengal cat of Pennant, the serval of F. Cuvier, and the lesser species of Java cat above alluded to; but is distinct from all of them. Dr. Horsfield's figure shows the animal to be of a grayish brown colour, with different shades, and with the cheeks and under parts white; the marks are lengthened or oval streaks or blotches on the back and sides, which become more circular and faint in colour on the belly and legs.

This animal is found in large forests in every part of Java. It forms a retreat in hollow trees, where it remains concealed during the day; at night it ranges about in quest of food, and often visits the villages at the skirts of the forests, committing depredations among the hen-roosts. The natives ascribe to it an uncommon sagacity, asserting that, in order to approach the fowls unsuspected, and to surprise them, it imitates their voice. It feeds chiefly on fowls, birds, and small quadrupeds; but, in case of necessity, it also devours carrion. It is perfectly un-

tameable. The same character is given to the Bengal cat by Drs. Gibbon and Buchanan ; but it has not the disagreeable odour ascribed to that species, nor does it frequent reeds near the water, to feed on fish, snails, and muscles.

M. Leschenault brought also from Java the lesser species of the wild cat of that island ; the colour of which was dirty gray, with a number of small black spots, inclining to the oval form. This is thought to be the same as the chat Indien of Vosmaer.

The description of this species accords very much with the figure given in this work, under the name of Guigna of Molina, so as to induce a strong probability of their identity ; which is to be opposed, however, by the assertion that the latter animal came from America.

THE SUMATRA CAT.

Felis Sumatrana. Raffles.

This is another species of the cat recently brought to light, nearly allied to the last two, and found in the neighbouring island of Sumatra. It is also described and figured by Dr. Horsfield. The upper parts are of a dirty gray colour, with the under parts whitish. The marks, of a deeper colour, nearly black, are angular blotches and short stripes. It has the manners of the lesser species of this genus in general.

There are several other small species of the felinae known in the old world ; as the manul of Pallas, which was as big as a fox, of a tawny colour, with black spots and stripes ; of which there is no figure : the Bengal cat, described by Pennant, which was striped and spotted, and of a beautiful pale yellowish brown colour ; this bred with the common species : the *felis obscura* of F. Cuvier, of a deep black brown colour, with transverse black bands, from the Cape : &c. A precise description of so many animals, according in habits and manners, if it could be obtained, would, perhaps, rather tire than interest the reader. The genus has ramified into a great number of distinct hereditary species ; and, notwithstanding the present increased catalogue of them, we have every reason to suppose, that many have not yet fallen under the observation of naturalists.

THE COMMON CAT, LE CHAT ORDINAIRE,

Felis Catus,

Is originally from the forests of Europe. In the savage state it is generally of a brown gray colour, with transverse deeper shades; the tail has two or three dark bands, and the extremity is black. The wild cat is common in England, and may be called, as Mr. Pennant observes, the British tiger. Its manners are similar to those of the lynx, living in woods, and preying, during the night, on every animal it can conquer. In a domesticated state it varies greatly in colour, and the length and fineness of the hair; but much less than the dog; nor is it so submissive, or capable of attachment as the latter animal; for, notwithstanding its education, and acquaintance with man and better manners, it ever retains much of its primitive ferocity, perfidy, and cruelty, and is never to be entirely trusted: it is, in general, rather attached to its domicile than to its keeper. The opposite figure is that of a wild cat, which was killed a few years ago by the greyhounds of Mr., now Sir Walter Scott.

It is observed, that such varieties of the domestic cat, as differ most in appearance from the common wild species, are proportionally more completely changed in manners. The former sort will also eat,



THE BRITISH WILD CAT. LE CHAT ORDINAIRE.

FELIS CATUS.

occasionally, vegetable food, which the wild varieties are not known to do; a natural or physical indication of which is to be found in the intestines of the domesticated, which are longer than those of the common wild species.

The varieties of the domestic cat are considerable in number: as the brinded cat, with black feet and annulated tail; the slate-coloured, or blue-gray, called the Chartreuse cat; the tortoiseshell, or Spanish cat; the white, or slate-coloured, with long fur, called the Persian cat; and a beautiful long-haired species, called the Angora cat, which is remarkable for sometimes having one eye blue and the other yellow; the red cat of Tobolsk, mentioned by Gmelin; the pendant-eared cat of China; and the Pensa cat, described and figured by Pallas, in his Travels, which, indeed, seems likely to have been hybridous, though it was prolific.

There is also, according to Sir S. Raffles, a variety of the domestic cat peculiar to the Malayan Archipelago, and remarkable for having a twisted or knobbed tail, in which particular it agrees with that of Madagascar. Sometimes it has no tail at all. This coincidence with the Madagascar variety is the more remarkable, as the similarity between the language and customs of the inhabitants of Madagascar and of the Malay Islands has frequently been a subject of observation.

There is also an hereditary variety of the cat in this country, which is without any visible tail. It is not uncommon in Cornwall; and Dr. Leach re-

ceived one from the Isle of Wight, which, however, could not be reconciled to its new habitation.

It appears, by the *Bibliothèque Universelle*, that a hybridous race has lately been propagated between the domestic cat and the pine marten, which, contrary to the more ordinary course of nature, is prolific; and, as these animals are said to breed freely, they seem likely to become a distinct hereditary species. They appear to have more of the character of the marten than the cat, as the snout is elongated, and the claws are not retractile; but they are perfectly domesticated; and the fur is very fine. The teeth are not described. The account must, however, be taken with caution; as, although the animals in question partake as much or more of the character of the marten than of the cat, the original intercourse which produced them is merely supposititious. May not this be the Pensa cat mentioned in Pallas's Travels?

The fur of the cat, when dry, will yield electric sparks by rubbing; and if the animal be placed on an electrical stool with glass legs, and rubbed for a short time in contact with the wire from a coated jar, the jar will be effectually charged with electric matter.

Cats dislike being wetted, and are averse to many scents; but they are passionately fond of the smell of the valerian root.

Such as have lost their young have been known to transfer their maternal affection to leverets, young squirrels, and even rats; and it would probably be

no difficult task to multiply such instances, if pains were taken to do so. These, and other similar facts, as that of the domestic hen bestowing all her assiduity, apparent anxiety, and maternal affection, on chickens not her own, or on birds of a different genus; while they evince the special interposition of Providence for the propagation of animals, by providing for their helpless young; show also, that what we call instinct, in such cases, is very different from reason; and is an impulse acting on animals almost independent of volition, for the most important of all purposes to them, their preservation, which may be misdirected, sometimes, perhaps, fortuitously*, but much more frequently by human artifice.

* If the assertion, "Deus est anima brutorum" were literally true, this could never happen.

THE lynxes form a group sufficiently distinct among the felinæ. The lynx of antiquity appears to have been so named from a Greek word having reference to its real or supposed superiority of vision; but as it is distinguished by a much more certain and tangible character, viz. the pointed ears in all, and pencil of stiffish hairs extending some way beyond the point of each in most of them*, all the species of the feline genus marked by this character are now associated under the common name of lynxes. They are hitherto but ill defined, and some confusion in the synonymes seems to render it very difficult to ascertain with any certainty the various species, which have been discovered and described. I shall name first those of the old world, distinguished by a longish tail; premising, that *caudâ mediocri*, and *caudâ abbreviatâ*, being relative terms, are not easy to be understood.

THE CHAUS.

Felis Chaus? Gm.

Professor Guldenstedt describes this species. It is about two feet six inches long; of a dusky yellow

* And also by the want of the fourth, or auxiliary cheek-tooth, according to the *Dict. d'Histoire Nat.*



THE CHAUS, *FELIS CHAUS*, Guldenst.

THE BAY LYNX, *FELIS RUFa*, Guldenst.

brown colour, with the breast and belly inclining to orange; the tail, tipped with black, has three black bars some way from its extremity; and on the insides of the legs, near the knee, are two dark bars. It is found on the western side of the Caspian Sea, whence Pennant has named it the Caspian lynx, and in Egypt. Cuvier identifies this with the booted lynx of Bruce, which has the hind part of the legs black some way up, but extending farther on the hind legs than on those before. This animal inhabits the neighbourhood of rivers and lakes, and preys very much on water fowl.

The opposite figures represent two species, which were exhibited in Mr. Riddell's museum. They are here named, though with considerable hesitation, after Guldenstedt. The first of these, the chaus, was near three feet long, and its tail measured eleven inches. It was exceedingly strong in make about the shoulders; there was a kind of crescent of white passing from the throat, on each side, to behind the ears; the tail was dark above, and rusty beneath, with a white ring near the end, and the tip black. At the insertion of the tail, the fold of the thigh, and the elbow, was a small black streak. As these characters are not noticed by Guldenstedt in his description of the chaus, its identity with this animal seems uncertain, though in other respects they appear to correspond.

The other figure seems referable to an American species, and will be mentioned among the lynxes of that continent.

THE CARACAL*, OR PERSIAN LYNX. LE CARACAL.

Felis Caracal. L.

The caracal is not spotted, like the common lynx ; the hair is shorter and more harsh, the tail is longer, and uniform in colour ; the muzzle is longer, and the whole appearance of the animal much less gentle ; and, in fact, it is also much more ferocious in disposition. In other respects it accords with the lynx, except also in its residence, as it is a native of hotter parts of the world, and is found in all those countries, which are pestered with the lion, the panther, and the ounce.

The caracal is about the size of a fox, but is much stronger, and more ferocious, and will easily destroy a powerful dog. It appears to possess a degree of generosity in common with the lion ; for, if its appetite be satiated, like that animal, it is no longer an enemy, in which respect it is reported to differ from the tiger and the panther.

The caracal is said sometimes to satisfy its appetite with the overplus of the lion's meal ; and, for the purpose of so doing, is thought to follow closely this animal, which it can escape by ascending trees ;

* From the Turkish word *karrah-kulak*, or *kara-coulac*, which signifies a cat of the desert, according to Bruce.



THE CARACAL OR PERSIAN LYNX. LE CARACAL.

FELIS CARACAL.

whence the story of its being the lion's caterer, or guide, as if a friendly league existed between the two animals for mutual advantage.

Cuvier states, that this, and not the common lynx, is the animal intended by the ancients under the name; but Virgil certainly alludes to the spotted species in the *Æneid*—

. monstrate mearum
 Vidistis si quam hîc errantem forte sororum,
 Succinctam pharetrâ, et *maculosæ* tegmine lyncis.

There is a variety of the caracal found in Barbary, which Pennant names the Libyan caracal, and which Dr. Shaw identifies with the booted lynx of Bruce. A specimen of each variety is now in Mr. Cross's collection at Exeter 'Change; they accord in make precisely, and differ only in colour, the one being vinous red, and the other gray. There are probably, also, other permanent varieties of this animal.

There might be reason to conclude, that the dark variety is no other than that represented in the last plate, from Major Smith's drawing, under the name of chaus; but the white crescent on the throat, and the streaks observable in that animal, are not met with in this, whence their principal distinction: but whether this be a specific difference, or the effect of variety in the same species, may be doubted. The characters above given, however, are not mentioned by Guldenstedt in his description of the chaus; whence a probability may be inferred, that the animal

described by this naturalist was no other than the dark variety of the caracal now exhibiting at Exeter 'Change, and that Major Smith's animal is previously undescribed, or an accidental variety.

THE COMMON LYNX. LE LYNX.

Felis Lynx. L.

The common lynx has a tail much shorter than that of those already mentioned, not exceeding six inches in length. Buffon, in his learned description of the lynx, says, it much resembles the cat in make, manners, and habits. Although sometimes called the loup cervier, or stag wolf, either because it attacks the genus cervus, or because its fur is spotted something in the manner of a young stag, it possesses nothing of the character of the wolf; unless, indeed, in having a distant similarity of voice, by which, when far off, it may be mistaken for that animal.

The lynx is generally about the size of a fox, but its legs are shorter in proportion to its size; the fur is long, the spots are indistinct, and the ears large, and terminated with a pencil of hair. Its physiognomy and general appearance are rather gentle than savage; and it is said to be of a less ferocious disposition than several of the tribe. It walks, and leaps, or bounds like a cat; and hunts

wild cats, martins, ermines, squirrels, &c., pursuing them up into trees, where also it will lie in wait to drop on deer, goats, &c., that may pass beneath. It is sanguivorous ; and, having seized on a prey, is said frequently to suck the blood, and then leave it for another victim ; whence it has been asserted, that the lynx has the least memory of all animals. Its skin is changed by climate and season ; and in high latitudes, particularly in winter, the fur is much finer and thicker, and more esteemed.

Why the treacherous Lyncus should have been transformed into a lynx, and this animal be in consequence held up in terrorem to the world as an example of perfidy, is not stated by Ovid ; who, while he relates the tale, “ *Lynca Ceres fecit,*” like a true chronicler, abstains from all comment. A namesake of the Scythian king, Lynceus the argonaut, who, by the by, was a sheep-stealer, or something worse, appears also to have been in some way allied to this animal, in the opinion of antiquity ; as the powers of vision of both were considered equally extensive and surprising, and no doubt with equal truth ; but if so, the eyes of the lynx must have suffered in these degenerate days. Other marvellous stories were also told, by the ancient naturalists, of the lynx, which have gained credit, in later times, with the vulgar, and with those who are easily credulous, and too idle to seek for truth at the expense of trouble.

The lynx was formerly spread over the old world,

was common in France, and has but recently disappeared from Germany.

The remaining species of cats are proper to America; and as they are all specifically different from those already mentioned, though generically the same, it may be convenient to regard the whole genus in reference to locality, making two principal divisions, one composed of those proper to the old world, and the other of such as belong to the new.

ON crossing the Atlantic we find, as is generally the case with all other animals, this formidable genus spread over the whole of the great western continent; but we do not meet with any of the species known in the old world. They have cats in plenty, but none like ours; and it is to be lamented, that any of those proper to America should ever have been named by Europeans there after animals, which are found only in Africa and Asia; as the American lion, American tiger, &c. The panther of the old world, and the jaguar, or American tiger, are certainly very similar; but the difference between them is specific, and it may be doubted whether they would ever breed together*.

Climate or locality has undoubtedly very great and wonderful effects upon the bodies of animals; and few species are widely disseminated, though the genus may overspread the earth. The changes wrought in their generations by transportation or emigration may possibly have produced effects but little surmised; and it is perhaps hardly too much to conjecture, that all the species included in the same genus, or in other words, that all those animals, which, although

* Mr. Cross has bred the panther, or leopard, as well as the jaguar, but has known no instance of sexual intercourse between the transatlantic species and that of the old world, notwithstanding their great similarity, and though every opportunity has been afforded them.

they differ in a variety of particulars, agree nevertheless in the general description, and exhibit a certain relationship to a common type, may have sprung from a single pair, and have branched out into distinct hereditary races by the effect of emigration and climate, or change of place.

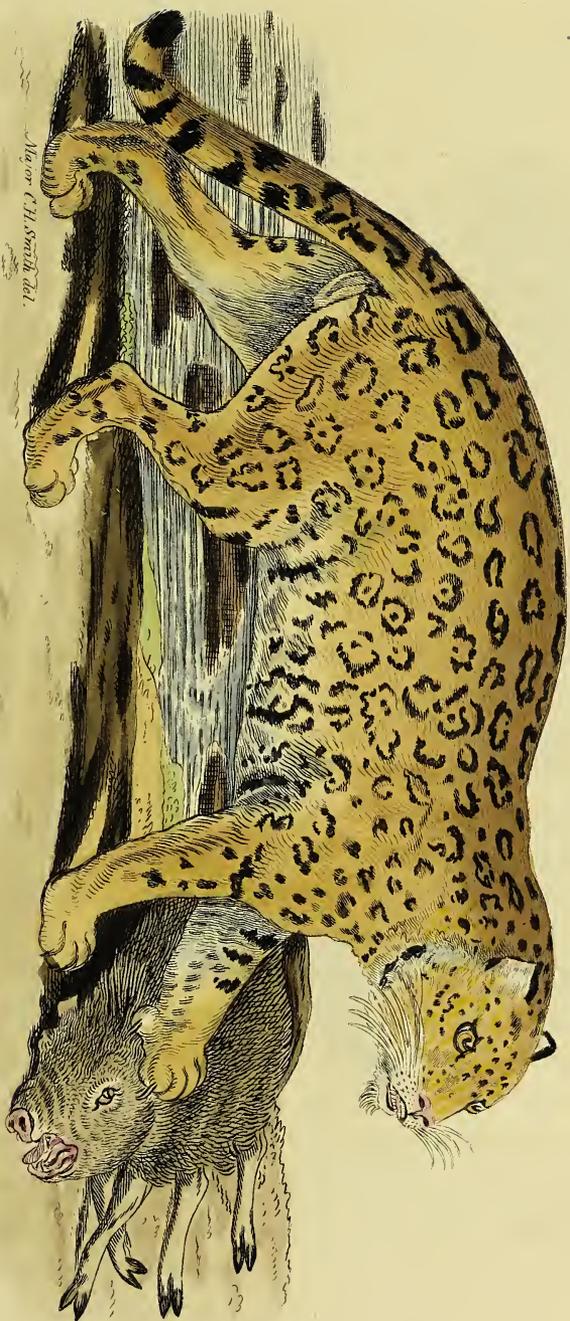
THE JAGUAR*. LE JAGUAR.

Felis Onca. L.

This formidable animal is peculiar to America, and is sometimes called the American tiger. It is nearly as big as the tiger of the old world, and not much less dangerous. The ground colour of the fur is bright yellow above, and white beneath; the sides have each a number of ocellated and other marks, each mark describing a black circle, interrupted in several places, generally, with a black spot in the middle; and the breast and under parts have some black stripes, with numerous black spots, irregular as to shape, size, and position. These marks, however, seem to vary in different individuals, nor do the two sides of the same animal always agree.

Some inhabitants of South America particularize two varieties of the jaguar, corresponding in colour and general appearance; but one of them stands

* So named in Brazil. The Portuguese have named it *onça*, from its supposed similarity to the ounce, which Linnæus adopted.



THE GREAT JAGUAR.

FELIS ONCA 1867.

higher than the other, has the fore legs smaller, a fur not quite so bright, and a more gentle disposition. Azara says, it is called *popé*, but he thinks they are but one; but Major C. H. Smith, whose long residence in America afforded him opportunity of inquiry, and whose zealous and active disposition would prompt him to make the best use of it, informs me, he satisfied himself there were two distinct varieties of the jaguar, differing principally in dimensions.

The opposite figure is from his accurate pencil. The type was a specimen, as he believes, of the great jaguar, which was shot in the act of devouring a peccary in the woods of Surinam; it measured two feet ten inches in height at the shoulder, but, from its compact and heavy make, it appeared larger than it was in reality. The spots do not strictly agree with what either Cuvier or Lichtenstein have fixed as criteria; and Major Smith doubts whether any skin of this variety (presuming it to be the *popé* or large jaguar) has ever come under the observation of those indefatigable and accurate observers. The line of lengthened spots on the back was not quite full, and it seems probable, when they are so, that it arises from nonage. The marks on the sides are very irregular, and indefinable; the eyes were small and sunken; the whiskers very long; and the whole character that of an aged animal. It was a male. The portrait is extremely like that given by Azara in his *Travels*, particularly as to the make of the animal.

The jaguar is very like the panther or leopard of the old world (presuming the two last-mentioned names to refer to the same species), but the spots or rings of the jaguar are larger and more oblong, particularly down the back; the head is rounder; the animal altogether stouter and stronger; and the tail never reaches farther than to the ground; which last is, perhaps, the most obvious difference between them.

Their young are born blind; those of the panther or leopard have their eyes open from the first.

On the whole, it must be concluded, that no accurate description has hitherto been given of the large variety of the jaguar; or otherwise, that the individuals of this species are so subject to vary, as to render any specific character inconclusive.

There is also a black variety* found in the forests on the frontiers of Brazil, which has the same spots and marks as the others, on a ground of a somewhat lighter black; so that they are visible only on close examination, and by viewing the skin when inclining at a certain angle from the direction of the light. This appears to be the *felis discolor* of Gmelin, the *couguar noir* of Buffon, and the black tiger of Shaw; although the figure given by Buffon does not correspond with it, inasmuch as the under part is white.

* It is extremely difficult to say what is a variety, and what a distinct species. The black jaguar is probably only a variety; but as it is not found in the parts where the common jaguar abounds, it may be thence presumed, that they are distinct.

The black variety, however, is extremely rare. One is also mentioned by Azara, perfectly white, with the spots indicated by a more opaque appearance; but this peculiarity was possibly the effect of albinism.

The jaguars are solitary animals, or are met with only in pairs; they inhabit thick forests, especially in the neighbourhood of great rivers; and if they be driven by their wants to seek for sustenance in the cultivated country, they generally do so by night. It is said they will stand in the water, out of the stream, and drop their saliva, which, floating on the surface, draws the fish after it within their reach, when they seize them with the paw, and throw them on shore for food.

They will attack cows, and even bulls of four years old, but horses seem to be their favourite prey. They destroy the larger animals by leaping on their back; and placing one paw on the head, and another on the muzzle, they contrive to break the neck of their victim in a moment. Having thus deprived it of life, they will drag the carcass, by means of their teeth, a very considerable distance to their retreat, from which their great strength may in some measure be estimated.

The jaguar is hunted with a number of dogs, which, although they have no chance of destroying it themselves, drive the animal into a tree, provided it can find one a little inclining, or else into some hole. In the first case, the hunters destroy it with fire-arms or lances; and in the second, some

of the natives are occasionally found hardy enough to approach it with the left arm covered with a sheepskin, and to spear it with the other; a temerity which is frequently followed with fatal consequences to the hunter.

The traveller who is unfortunate enough to meet this formidable beast, especially if it be after sunset, has but little time for consideration. Should it be urged to attack by the cravings of appetite, it is not any noise, or a firebrand, that will save him. Scarcely any thing but the celerity of a musket-ball will anticipate its murderous purpose. The aim must be quick and steady; and life or death depends on the result.

As population extends, animals of this description, in particular, are lessened in number; for, with all their natural powers of body, they are no match for the artificial resources of man. Accordingly, many parts of South America, which were once grievously pestered with jaguars, are now almost freed from them, or are only occasionally troubled with their destructive incursions.

Azara was once informed, that a jaguar had attacked a horse, near the place where he was. He ran to the spot, and found that the horse was killed, and part of his breast devoured; and that the jaguar, having probably been disturbed, had fled. He then caused the body of the horse to be drawn within musket-shot of a tree, in which he intended to pass the night, anticipating that the jaguar would return in the course of it to its victim: but while he was

gone to prepare for his adventure, the animal returned from the opposite side of a large and deep river, and, having seized the horse with its teeth, drew it for about sixty paces to the water, swam across with its prey, and then drew it into a neighbouring wood, in sight, the whole time, of the person who was left by Azara concealed, to observe what might happen before his return.

The husbandmen frequently fasten two horses together while grazing; and it is confidently stated, that the jaguar will sometimes kill one, and, in spite of the exertions of the survivor, draw them both into the wood*. It is possible, that the extreme terror of the surviving horse may paralyze its efforts.

Generally speaking, the jaguar will not attack a man; but if it be pressed by hunger, or have previously tasted human flesh, its appetite will overcome all fear; and, during the residence of Azara in Paraguay, no less than six men were destroyed by this formidable beast, two of whom were, at the time, in the act of warming themselves before a large fire.

The smaller variety differs as to the shape, &c. of the spots, which accord rather with Cuvier's character of the animal. The colour of this appears paler and more ashy than that figured.

* Molina attributes this performance to the puma; but Azara, who, from his general accuracy, is more likely to be correct, mentions it in his history of the jaguar.

THE PUMA, COUGOUA, OR PAGI, LE COUGOUA,

Felis Puma,

Called by the Mexicans *mitzli*, in Peru *puma*, and in Paraguay *guazuara*. The name by which it is most generally known is that of the American lion; so called from a distant similarity it bears to the lion of the old world. It seems the more necessary to advert to these synonymes, because the name cougoua, by which it is most commonly known in Europe, particularly in France, appears to have been borrowed from that proper to another animal*. The Linnean epithets, concolor and discolor, have likewise no appropriate meaning; but puma is its native name. Its length, from the nose to the root of the tail, is about five feet; and its height, from the bottom of the foot to the shoulder, twenty-six inches and a half.

The figure is from a beautiful drawing, communicated by Major Smith, made in America from a living specimen.

Molina states, that, notwithstanding its ferocity, the pagi never ventures to attack a man, although it is continually hunted and persecuted by him. It

* See the Eira, page 85.



THE PUMA OR COUGOUA. LE COUGOUA.

FELIS PUMA.

is naturally a coward; and a woman or a child will make it run away and abandon its prey. It is hunted with dogs trained for the purpose; and when hard pressed by them, either leaps up into a tree, seeks an asylum upon a rock, or, placing itself against the trunk of some large tree, defends itself in a furious manner, killing many of its enemies, until the hunter, watching his opportunity, secures or destroys it. As soon as the animal finds itself taken, it roars terribly, and is said to shed many tears. The skin serves for various uses; good leather, for boots or shoes, is manufactured from it; and the fat is considered as a specific in the sciatica.

Azara says, this animal is less ferocious, and more easy to be killed than the jaguar; it lies concealed in the underwood, and does not have recourse to caverns for shelter, like the jaguar. Unlike this animal, also, the puma ascends and descends the highest trees with celerity and ease, though it may be considered, in general, rather as an inhabitant of the plains than of the forests. He states, also, that it is not known to attack a man*, or even a dog, but avoids both with great timidity. Its depredations are generally confined to quadrupeds of a middling size, as calves, sheep, &c.; but against these its ferocity is more insatiable than its appetite, destroying many at an attack, but carrying away, perhaps, only one. If it have more than sufficient

* Buffon states, that it will seize a man, if it find him sleeping, which Azara denies.

for a meal, it will cover and conceal the residue for a second repast; in which it differs also from the jaguar, which is not so provident. In other respects, as to form, movements, mode of attack, &c. it resembles the jaguar in particular, and the cat tribe in general.

Azara possessed a tame puma, which was as gentle as any dog, but very inactive. It would play with any one; and, if an orange were presented to it, would strike it with the paw, push it away, and seize it again, in the manner of a cat playing with a mouse. It had all the manners of a cat, when engaged in surprising a bird, not excepting the agitation of the tail; and purred, when caressed, like that animal.

An incident occurred, a few years back, not far from New York, which disproves the assertion of Molina and Azara, that the puma will not attack a man; and, while it shows the ferocity of the animal, evinces that its power is not much inferior to that of the jaguar. Two hunters went out in quest of game on the Katskill mountains, in the province of New York, on the road from New York to Albany, each armed with a gun, and accompanied by his dog. It was agreed between them, that they should go in contrary directions round the base of a hill, which formed one of the points in these mountains; and that, if either discharged his piece, the other should cross the hill as expeditiously as possible, to join his companion in pursuit of the game shot at. Shortly after separating, one heard the other fire; and, agreeably

to their compact, hastened to his comrade. After searching for him for some time without effect, he found his dog dead, and dreadfully torn. Apprised by this discovery that the animal shot at was large and ferocious, he became anxious for the fate of his friend, and assiduously continued the search for him ; when his eyes were suddenly directed, by the deep growl of a puma, to the large branch of a tree, where he saw the animal couching on the body of the man, and directing its eyes toward him, apparently hesitating whether to descend and make a fresh attack on the survivor, or to relinquish its prey, and take to flight. Conscious that much depended on celerity, the hunter discharged his piece, and wounded the animal mortally, when it and the body of the man fell together from the tree. The surviving dog then flew at the prostrate beast, but a single blow from its paw laid the dog dead by its side. In this state of things, finding that his comrade was dead, and that there was still danger in approaching the wounded animal, the man prudently retired, and with all haste brought several persons to the spot, where the unfortunate hunter, the cougar, and both the dogs, were all lying dead together*.

Azara asserts, that the jaguar cannot climb trees, but that the puma can. The last anecdote sufficiently evinces, that the latter can mount a tree; but it seems probable, that it is accomplished rather by a

* This is given on the authority of Major Smith, who saw the animal, which was preserved after death as a memorial of the story.

vigorous bound, in the first instance than by absolute climbing.

Major Smith witnessed an extraordinary instance of the abstracted ferocity of this animal, when engaged with its food. A puma, which had been taken, and was confined, was ordered to be shot, which was done immediately after the animal had received its food: the first ball went through his body without killing him, and the only notice he took of it was by a shrill growl, doubling his efforts to devour his food, which he actually swallowed with quantities of his own blood.

Notwithstanding such instances of the violence of disposition of this animal, it is very easy to be tamed. The same gentleman saw another individual that was led about with a chain, carried in a waggon, lying under the seat upon which his keeper sat, and fed by flinging a piece of meat into a tree, when his chain was coiled round his neck, and he was desired to fetch it down; an act which he performed in two or three bounds, with surprising ease and docility.

A tame puma, which died recently, was some time in the possession of Mr. Kean, the actor, which was quite docile and gentle. After the death of this animal, it was discovered that a musket-ball, in all probability, had injured its skull, which was not known in its lifetime.

Many of the actions and manners of the jaguar and puma have been confounded by different describers: and if Azara be correct in his account, which seems most probable, it must follow, that

Molina's description of the manners of the puma is properly referrible to the jaguar. It may be observed, generally, that the puma is of the most cruel and sanguinary disposition in a state of nature, though it is easy to be tamed, and is inferior to the jaguar in bodily powers, and still more in personal courage.

It seems probable, that there are two varieties of the puma, one of Carolina, and another of South America, as has been conjectured ; but we have no data to strengthen the supposition, beyond what has been already said upon the subject.

There are several species of this genus found in America, which have coloured oval circles as well as full spots, all of which may be called ocelots ; notices of some of them are to be met with in different authors, but they have not, hitherto, been defined collectively. The first of these we shall mention is, in all probability,

THE TLATCOCELOTL OF HERNANDEZ.

The opposite figure of this is from a female specimen in Mr. Bullock's museum. The skin was three feet six inches, and the tail fifteen inches long. The jaguar of Buffon seems likely to be the male of this species.

THE CHIBIGOUAZOU OF AZZARA.

This is also figured in the same plate with the last. The specimen was drawn by Major Smith, at Albany. It was about three feet long in the body, with a tail twelve or thirteen inches; was extremely fierce, and remarkable for the brilliancy of its colours. It was stated to have been brought from the Gulf of Mexico.

Azara says, that this species is so common in some parts of South America, that M. Nosedá caught eighteen in two years, near the town of St. Ignatius. Although so numerous, it is extremely shy, concealing itself in impenetrable retreats during the day, seeking its prey only in the night, and avoiding at all times, with the greatest care, both men and dogs. It appears, that these animals possess certain districts in pairs; as a male and female, and no more, are always found together in one place. The latter brings two young at a birth.

This animal resembles the cat as to actions, as well as in form. The eyes have the pupils lengthened, like those of the common cat, and not rounded, as those of the lion, panther, jaguar, cougar, &c., and shine in the dark. They lick and clean themselves, and use the paw for this purpose on the face, and swear and spit in the manner of the cat. They may be domesticated, if taken young.



THE OCELOT.

FELIS PARDALIS, L.

THE FLACOCLOTL of Hernandez?

THE CHIBIGONAZON of Azara?

There was a young specimen of a species of ocelot in the museum at New York, which was not much larger than a great cat. The ground-colour of it was a dull gray, marked with long spots of tawny, in black borders.

Neither of the above three had any speck or mark inclosed within the link-shaped or oval circles, which characterizes the following, viz.

THE MEXICAN CAT, PENNANT. OCELOT, BUFFON.

Felis Pardalis. Gm.

This is the ordinary ocelot, or species of the group commonly indicated under this name. A fine specimen of it was in the Leverian Museum, and is copied by Pennant, Shaw, and Buffon. It was about three feet six inches long, with a tail about fifteen inches more. It had four rows of oblong spots, edged with black, and with one, two, three, or even four black points down the middle of them. There was a specimen lately in Paris, somewhat smaller, but with similar marks; both these were males.

If there were females with black spots within the oblong rings, and males without black spots in the rings, there would be strong reason to conclude the two as distinct species; but sufficient specimens have not yet occurred to determine these premises.

The next we shall mention is,

THE MACROURUS* OF TEMMINCK.

Felis Macrourus.

This is about the size of a wild cat, and the tail is as long as the body: the neck is short; and the head, more especially the face, particularly so. Its ground-colour is pale buff above, and white beneath, which is marked, all over the animal, with longitudinal irregular black streaks; two or three only on the shoulders and rump, open, or with centres of buff. The tail is marked with rings and spots, and the feet with round spots. The specimen was brought from South America.

THE MARGAY †. LE MERGAY.

Felis Tigrina. Gm. p. 80.

This is a South American species, not larger than a full-sized cat, which resides in the trees, and has all the manners and habits of the common wild cat. In the shape and direction of the marks it is an ocelot; but they are of a uniform black-brown colour,

* Apparently from *μακρος* and *ουρος*, long-tailed.

† From Maracaya, the native name.



THE MARGAY. LE MARGAY.

FELIS MARGAY.

and not bordered with yellow. The type whence the figure was taken was lately exhibited at Exeter 'Change.

The New Spain cat of Pennant, *chat sauvage de la Nouvelle Espagne* of Buffon, is not, perhaps, sufficiently ascertained to be again described. If it be distinct, it must be a curious species, from the stiffness of its hair.

THE GUIGNA.

Felis Guigna. Molina.

THE COLOCOLO.

Felis Colocolo. Molina.

These are described by Molina as two species of wild cats, which inhabit the forests. They resemble the domestic cat, but have a larger head and tail. The guigna is of a fawn colour, marked with round black spots, about five lines in diameter, extending along the back to the end of the tail. The colocolo has a white body, marked with irregular black and yellow spots, and the tail is encircled with black rings. They prey upon mice and birds, and sometimes are seen near country houses, whither they are attracted by the poultry.

It should be observed, that Cuvier thinks the

guigna and colocolo of Molina to be no other than the margay and ocelot.

The figure given in the opposite plate, under the name colocolo, is from a drawing copied from one by Major Smith. It does not appear certain, though it is probable, that this is the animal Molina indicated as the colocolo, as he calls the marks spots, and not streaks; at least the word is so translated.

This fierce animal was shot, in the interior of Guiana, by an officer of Lewenstein's riflemen, and by him stuffed and sent to England for his Royal Highness the Duke of York; but probably never reached its destination. A whimsical occurrence took place with it. The gentleman who had shot it placed it on the awning of the boat to air, as he was descending the river to Paramaribo; the boat often passed under the branches of large trees, which overhung the river, and on which were the resting-places of numerous monkeys, sometimes hanging to the extremest branches above the water. Although the vessel would on other occasions excite but little attention, no sooner was the stuffed specimen in sight, than the whole community would troop off, with prodigious screams and howlings. It was of course surmised, from the excessive terror of these animals, that this species of cat must be an active enemy to them.

The other figure was exhibited at Mr. Bullock's, under the name of guigna, and was said to have been brought from America.



Griffith

THE PAGEROS, *FELIS PAMPA*, *Azara*.

THE EYRA, *FELIS EYRA*, *Azara*.

Azara describes three species of the wild cat, found in America: first, the yagouarondi, the colour of which is uniform, and without spots; each hair is annulated, black and white; but as the tip is always dark, this colour prevails. It is very savage, and inhabits the borders of the forests.

The eira, which is of a clear red colour, with white whiskers, and a white spot on each side the nose.

And the pampa cat, which has the upper part of the body a clear brown, and the lower parts white, with transverse stripes.

To which is added, in his Travels, the negre, or black cat.

We are enabled, by the kindness of Major Smith, to present the following figures from his valuable drawings.

The first of these so nearly accords with the short description Azara has given of his cat, as to leave little doubt of its being

THE EIRA OF AZARA.

Felis Eira.

This is a miniature cougar; and the drawing, from which Major Smith copied it, is the original whence Margrave and Piso have taken their figures, and Buffon his name of cougar. It is deposited

in the very curious collection made under the eye of the celebrated John Maurice, Count of Nassau, (commonly styled Prince Maurice), who commanded the Dutch forces in Guiana in the seventeenth century; which collection is now in the royal library at Berlin. The figure is as here represented, with two names, çuguaçararra, and çuguaçuguarana, above; and in the prince's hand is written, "sehr furios und nicht grosser als ein kleine katze," very furious, and not larger than a small cat. This figure is copied in oil, in another book, with the same names, and a note of Markgrave, who, by some mistake, has confounded it with the South American couguar, or puma: and, in examining the description, he has extracted the word couguar out of the Brazilian denomination. Azara, who describes this animal, states, that there is some uncertainty as to its name; but he believes that this, as well as his yagouarroundi, is known by the name eira. The name haira was also given to a species of wild cat, sent to Buffon from America. The original drawing, whence the figure was taken, corresponds so exactly with Azara's animal, as to leave no doubt of its identity; while the note upon it renders it at least prudent to adopt the name of puma, and to drop that of couguar, for the animal vulgarly known by the name of the American lion.

The yagouarroundi, or jaguarroundi, seems likely to be a black variety of the above animal.

The other specimen, figured in the same plate with the eira, is from a stuffed cat in the museum of

Erlangen. It was brought from South America by Prince Maximilian of Neuwied, or by Count Hoffmannsegg. It is about two feet long; the tail ten or eleven inches. The hairs are extremely soft, long, and silky; the ground-colour is white; but the animal is variously clouded with several shades of colour. There seems strong reason to conclude, that this is the Spanish or tortoiseshell cat, in a wild state; otherwise it must be an undescribed species.

Of the American lynxes one species is described by Guldenstedt as about twice the size of a large cat. The colour bright bay, with obscure darker spots; and the throat and hinder parts white; three stripes pass from each eye down the cheek; the insides of the legs are marked with two dark bars; the tail is marked with four or five bars, and the tip is black. Cuvier makes this the chat cervier of the furriers.

There was a specimen in Mr. Riddel's museum, which is figured on the same plate with the chaus at page 60, which was about two feet six inches long, and the tail nearly ten inches. The beard, chin, throat, and the insides of the ears, were white; the outsides and the whole remaining parts of the animal were of a fine rusty yellow, or bright bay, palest beneath. The claws of the outer toes of the fore feet were wanting; and those on the thumbs were nearly double the strength of the others.

This animal is, in all probability, the *felis rufa*, or bay lynx of Guldenstedt, above-mentioned, but appears to be distinct from the chat cervier of the French furriers, which is after mentioned under the name of the United States lynx.

THE CANADA LYNX.

Felis Canadensis.

The opposite figures represent the male and female Canada lynx. They are, in general, from two feet six to three feet long, and the fur is very thick, long, and soft. When walking, this species presents a singular appearance in the slender form of the body (commonly arched), contrasted with the unwieldy size of its legs and paws.

Major Smith has also a drawing of another animal, taken in Virginia, though it is possibly only the young of the last mentioned, or the same species in a summer dress, in a more southern latitude. It wants, however, the hanging beard on each side of the cheeks, with its characteristic black ends, as also the streak at the angle of the eyes, which seem to indicate a specific difference.

THE UNITED STATES LYNX. LE CHAT CERVIER.

The common lynx is called by the French furriers the loup cervier, or stag-wolf, and the species represented in the opposite plate is named by them chat cervier, or stag-cat. It is a little less than the common lynx, with a truncated tail, not two inches

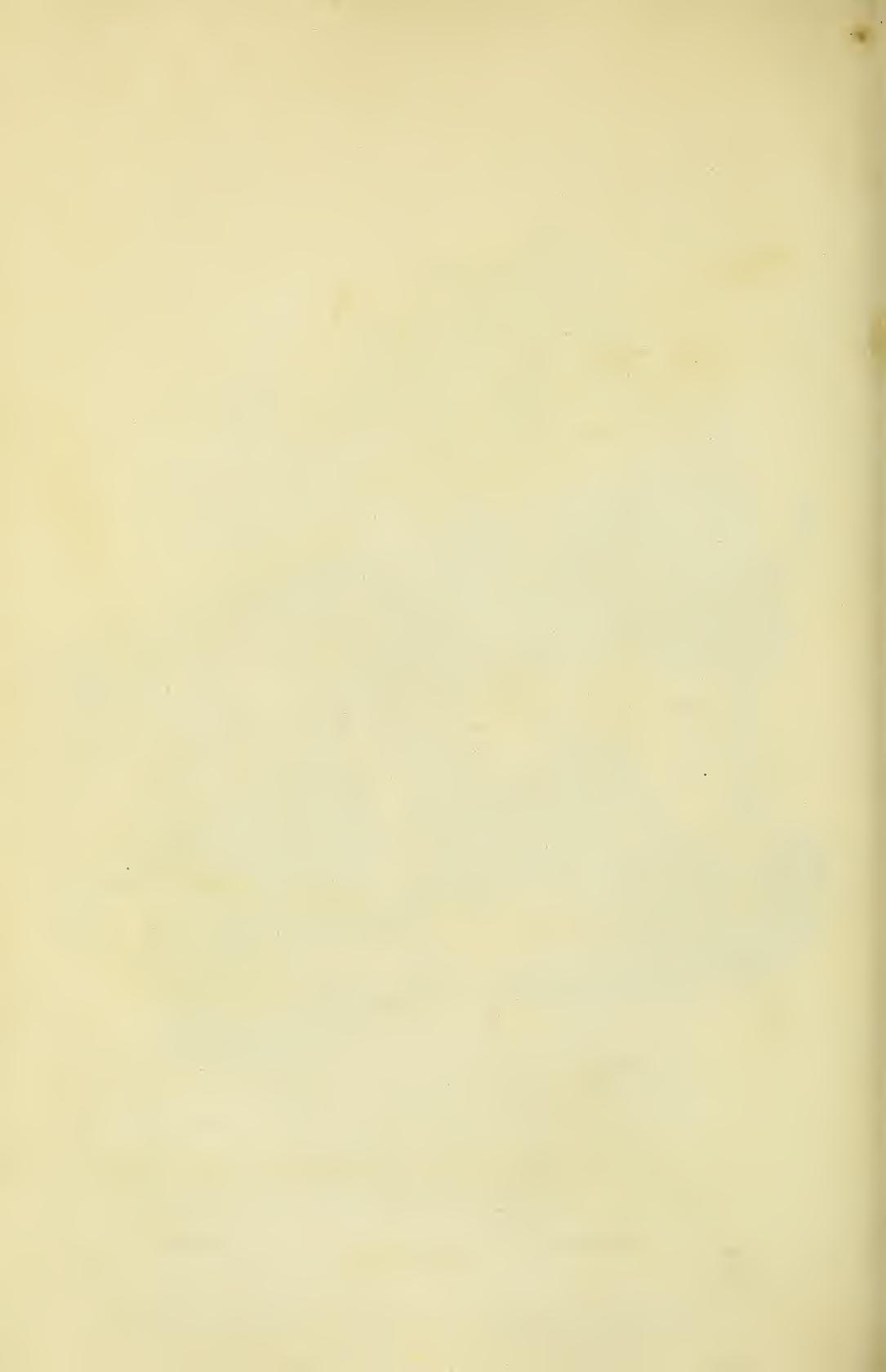


THE COLOCOLO.

THE GUIGNA.

FELIS COLOCOLO. Molina. ♂

FELIS GUIGNA. Molina. ♂





THE UNITED STATES LYNX. CHAT ÉRVIER. THE LYNX. LE LYNX.

FELIS LYNX. L.



G. Giffith

THE CANADA LYNX,

LYNX DU CANADA.

FELIS CANADENSIS. Giffith.

long; there are speckles on the fur, but they are extremely minute and pale, and the ears are not pencilled, though pointed. This is, perhaps, only a variety of the others. The pupils of the eye in this species form a vertical line during day.

THE FASCIATED LYNX. *Lynx Fasciatus.*

THE MOUNTAIN LYNX. *Lynx Montanus.*

THE FLORIDA LYNX. *Lynx Floridana.*

THE GOLDEN LYNX. *Lynx Aureus.*

These North American species are described by Rafinesque, in the American Monthly Magazine for the year 1817. The first of them seems to be the cat mentioned by Lewis and Clarke. The fur is very thick, of a red brown colour, with blackish stripes and spots; the ears are pencilled with black hair; and the tail is very short, and white, with the tip black.

The mountain lynx has the upper part of the body grayish, without spots; but whitish, with brown spots below; the ears are without pencils, black on the outside, but with whitish and yellowish spots within. The tail is very short. It is three or four feet long.

The Florida lynx is grayish, with the flanks varied

with brownish spots, and undulating blackish rays. The ears are without pencils. It appears to be the lynx of Bartram.

The golden lynx is the wild cat of Leray, which has the fur of a brilliant and clear yellow colour, sprinkled with black and white spots; the belly is pale yellow, without spots. The ears are not pencilled, and the tail is very short.

Before the feline family is dismissed from further notice, we must advert to two or three species, which, although they are properly associated with the cats, because the generic characters predominant in them are such as are proper to these animals; yet do they, in some other particulars, approach the characteristics of another genus, and occupy a sort of intermediate station.

It has been already noticed, that any artificial arrangement of the animal kingdom, however useful to the student in nature, will ever be subject to numerous exceptions. Indeed, anomalies will occur in any systematic arrangement of all the departments of natural history; and, however perplexing such exceptions to general rules may be to methodical disposition, they have, in some cases, elicited curious facts; and, in others, have induced ingenious and interesting hypotheses.

Thus, in zoology, certain determinate peculiarities belong to one set or family of animals to the exclusion of all others, and obviously separate such family into a distinct genus; but there will generally be

found a few species, in each of these divisions, that possess some of the particular characters belonging to more than one of the genera, whence it is very difficult to say to which of them they belong. Strictly they are referable to neither, though in some particulars related to both.

The claws perfectly retractile, and teeth purely carnivorous, distinguish the cats from all other animals; but the maned hunting-leopard (*felis jubata* of Linnæus) has the claws retractile only in a very slight degree, so as to leave them always exposed, and consequently subject to wear and injury. The slim make of the body and limbs of this animal, calculated, apparently, rather for speed than strength, assimilate it, in a remarkable degree, to the canine race. In the docility of its disposition, and in a certain aptness or capability it possesses of being trained for field sports, it is also more like the dogs than the cats. It is therefore intermediate; and we appear to pass naturally from the latter race of animals, through this and the following species, to the former. They also form the first step or remove from the perfect fitness for carnivorous and predatory habits, in the loss of the retractile power of the talons; but their teeth are purely feline.

The description and the name of this animal (*felis jubata*, or the maned-cat) have led to some difficulty with observers, who have found certain individuals with a mane, and others without. Thus the figure in Buffon, as well as that mentioned by Pennant and Shaw, in the Leverian Museum, were totally destitute

of mane; while that in Schreber's work is distinguished by one of considerable length.

There scarcely seems a doubt, that there are two distinct species, agreeing in general description, particularly in the want of the retractile power of the claws; both of which are used for field sports in India. The opposite figure appears to be the real *felis jubata*; it is from a specimen which was in the Tower.

This animal is conveyed in a carriage to the field hooded; and when the game is started, the hood is taken off, and it is sent out in pursuit. It follows by leaps or bounds; and if unsuccessful in taking its prey, after a few efforts, declines the pursuit, and returns to its keeper. It is said to be found in Africa as well as in Asia, but we suspect strongly, that the maned hunting-leopard is proper to Africa alone; that the following species is found in Asia, and that, as they have been hitherto so generally confounded, both species have been described as one, inhabiting these two continents.



THE MANELESS HUNTING LEOPARD.

FELIS VENATICA

THE MANELESS HUNTING-LEOPARD.

Felis Venatica.

This species differs from the last-mentioned in being taller, and in having a longer neck, smaller head, and shorter muzzle, as well as in the absence of the mane or crest on the back of the neck. It agrees with the other in having semiretractile claws, in being marked with round small spots (more numerous in this species), and in having a black streak from the corner of each eye to the mouth.

The docility of this species is remarkable in two fine specimens now exhibiting in Wombwell's itinerant collection: they are taught to leap through a hoop, which the keeper, who enters their cage for the purpose, holds up for them, as well as to perform some other amusing tricks.

From the general make and personal character of these two animals, as well as their sporting abilities, they may, with considerable propriety, both be called canine cats.

The figure is from a sketch by Mr. Devis, the justly celebrated painter of an animal which was formerly in his own possession in India.

THE DELUNDUNG.

Felis Gracilis. Horsfield.

Dr. Horsfield has lately described a species, or, perhaps more properly, a genus, intermediate between the cats and the weasels. We have already had occasion to notice a breed, presumed, very probably, to be between the cat and the martin, which being prolific, will make a permanent point of contact between those animals. The delundung seems to be an existing similar link between the cats and the viverræ. Its cheek-teeth, however, which are purely carnivorous, correspond with neither of the genera to which it seems, in many different points, allied; for there are five in the upper jaw, and six below*. The head is more elongated than that of the cats in general; the ears are rounded; the body is very long; and all the feet have five toes. These characters assimilate it to the viverræ. But it does not appear to have any anal pouch; and the claws are perfectly retractile, and are, when at rest, entirely concealed by the surrounding fur, in which particulars it approaches the cats†.

The weasel characters seem, by the description,

* The cats we have seen have three or four in the upper jaw. The viverræ have six in each.

† The claws of the viverræ are retractile, but it is in a slight degree.

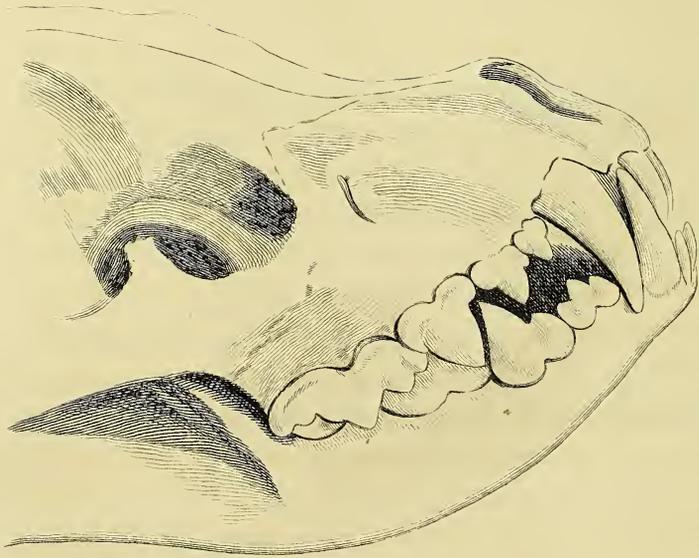
to preponderate in this animal; but Dr. Horsfield thinks it more properly classed with the cats. In strict method it certainly forms a distinct genus; but all system is artificial, and too much refinement may probably defeat the very object to be expected from methodical disposition; and as the distinctions between specific and generic characters are in some degree arbitrary, it may be useful to bear in mind the adage of "nothing too much;" and not to perplex, when clearness and precision should form the first object of attention. The animals last described have been called canine cats; the present may, with equal justice, be named the feline weasel.

This animal appears to be, all over, of a pale yellow or fawn colour, with the belly and insides of the limbs, as usual, a little lighter; four broad irregular bands, of a deep brown colour, pass over the back of the animal, terminating about half way down each side; there are other irregular blotches about it, of a similar colour: and the tail has nine annuli, with the tip of it fawn colour.

It is to be lamented that Dr. Horsfield could obtain no account of its manners and habits, which would be particularly interesting of an animal in itself so singular.

As these points of contact between different genera occur so frequently, it would be perplexing to determine which of them should be followed, in describing the animal world successively. This difficulty, however, is avoided by that method which adopts the characters of the teeth in successive descriptions.

SINCE the preceding observations on the lion and its varieties were written, the author has been informed, indirectly, but on the veracity of a gentleman, that a lion was lately exhibited at Calcutta, which was brought from the interior, and full-grown, but which was not much larger than a mastiff; of a mouse-colour, with scarcely any mane. As the Syrian black lion is mentioned by Pliny, it seems probable that this is the species the ancient naturalist alludes to.



TEETH of the GENUS

HYÆNA.

THE HYÆNAS.

In the Linnean arrangement the hyænas are treated as species of the canine genus; but they have been considered, latterly, as distinct from the dog, and formed into a genus by themselves. It may be proper, therefore, to compare their characters with those of the dog tribe, in order to understand the particulars, which have induced this departure from so high an authority as that of Linnæus.

The teeth, which may be called the principal physical evidences of moral character, are purely carnivorous in the hyæna; but in the dog the two last cheek-teeth are decidedly molar, and the largest in the set is partly carnivorous and partly molar. This difference is a clear indication of what has been observed respecting the two animals, that the hyæna is much more ferocious than the dog. The auxiliary cheek-tooth, which has been mentioned and figured as proper to the cat, is also met with in the hyæna*, but not in the dog. The opposite plate shows the cheek-teeth of the hyæna, the lobes of which are nearly all conical and cutting†, and extremely pow-

* I observed this in a specimen of the spotted hyæna, lately dead, which was kept alive at Exeter 'Change nearly fifteen years.

† The tubercular shape of the anterior and posterior lobes of the last upper cheek-tooth, can hardly be said to point at all to a vegetable

erful. A reference to the delineation of the teeth of the dog tribe will show the comparative difference.

The head of the hyæna is conical, and not so round as that of the cats; the forehead is slightly prominent, the muzzle rather slender, but the jaws, although considerably shorter than those of the dogs in general, are more elongated, and, consequently, not so powerful as those of the cats. Indeed, the similarity of the jaws of the hyæna with those of the dog seems probably to have induced Linnæus to class them together.

The hyæna has a very rough and hard tongue, which is covered, on the upper surface, with horny papillæ, as in the cats; but they are not so long and acute. The tongue of the dog is smooth and soft.

In the hyæna the eyes are large, and the pupils longitudinal, angular above, and rounded below; and although they agree in this respect with that subdivision of the caninæ which includes the foxes, yet the pupil is much more narrow than in these animals.

All the feet of the hyæna have four toes only*; the dogs have five on the fore feet, and four on those behind; the claws of which are very strong, but not retractile. The hind legs are shorter than those before, which gives them a peculiar appearance; this disproportion, however, though it prevails throughout

diet, because the corresponding lobes of the opposite tooth, against which they strike, are cutting, and not molar.

* Linnæus (Syst. Nat. ed. 12, p. 58.) has noticed this, after the observation of Brander.

the genus, is greater or less in the different species, as the figures evince.

The hyænas have only four teats, which are all abdominal; in the dogs there are four abdominal, and two or four pectoral.

And lastly, the hyænas have a deep glandular pouch under the anus, like some of the viverræ and a few other animals, which the dogs have not.

These differences are so great, as to be more properly generic than specific; and fully warrant the separation of the hyænas into a distinct genus, which must be placed next to the cats, if the character of the teeth be followed, because, like them, they have no proper molar cheek-teeth, and because next to them, they seem the most perfectly fitted for carnivorous habits.

The hyænas, nevertheless, certainly approach the general character of the dog; and, following the *felis jubata*, and the *felis venatica*, they appear to form one of those natural transitions, frequently observable between all the genera, from the felinæ to the canine race.

This genus may be considered as proper to Africa, although the striped species appears to have emigrated to some neighbouring parts of Asia; and it is remarkable, that though the known parts of the former continent contain exclusively some animals*, which are not elsewhere to be found, they are, nevertheless, observed not to produce such varieties, of

* As the *camelopardalis* of Linnæus, the *myrmecophaga capensis* of Pallas, the *dipus cafer* of Gmelin, and the hyænas.

different kinds, as are met with in Asia and America, the islands of the Pacific Ocean, and New Holland. The most recently discovered of these countries, in particular, afford many so absolutely different from all known before, as necessarily to be formed into new genera, each composed of a great number of species ; but in the old world, and even in America, the same genera ordinarily prevail ; and the relationship to a common type is observable throughout, though the ramifications from it form various and very different species. But this apparent disparity between Africa and the rest of the world may probably be, in a great measure, owing to our limited knowledge of its interior.

It cannot but excite surprise that such extensive tracts of Africa, the north and north-east part of which was the theatre of a very interesting portion of ancient history, both sacred and profane, should have remained, for so many ages, neglected, forgotten, or despised. Even long after it was ascertained that the torrid zone is habitable by mankind, and as populous as the more temperate parts of the Earth, Africa was still believed to be the same burning desert of sand, which the ancients represented it: its rude inhabitants of the human race excited not the commiseration, but the brutal cupidity, of their more favoured fellow-creatures, among whom there are still found some,

Who drive a loathsome traffic, gage and span,
And buy the muscles and the bones of man !

The tender ties of father, husband, friend,
All bonds of nature in that moment end ;
And each endures, while yet he draws his breath,
A stroke as fatal as the scythe of death.
The sable warrior, frantic with regret
Of her he loves, and never can forget,
Loses in tears the far receding shore,
But not the thought—that they must meet no more !

The enterprise of trade has induced Europeans to traverse the new world, discovered by Columbus, in almost every direction ; so that the interior of America is already known much more extensively than that of Africa, which has been visited only by a very few zealous emissaries, or adventurous devotees of science, the majority of whom have unhappily fallen martyrs to their respective pursuits. Their exertions, however, have of late placed Africa in a different point of view from that in which it has been generally regarded ; and instead of the inaccessible deserts, which were supposed to extend themselves over the whole interior of that vast continent, they have brought to light extensive kingdoms, spacious cities, large and important navigable rivers, ample tracts of land fit for cultivation, and many new species of animals. Still our knowledge of this portion of the globe is very limited, nearly one hundred thousand square leagues being supposed never yet to have been visited by any European ; and, as the varied forms of animated nature are observed to be local, each species, and sometimes a whole genus, being confined to certain countries and districts, so that,

consequently, almost every new-discovered country affords considerable zoological novelties, it may well be conjectured, that these hundred thousand unknown leagues of Africa must be capable of furnishing a very considerable increase to the present improved catalogue of animals.

Thus our knowledge of the genus *hyæna* has been increased, through the discoveries of recent travellers, by some additional species, or varieties, of which we are enabled to present figures; but we shall first give some account of the striped *hyæna*, (that of the ancients), and the spotted species of Southern Africa.

THE STRIPED HYÆNA. HIENE RAYÉE.

Canis Hyæna. L.

The striped hyæna is of a dirty gray colour, with irregular stripes of a blackish brown; and is remarkable for a bushy mane, like that of a hog, which passes from the back of the head, down the neck and back, to the tail, and which the animal erects when in a state of irritation, or about to attack. The fore legs, in common with the other species, are much longer than those behind, independent of which, its mode of walking induces, at first sight, an apparent lameness. Bruce attributed a real lameness to the left side of the hyæna, but none exists in reality; and the appearance of it prevails as much on one side as on the other. It is about the size of a large dog, and inhabits the northern and north-eastern regions of Africa, to nearly as far south as the line, and the neighbouring parts of Asia.

There is much confusion in the accounts, and many ridiculous reports have been circulated of this species, both in ancient and modern times, among the learned as well as the multitude. It would be interesting to trace these errors to their source, but the task is hopeless; though a part of them, probably, as Bruce observed, is attributable to this circumstance,

that the common name, by which it is known in its native country, is very similar to that by which the jackall, the wolf, the bear, and a species of monkey, are each respectively called ; and Buffon states, that travellers and naturalists have confounded it with the jackall, glutton, civet, and common baboon.

The hyæna is said, by Bruce, to be brutish, indolent, slovenly, and impudent ; and seems to possess much of the manners of the wolf. Its courage has nothing of the brave or generous in it ; and it dies oftener fleeing than fighting. But this enterprising traveller acquits the hyæna of the charge of tearing from their graves the putrid dead. This, indeed, according to the same writer, does not seem necessary ; as whole nations perish, where the hyæna is indigenou, without a single man of them being buried ; and he adds, “ The Arabs live in encampments, in different parts of the country, their ancient patrimony or conquest. Here they plough and sow, dig wells, and have plenty of water : the ground produces large crops, and all is prosperity as long as there is peace. Insolence and presumption follow ease and riches. A quarrel happens with a neighbouring clan ; and the first act of hostility, or decisive advantage, is the one burning the other’s crop, at the time when it is near being reaped. Inevitable famine follows : they are provided with no stores, no stock on hand ; their houses are burnt, their wells filled up, the men slain by their enemies, and many thousands of the helpless remainder left perfectly destitute of necessaries ; and

that very spot, once a scene of plenty, in a few days is reduced to an absolute desert. Most of the miserable survivors die before they can reach the next water: they have no subsistence by the way; they wander among the acacia trees, and gather gum. There, every day losing their strength, and destitute of all hope, they fall spontaneously, as it were, into the jaws of the merciless hyæna, who, finding so very little difference or difficulty between slaying the living and devouring the dead, follows the miserable remains of this unfortunate multitude, till he has extirpated the last individual of them."

The powers of the hyæna are very great; and it has been said to oppose, successfully, the panther, and even the lion. If its claws were perfectly retractile, and consequently always sharp, it would, in all probability, be a match for these animals, to which it is scarcely inferior in the strength of its jaws and teeth, the latter of which, however, though quite as large, are not so sharp.

Mr. Browne, in his *Travels in Africa*, says, "The hyænas come in herds of six, eight, and often more, into the villages of Dar-Fur, at night, and carry off with them whatever they are able to master. They will kill dogs and asses, even within the enclosure of the houses; and fail not to assemble wherever a dead camel, or other animal, is thrown, which, acting in concert, they sometimes drag to a prodigious distance; nor are they greatly alarmed at the sight of a man, or the report of firearms, which I have often discharged at them, and occasionally with

effect. It is related, that upon one of them being wounded, his companions instantly tear him to pieces and devour him ; but I have had no opportunity of ascertaining this fact. The people of the country dig pits for them ; and, lying in ambuscade, when one is entrapped stun him with clubs, or pierce him with their spears.”

This species is commonly supposed to be the hyæna of the ancients ; but several distinguished naturalists have thought, that the common baboon was indicated by them under this name.

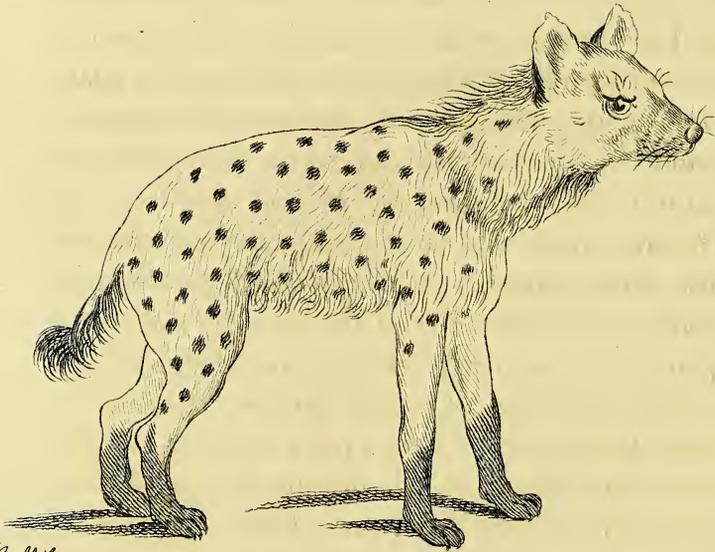
Notwithstanding the natural ferocity of this animal, and the extreme moroseness and sullenness of its disposition in general, travellers inform us, that it abounds greatly about the habitations of the north-eastern Africans, and, indeed, almost mixes with the busy hum of men ; as, during the night in particular, many may be seen and passed by without mischief ensuing, even in their towns. This is confirmed by several instances, which have occurred here, of the hyæna being partially tamed ; and Mr. Cross has one at present, which is so much so as to allow itself to be handled, and even roughly used by the keeper.



THE STRIPED HYÆNA.

L'HYÈNE RAYÉE.

CANIS HYÆNA.



Griffith

THE SPOTTED HYÆNA.

L'HYÈNE TACHETÉE.

CANIS CROCUTA.

THE SPOTTED HYÆNA. L'HIÈNE TACHETÉE.

Canis Crocuta. L.

This animal stands something higher, particularly on the fore legs, than the last; the mane is not so long or bushy, and does not reach down the back; and the dirty gray colour, which extends all over its body, is varied with spots of a deeper shade, instead of stripes. It is found principally in South Africa, and is the tiger-wolf of the Cape; while the striped variety is resident toward the north and north-east of that immense continent. In all other particulars these two species seem to accord; and from the neighbourhood of the Cape, as far north as the coast of Guinea and Mosambique, the spotted hyæna is the same troublesome, voracious pest, as the other is found to be in Abyssinia, Egypt, and Asia.

The lazy, indolent, and filthy habits of the Africans expose them probably in a greater degree to the depredations and ferocity of the hyænas, which are constantly lurking and prowling about their villages, to pick up the offal of animal bodies, which these indolent beings will not take the trouble to bury or conceal; and it is surely attributing far too partial a design to Providence, to suppose that these ferocious beasts are sent to do that, which the most ordinary human industry might effect with ease. It must not

be forgotten, also, that the domestic animals, as well as now and then an unprotected child, are quite as acceptable to a hungry hyæna as the neglected offals of the butchers' shambles. They are not so nicely discriminating for the benefit of the lords of the creation; and if the hyæna were disposed, like the lion in La Fontaine's fable, to confess its sins, it might say :

Pour moi, satisfaisant mes appétits gloutons,
 J'ai dévoré force moutons.
 Que m'avoient ils fait? nulle offense:
 Même il est arrivé quelquefois de manger
 Le berger.

Sparman gives an account of a trumpeter, whose faculties were suspended by the over liberal use of strong liquor, or, in other words, who was dead drunk, and was left in the open air. A hyæna, thinking him a fair prize, seized the senseless man, and drew him a considerable distance toward a mountain; but before the beast had begun to regale himself, the man was roused to a knowledge of his situation, and adopted the expedient of sounding an alarm with his trumpet, which effectually frightened and drove away the disappointed animal. It is possible the learned traveller may have been a little imposed on by the romantic disposition of his informant having added some poetical effusion, to ornament the simple tale of a hyæna's being frightened at the sound of a trumpet. "Eleven buckram men grown out of two!"



THE PAINTED HYÆNA, *HYÆNE PEINTE*,

HYÆNA PICTA, Temminck.

THE PAINTED HYÆNA. HIENE PEINTE.

Hyæna Picta. Temminck.

This new species was sent lately from Mosambique to this country alive. It died shortly after its arrival, and was deposited in the museum of Mr. Riddell, but afterwards sold to Mr. Temminck, the celebrated naturalist, who has described it* under the name of *hiène peinte*, *hyæna picta*.

Mr. Temminck identifies this with the animal next mentioned, which is in the possession of Mr. Burchell, the African traveller; and attributes all he learned from that gentleman, relating to the animal in his possession, to his own *hiène peinte*, treating them as varieties, and not distinct species†. We have frequently had occasion to remark, that what constitutes a variety, and what distinct species, is not clearly

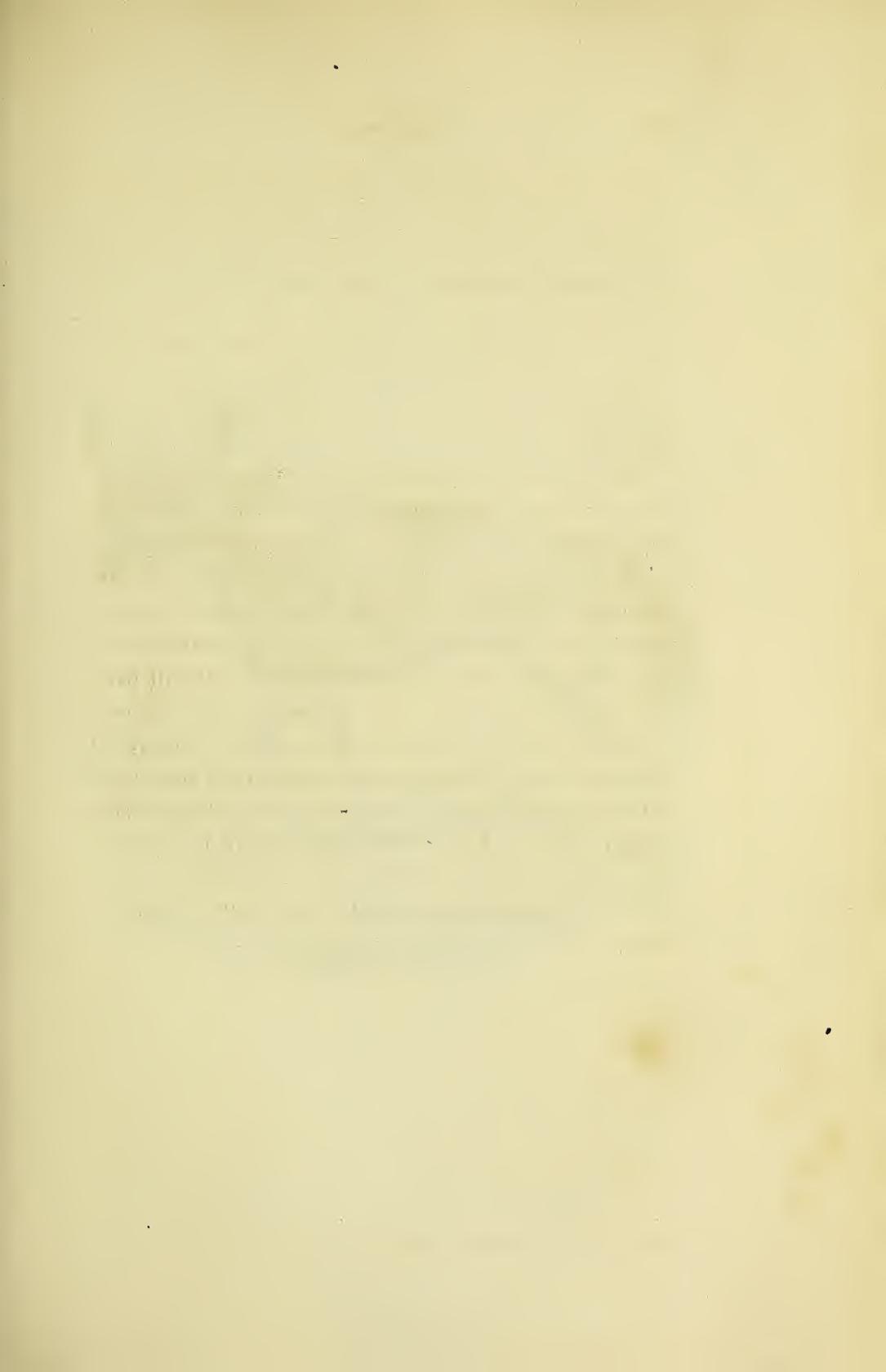
* Annales Generales des Sciences Physiques, 3 t.

† The existence of distinct species never has been satisfactorily proved; and it is probable that, if all the animals of the globe were known, most, if not all the species would be so entangled together, that there would be no distinguishing them. It therefore behoves us to describe all the varieties that come under our consideration; but whether we call them varieties or species is of very little consequence, except so far as relates to a few superficial collectors, who hardly ever think of looking after a mere variety, as they call it, although it may illustrate one of the most doubtful points in the science.—J. E. G.

or generally understood. If the procreative power of any two animals be made to determine this point, it seldom happens, that we have an opportunity of deciding it; nor has any such opportunity been afforded in the present instance. The markings of these two animals are different, as the plates will evince. Whether they be accidental, or hereditary and distinct, remains to be inferred from future researches in Africa.

Mr. Temminck's animal measured, from the muzzle to the extremity of the tail, four feet; its height before was twenty-one inches, and behind nineteen.

Mr. Temminck states, on the authority of Mr. Burchell, and presuming both the individuals figured on the accompanying plate to be specifically the same, that this species is gregarious; hunting its prey in packs, in open day. In this particular, therefore, it differs from the striped hyæna, which is described as a nocturnal animal, hunting singly or in pairs, and attacking by surprise. Its voice, although much less rough and less disagreeable than that of the striped and spotted species, is between the guttural howl of the striped hyæna and the open barking of the dogs.





THE VARIED HYÆNA, HYÆNE PEINTE VAR. TEMMINCK.

HYÆNA VARIEGATA.

THE VARIED HYÆNA. HIENE PEINTE, VAR. DE M. TEMMINCK.

Hyæna varicolor.

The opposite figure under this name is from the animal before alluded to as belonging lately to Mr. Burchell. Mr. Temminck hardly admits it to be a variety of the last, for he says indeed, that they are "*parfaitement semblable.*" With all respect and deference for so high an authority, we cannot but think however, that there are sufficient external differences between the two individuals in question, to make the figure here given of each, interesting to the zoologist.

It appears by Mr. Temminck's *Mémoire*, that Mr. Burchell doubted, whether his animal were properly an hyæna; but as this gentleman is likely to give to the public his observations upon it, which will doubtless be more valuable than any thing we can say on the subject, we shall merely add, that there is a greater apparent approximation to the dog observable in both these animals, than in the two common species, though the decisive characters, which separate the hyænas from the canine race, prevail in them. It is doubtless very probable, that they are mere accidental varieties; but the fore paws of Mr. Burchell's appear much thinner and more pliable than those of Mr. Temminck's animal.

THE BROWN HYÆNA.

Hyæna Fusca.

The opposite figure was drawn by Major Smith from an animal in the Paris Museum, which is decidedly a member of the hyæna family; but I have not met with any description of it, published by either of the French naturalists. The major says, it is considered by them as a mere variety; but until the word "variety" has a more definite meaning than is at present affixed to it, the interest of zoology requires, that notice should be taken of every animal not commonly known; and a figure of the hyæna fusca is therefore presented, which certainly has novelty enough to warrant its pretensions to distinctiveness, on which future observers may decide.



THE BROWN HYÆNA. HYÆNA FUSCÂ.

THE RED HYÆNA. HIENE ROUSSE. CUV.

Hyæna Rufa.

Baron Cuvier has described this species, in his *Researches on fossil Osteology*, in the following manner. It is marked with spots, like the Cape or spotted hyæna, which is gray, spotted with brown; but this is reddish, spotted with black. The ears are ash-coloured, and longer than those of the striped species. Its country and habits are unknown.

Mr. Bruce describes, at considerable length, a species of hyæna, which he insists is new. The description does not seem to warrant its being identified with either of the above; and its distinctiveness from the striped species has been very generally doubted.

That the foregoing brief observations on the genus hyæna, its species and varieties, may be the more interesting, it has been thought proper to add etchings, in outline, of the common species, that they may be compared with those presented as new.

THE WEASELS.

It is extremely interesting to trace the progress of Nature, in all her works, as she inclines from one state of things, through various and almost imperceptible gradations, to another. The first dawn of animal life is so nearly allied to vegetable existence, that we are puzzled in concluding which to call it: organization improves (according to the fashionable phrase), and the semivegetable zoophytes are exchanged for others, in which animal life assumes a more decided form: we then pass imperceptibly by an infinite number of species, connected, in some one or more particulars, one with another, through the insects and worms, mollusca and crustacea, to the higher sort of animals, the bodies of which are supported by an osseous skeleton, and which are more immediately the object of our present consideration. Here again, as with the rest, nothing is constant but inconstancy; no two species are alike; and, although many may be found, corresponding almost altogether in construction, faculties, and pursuits, yet they will differ from each other relatively to the means bestowed on each. The lion and the common cat are similarly constructed; their faculties correspond, and the pursuits of both tend to the same

TEETH OF THE WEASELS.

Fig. 4.

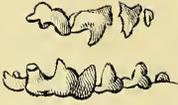


Fig. 3.

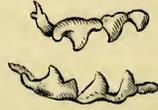


Fig. 1.

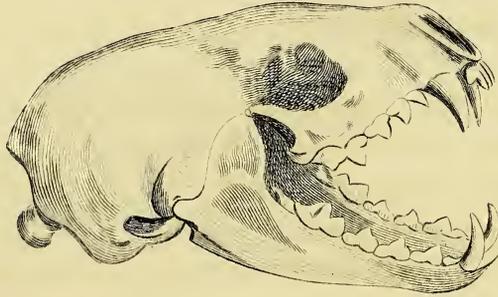


Fig. 5.

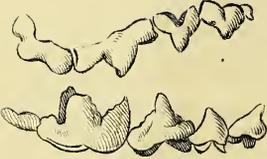


Fig. 6.

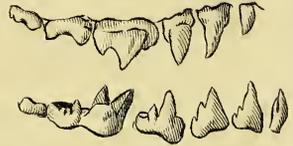
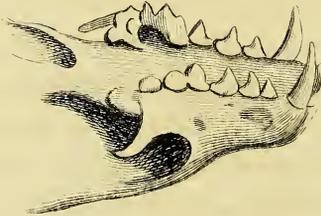


Fig. 2.



modes of preserving their existence ; but they act on different scales, and their relative capabilities vary greatly.

Among the flesh-eating animals, the felinæ and the hyænas may be considered as purely or perfectly carnivorous. Their powers are more or less calculated for offensive warfare, and their teeth are not adapted to the mastication of any other than animal food.

The carnivorous regimen is the point of perfection in this order : we have now, therefore, to seek for such animals as come nearest to those already mentioned in this particular.

The various species known by the generic name of weasels, with the exception of a few, which seem to have been improperly called by this name, stand next in order among the carnivorous quadrupeds, since the physical character of the teeth shows, that they are destined to seek in flesh their principal aliment ; though a slight departure from the carnivorous form, in this respect, indicates a corresponding approach to the substitution of a vegetable diet. Their disposition, nevertheless, is extremely cruel ; but from inferiority in size and powers, they are capable only of an inferior degree of mischief.

They have a large, perfect molar tooth, placed behind the carnivorous teeth, in the upper jaw, differing materially in shape, situation, and office from the auxiliary tooth described as proper to the cat tribe. The other cheek-teeth also, although they have cutting or carnivorous lobes on the outer side,

are more or less tuberculated on the inner; a character which indicates a slight approach to the use of a vegetable diet, as it enables them, though in a small degree, and very clumsily, to masticate this sort of food.

The last or molar tooth takes a direction inwards with the other cheek-teeth, and exposes a very large and flat surface. The reversed figure of the upper jaw, in the opposite plate, is intended to exhibit it. The corresponding tooth to this in the cat tribe, which has been called the auxiliary carnivorous or cheek-tooth, is much smaller, is placed more on an inclined plane in the mouth, and seems destined to receive the cutting edge of that opposite to it; whence it cannot act as a molar or grinding tooth, but merely as facilitating the cutting operation. But the large, flat tooth of the weasels is met by a corresponding flat surface in the opposite teeth of the lower jaw; the last of which is small, and perfectly flat: the third lobe, also, of the last but one, or largest, is flat, and both these flat surfaces are brought into contact with the opposite flat tooth before described; so that, if any substance be placed between them when the mouth is about to close, it will be squeezed or pounded; while any thing placed on the flat tooth of the felinæ would be exposed to the action of the cutting edge of its opposite, and consequently be divided, and not pounded.

The weasels are very slender and long, and possess a peculiar pliability of body, which enables them to pass through very narrow and winding apertures;

whence they are called *vermiform animals*, and a *verminium genus* by John Ray.

The head is small and oval, and the forehead flattish; the jaws are rather short; the external ears are short, and rounded; the tongue is nearly smooth; their legs are very short in proportion to the length of their bodies, having five toes before and behind, armed with strong, curved, acute claws, which, in many of the species, are very slightly retractile. The tail is of a moderate length. They have no glandular pouch near the anus, the true viverræ excepted, but they have some small glands placed there, that secrete a fatty substance, which has a strong, and, to many, a very disagreeable odour, although it is highly prized by others*.

Their teeth differ, and seem to indicate, that they are not all equally carnivorous; for if a calculation were made mathematically of the relative proportions of flat to cutting surfaces among them, some families would be found to vary from others in this particular. Cuvier, with his accustomed minuteness, notices and takes advantage of the varieties in number and conformation of the cheek-teeth, to distinguish the *putorii*, or polecats; the *mustelæ*,

* There is no sense on which people have such a difference of opinion as that of odour; for there are many scents, which are so disagreeable to some, that they can scarcely bear to be in the room with them, while others do not smell them at all, as that of the *iris persica*. Several of the senses seem in this predicament; for Dr. Wollaston has proved it to be the case with hearing, in his celebrated paper on sounds inaudible to certain ears.—J. E. G.

or martens; the *mephites*, or mephitic weasels; and the *lutræ*, or otters; as different genera. The viverræ he classes with the dogs, on account, also, of a similarity of the teeth of these animals with those of the canine genus.

Without descending to minutiaë, in a work not professing scientific research, we shall merely observe, that the first four of these subdivisions have the teeth corresponding in general description, though the number of cheek-teeth varies in each. They do not appear, however, as far as we have ascertained, always to correspond in different species belonging to each of these genera*. The martens have, generally, one more cheek-tooth than the polecats in each jaw; and the mephitic weasels and the otters have a larger flat surface to the hind teeth than the former two. Lastly, in the viverræ there are two molar teeth at the back of the upper jaw, though both together do not present a larger surface than the single one proper to the other genera.

Figure 1, on the opposite plate, represents the teeth, jaws, and occiput of the marten; and figure 2, the upper jaw reversed, showing the shape and position of the last or flat tooth. To these are added, from Cuvier, figure 3, which represents a side view of the cheek-teeth of the polecat, and its consimilars; figure 4, those of the mephitic weasels; figure 5, the

* I have the head of an ichneumon, which is without any incisive teeth in the lower jaw, the alveolar processes of these teeth appearing to have been entirely absorbed, or at least not present, so that the canine teeth are nearly close together.

cheek-teeth of the otters; and figure 6, those of the viverræ. In the last of these, the two farthest teeth in the upper jaw may be observed to be flat, in which respect they correspond with those of the dogs; while the others have only one flat or molar tooth beyond those, which, from their pointed, lance-shaped, cutting lobes, are exclusively carnivorous.

The putorii are, perhaps, the most sanguinary. They have in the upper jaw but three carnivorous teeth and one molar tooth, which is longer than it is broad; and three carnivorous teeth in the lower. Their muzzle is also something shorter and thicker than in the following subdivisions. They emit a very disagreeable odour.

THE PUTORII, OR POLECATS.

THE POLECAT. LE PUTOIS COMMUN.

Mustela Putorius. L.

This animal, of which a figure is given, need not, therefore, be minutely described. It is, in general, about seventeen inches in the length of the body; and the tail measures about six inches.

From its habits it is extremely destructive; as every animal it can conquer falls a victim to its cruelty and appetite; and those which, for interested purposes, are protected or altogether domesticated by us, are frequently destroyed, almost wholesale, by this insatiable butcher. It is strong and active; and, by bringing all the feet near together, and drawing the back into an arch, springs with great force on its intended victim, which it generally kills expeditiously, and with a single bite on the head, making a wound scarcely perceptible. The havoc it makes among our smaller domestic animals is the more extensive, as it is so common, and finds a home in every country, whether civilized or savage, cultivated or waste. Its facility of passing through a small hole enables it to get admission to outhouses and barns; and if no sufficient aperture be found below, it is in general able to find one on or under the roof, to enable it to proceed to its cruel office of devastation within, or to lie concealed till a



THE POLE-CAT OR FITCHET, *LE PUTOIS*.

MUSTELA PUTORIUS, L.

fit opportunity offers for its predatory operations. Its work of destruction is also frequently more extensive from its habit of sucking the blood, and leaving the carcass of its prey until it can find a convenient time for dragging it to its hiding-place. Even the finny race is not secure from the attack of the polecat ; and our fish-ponds are exposed to its depredations as well as our poultry-yards, dairies, and beehives ; the hole of a polecat has been found to contain the mutilated remains of a number of eels.

It either takes possession of a rabbit-hole, or prepares for itself a subterraneous retreat, which is in general found to be protected by the ramifications of the roots of a tree ; a practice apparently originating in that degree of intellect and foresight, which the Creator has so remarkably bestowed upon all the races of animals, when necessary for their preservation. Here, or in some secure hiding-place under a haystack, or in a barn, or outhouse, the female produces her young, generally five or six in number at a time, which she accustoms, when very young, to suck blood and eggs.

When disabled, irritated, or dying, the fetid smell from this animal is almost insupportable ; and the place where it is destroyed will not lose the scent for a considerable length of time. It is very tenacious of life ; and a scuffle with a polecat should be conducted with caution. If not able to escape from a man, it will in desperation attack him ; and when no longer able to do either, will seem to show mercy even in death, by emitting its offensive vapour.

THE FERRET. LE FURET.

Mustela Furo.

It should seem that Cuvier is right in considering this to be a mere albinose variety of the polecat, at least if the generative faculty be made a test of variety, for they will produce an offspring partaking of the appearance of both. The ferret is smaller than the polecat, and is of a uniform lighter colour. The eyes are red.

It does not appear to be indigenous either in France or England, but to have been imported from the northern parts of Africa, as reported by Strabo; for when a ferret is lost here, as is very common in the chase, in summer, it is generally understood, that it does not survive the following winter. As we are enabled to turn its sanguinary inclinations and predacious habits (which are, perhaps, not much inferior to those of the polecat) to our advantage, the ferret is fostered and preserved by art in our climate, which would soon destroy it if left to nature.

It is bred in this country in casks or boxes, and fed on bread and milk, with flesh occasionally, to encourage its carnivorous appetite. In this state it is tolerably docile and gentle, and when of age for the purpose is trained to enter the burrows of rabbits and rats, being previously muzzled, to prevent its destroying the game. Its appearance alone is suffi-

cient to drive out the terrified tenants of these retreats, which are caught in purse-nets fixed before their holes; or, if they escape this snare, become exposed to the attack of men and dogs. By thus avoiding Scylla they fall into Charybdis.

A breed is produced between this animal and the polecat, which is much prized for the chase of rabbits, rats, &c.

The females are smaller than the males, breed twice a year, and generally produce five at a time.

THE COMMON WEASEL. LA BELETTE.

Mustela Vulgaris.

The common weasel is one of the smallest of this numerous race, but is the most extensively diffused over the Earth's surface. Its general length is about seven inches, with a tail measuring two and a half. It is of a pale red or yellow brown colour, whiter beneath. It emits an offensive odour, in common with many of the tribe, but it is an elegant little animal. It feeds on field-mice, birds, &c.; and will attack animals larger than itself. It lives under roots of trees, or in banks; and will run up a wall in pursuit of its prey. Its body, altogether, is extremely flexible. Though a ferocious little animal, there are instances of its being perfectly tamed.

There is a variety, which has been described by Linnæus, in his *Fauna Suecica*, as a distinct species, under the name of *mustela nivalis*, which has since been classed sometimes as a variety of this, and sometimes of the ermine; but although it has the colour of the latter, it seems to be more nearly related to this, because of its being of the same size; and the black hairs which terminate the tail are much fewer than those of the ermine, the black also is of a different tinge. It breeds twice or thrice a year, generally brings forth four or five at a birth, and deposits them on a bed of dry leaves in a hollow tree.



THE WESEL. LE BELETTE.

MUSTELA VULGARIS.

THE AFRICAN POLECAT. LA MARTRE OU BELETTE
D'AFRIQUE.*Mustela Africana.* Desm.

This animal, which has not yet been figured in any publication, was first described by that illustrious French zoologist M. A. G. Desmaret, professor of zoology in the Royal School of Economy at Alfort, in the 10th volume of the second edition of the *Nouveau Dictionnaire d'Histoire Naturelle*, from a specimen in the French Museum of Natural History, brought from Africa. It is known from the other species by being of a brownish red above, and a pale yellow beneath, with a narrow longitudinal reddish brown band on the middle of the belly. The head and body are ten inches long, and the tail six or seven, the hairs of which are longer than those of the body, and of the same colour as the back. It is very like the weasel, but considerably larger.

THE STOAT OR ERMINE. LE ROSELET, OU L'HERMINE.
BUFF.

Mustela Erminea. Gm.

The stoat, or ermine, like the common weasel, is widely spread over the Earth, and is found in America, as well as in Europe and Asia. It is, in general, about ten inches long; and the tail is half the length of the body. This animal exhibits, in a remarkable degree, a peculiarity, which is proper also to a few others: the whole upper part of the body is of a red brown colour, during summer, but this vanishes in winter, when the upper part becomes perfectly white, and the belly yellowish. The tip of the tail is at all times black. In the latter state it is called the ermine; when the fur is greatly esteemed, and in much request, particularly for ornamenting habiliments of office and dignity.

This extraordinary mutation of colour, however, is nearly confined to those individuals, that are met with in high latitudes, as in Norway and Siberia: but the stoat, which is very common in England, is seldom found white in this country, though in the winter it is occasionally seen here, and more frequently in Scotland, in a sort of intermediate condition, appearing to be assuming the pure white dress, yet as if the force of the cause, whatever it is, were

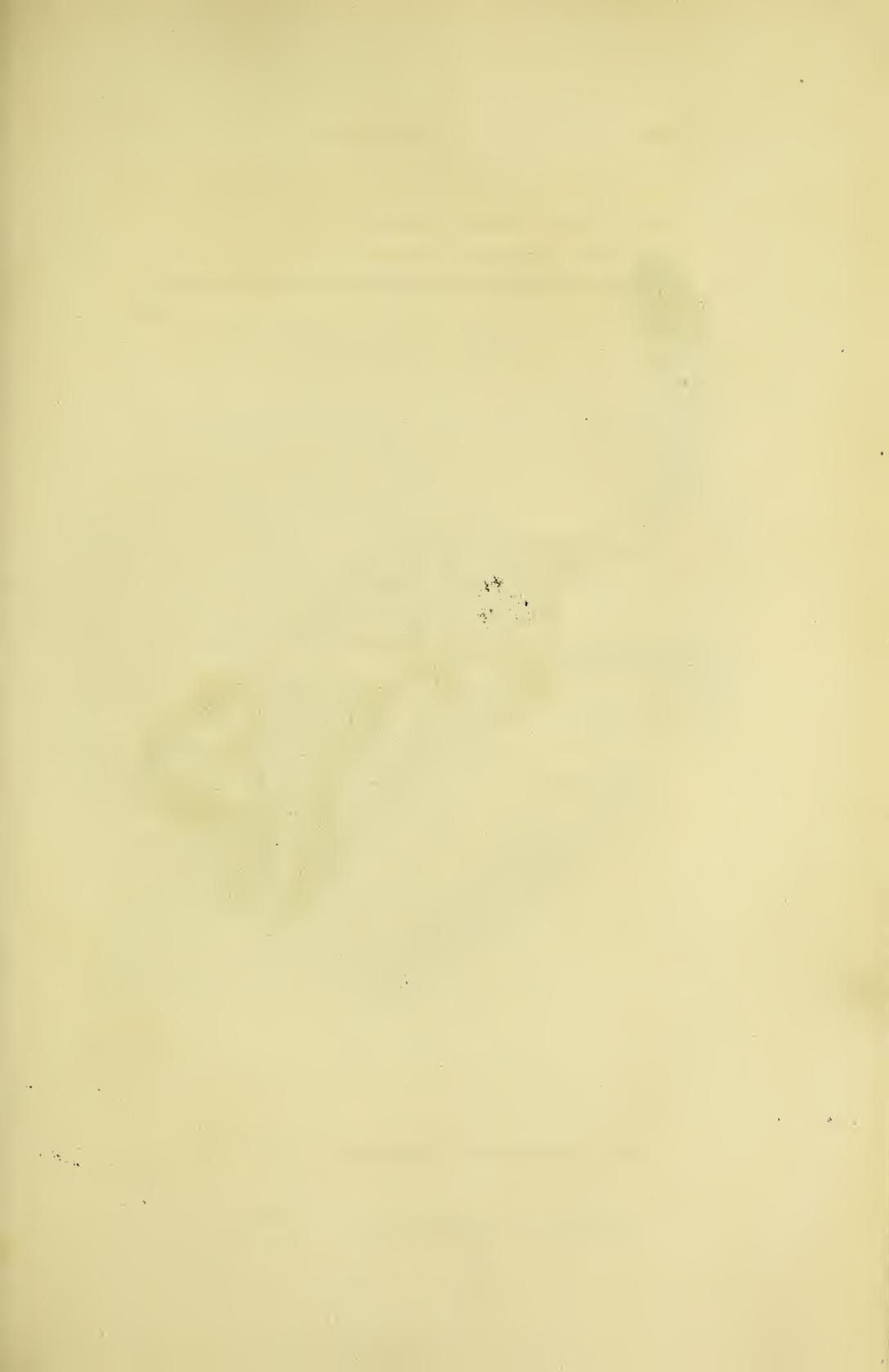
insufficient to do its office completely. Buffon had one of these animals brought to him in its white dress. He kept it confined, and observed the change of colour, which commenced early in March, and was completed by the seventeenth of that month. The animal died afterwards, in consequence, as is stated, of substituting milk for its diet instead of flesh.

It is surely a task well worthy the attention of the physiologist, to ascertain the exciting cause, as well as the mode, by which this strange operation of nature on an animal body is produced. We have data enough to conclude, perhaps, that it is the result of climate; since it is observed in those animals chiefly, if not wholly, which are found in the polar regions; we know also, that the new colour is produced together with a new coat, or fur; but why the new fur should reflect rays differing from the old, is not explained; in short, we seem as yet to be quite in the dark as to the excitement, the mode of operation, and the object intended. The position, that their Creator turns them white in the winter, that they may be the less exposed in the snow to their enemies, is scarcely probable; and, at any rate, does not indicate the means employed. Some less partial purpose is in all probability answered by an effect so peculiar.

The habits of the stoat correspond in general with those of the polecat; though, being smaller, it is less capable of mischief. It will eagerly attack a rat, and soon overcomes and kills it by an almost

imperceptible wound in the head or throat ; but as it is a very destructive animal in our poultry-yards, it seldom finds quarter from the country people.

Captain Ross, in his voyage of discovery, found an ermine in lat. $73^{\circ} 37'$, where it must necessarily have been exposed to an intense degree of cold.





THE SARMATION WEASEL, *LE PEROUASCA*

MUSTELA SARMATICA, *Pallas*

THE SARMATIAN WEASEL. LE PEROUASCA.

Mustela Sarmatica. Pallas.

This species is of a brown colour, spotted all over the back and sides with yellow and white, but having the under parts nearly black. It measures about fourteen inches in the length of the body, and the tail about six more. The skin is much esteemed by the furriers. It is an inhabitant of the southern parts of Russia, Asia Minor, and the coasts of the Caspian Sea. The figure is from a stuffed specimen in my possession.

Pallas states, that this animal is never seen to drink unless it be of the blood of its prey. His description of its manners, &c., as well as of all others on which he treats, is ample and satisfactory; but as they correspond with those of the rest of this tribe in general, it scarcely seems necessary to dilate on more than one in particular. Its habits are nocturnal; and, when irritated, it emits a scent, and erects the fur in the manner of a cat.

THE SIBERIAN WEASEL. LE PUTOIS DE SIBERIE.

CHOROK. *Sonnini.**Mustela Siberica.*

Dr. Pallas describes this animal also, which entirely resembles the polecat in its general form and proportion, but differs in its colour, which is of a uniform bright yellow, with the face brown, and the nostrils white; the hairs are long and coarse. Its name indicates the country where it is to be found an inhabitant of the mountainous forests. This animal is described as subsisting on vegetable as well as animal food. In the winter it sometimes approaches the houses, like the common species.



VARIETIES OF THE CAPE POLECAT. ZORILLE BUFFON.

VIVERRA ZORILLA L.

THE WATER POLECAT, CALLED ALSO THE SMALLER
OTTER. LE MINK OU NOREK.

Mustela Lutreola. Pallas.

This animal is found on the banks of rivers, in the north and east of Europe, from the Arctic Ocean to the Black Sea, as well as in America. In autumn it frequents the rivers and lakes, and in spring the torrents. It feeds principally on fish, frogs, crawfish, and aquatic insects. It has the feet semipalmate; but its teeth correspond with those of the polecat tribe rather than with the otters, and its tail is round; whence it may with propriety be named the water polecat. Its general colour is brown, but the jaws are white. It emits a scent of musk.

Pallas thinks this is the minx of America. It is named *tutucuri* by the Zealanders; *nærs* by the Prussians; and the skin is called *mænk* by the furriers. It is very like the sable, and is sometimes fraudulently sold for it, although it is by some highly prized, and very much esteemed.

THE CAPE POLECAT. LE PUTOIS DU CAP. *Cuvier.*

LA ZORILLE. *Buff.*

Viverra Zorilla. Gm.

Buffon, Gmelin, and others, describe this animal under the name of *viverra zorilla*, or *zorille*, a name by which the Spanish Americans distinguish the mephitic weasels, and which means a little fox. The errors of so useful and fascinating a writer as Buffon must necessarily be difficult of eradication; and this transferring of the proper name of one species to another has induced much confusion on the subject of the mephitic weasels. The specific character of the teeth, in which this animal agrees with the polecat tribe, and the absence of that superlatively noxious stink, which is emitted by the mephitic weasels, separates it from the latter animals; though it possesses, in common with them, claws calculated for digging, which consequently indicate, to a certain degree, their mode of life, and distinguish them from the other polecats; whence it is separated into a distinct genus by Illiger: it is also assimilated to the American mephitic weasels in appearance. Its colour is black, with three dorsal white stripes, extending from the occiput to the tail, which is spread, and generally carried erect. Notwithstanding these

similarities, it must not now be confounded with the transatlantic mephitic race.

Major Smith suspects, that the zorilla of the Cape forms a family of several species; at least the stripes indicate great diversity of disposition in the colours of the several individuals, which have come under his observation.

This animal has been called the Cape badger, by Kolben, in his description of the Cape.

However interesting the habits and manners of animals may be, it would soon, perhaps, be deemed an unnecessary prolixity, to say much on the subject in relation to every species. The accordance of their characters and pursuits with their physical description may be said to be mathematically correct; and if a group be once formed, corresponding in material conformation, more especially as it regards the leading characters of the teeth, whatever be their relative disproportion of size and strength, and wherever they may be found, either at the pole, or under a vertical sun, their characters will be similar, and their pursuits the same.

MUSTELÆ, OR MARTENS.

THE following animals, which are martens, strictly speaking, differ from the polecat family in having generally four carnivorous teeth, instead of three, in addition to the molar tooth, in the upper jaw, and four below. The last lower carnivorous tooth has a rounded lobe on the inner side, which fits them something less perfectly for a carnivorous regimen, and enables them, in the same ratio, to masticate vegetable matter, and consequently indicates a slight diminution in the cruelty and ferocity of their nature. Their muzzle is rather large, and their claws sharp, and slightly retractile.

Every remove in the works of nature is by a gentle gradation, and nothing is abrupt; and although these gradations are observable in different groups of the weasels, it is hardly to be expected, that the character of each will differ from its preceding subdivision very apparently. They are only to be observed by minute inspection, which is equally necessary to discover their consequences; and the means of the latter investigation are much less in our power than the former. If the cruel experiment were to be tried of keeping the polecat and marten without animal food, and on vegetables only, probability indicates, that the latter would be the survivor.

THE BEECH MARTEN. LA FOUINE.

Mustela Fagorum. Ray.

Mustela Foina.

This species was first described by Gesner and Aldrovandus under the epithet *domestica*, which has more reference to the conduct of the animal, in secreting itself in outhouses and buildings, than to any peculiar disposition it evinces to become tame and the associate of mankind, which it will not do unless it is taken quite young, and brought up in confinement. It was afterwards mentioned by Ray, who calls it *martes fagorum*; whence the French name of it, *la fouine*; although it does not appear to be particularly fond of the beech-tree.

The body, from the nose to the anus, is about sixteen inches long, and the tail eight inches; the fur is of two sorts; the first is long and close, and the lower half of it of an ash-colour, but the upper half is brown-black, having a reddish tinge in some lights; the second is short, close, very soft and fine, and of a whitish or pale ash-colour: it is visible through the long hairs. The legs and tail are blackish; the throat and neck of a clear white.

This animal is frequently found near rural habi-

tations; and the female generally brings forth her young in barns, or holes in rocks, which she takes care first to line with moss. She generally produces from three to seven young ones at a time.

THE MARTEN. LA MARTE.

Mustela Abietum. Ray.

Mustela Martes. Lin.

This and the preceding species were confounded together by Linnæus, although it was distinguished by Ray, in his excellent Synopsis of Quadrupeds, by the name of *martes abietum*, with reference to its being found generally in pine forests.

It is rather larger than the beech marten, the body, from the nose to the anus, being about eighteen inches long, and the tail about nine or ten inches. The fur, like that of the preceding, is formed of two sorts of hair; the first is long and close, the base of which is ash-colour, but the middle yellow, and the tips dark brown. The second sort of fur is very fine, rather downy, of a yellowish ash-colour, and not entirely hidden by the long hairs; on the chest, fore legs, and tail, it is brown black; on the throat and neck clear yellow.

This animal is very wild, and hardly ever forsakes



THE MARTIN, LA MARTE.

MUSTELA MARTES.

the thick forest, where it climbs trees with the greatest facility, by the aid of its sharp claws, in search of birds and their nests. It also attacks squirrels and other small quadrupeds. In the spring the female brings forth two or three young ones, which she generally places in the nest of a squirrel, that she has killed ; or in that of a buzzard, owl, or some other bird of prey. It is found in the whole of the north of Europe, and also in North America, near Hudson's Bay.

The skin of this species is three times as valuable as that of the beech or house marten.

THE SABLE. LA MARTE ZIBELLINE.

Mustela Zibellina.

This animal is universally known by its rich fur. It is brown, with white spots about the head; and gray on the neck. It differs from the preceding martens in having fur to the extremities of the toes, a natural indication, that it is an inhabitant of the cold and frozen regions of the Earth. The pursuit of this animal in a Siberian winter, and in the thick forests of that inhospitable country, covered not with verdure but with snow, is one of the most hardy and painful we can conceive. It was this adventurous chase, that led to the discovery of the eastern parts of Siberia. The persecuted animals are said to have retired more to the eastward; but human avarice has followed them, and the trade in sable skins is now carried on principally with the Kamtschatkans.

The sable, which is so remarkable for the beauty of its skin, is also inferior to none of its kind in what we call instinct. It is capable of being rendered very docile; a remarkable instance of which is related by Steller, in one that was domesticated in the palace of the archbishop of Tobolsk, which used to wander about the city, and visit the neighbours. It will attack and destroy a hare, though larger in

size than itself; and it is said also to kill the ermines and Siberian weasels.

It is principally an inhabitant of woody countries; lives in holes in the trees, and not under ground; and hunts during the night, particularly if it be clear and fine; but if otherwise, it retires to sleep.

If pressed by hunger, it follows bears, gluttons, and wolves, as the jackal does the lion, to partake of the overplus of their meals. It will also then eat fruit, particularly that of the service-tree. It is about the size of the common marten. The hairs of the fur will lie any way in which they may be placed. A single skin, of the best quality, is said to fetch twelve or fourteen pounds.

The females, towards the end of March or the beginning of April, produce from three to five young.

THE VISON. LE VISON.

Mustela Vison.

This animal is a native of South America. Buffon says, that, although its skin was well known in the fur trade, the animal to which it belonged was not strictly ascertained; that the name has been variously applied; and that no description, to be relied on, has been given of it. But he adds, that he has inspected the animal, and found it to belong to the family of martens; and Cuvier confirms his classification. The vison, like the pekan, is partly aquatic in its habits. It is larger than the polecat, and of a beautiful chestnut colour, except the point of the chin, which is white. In size and shape it corresponds with the common martens. Its paws are covered with hair to the nails; and are semipalmated, not altogether palmated, as stated by Gmelin, which probably induced Dr. Shaw to place it with the otters (*lutra vison*). It is probably the minx of Lawson.

The American martens are still in some obscurity, and some species have probably been confounded. This, by the disposition of its colours, approaches very nearly to the *martes lutreola* of the north of Europe, and has been often confounded with it, although Cuvier has placed the *martes lutreola* along

with the polecats, and this with the true martens. The most striking distinction between the two is in the brown-black tail, and the point of the lower jaws only being white, not like the *martes lutreola*, where both the upper lip and the chin and neck are white all through. They appear to agree very much in habits, and in the character of the semipalmated feet covered with hair.

They are generally found on the edge of rivers, and burrow under the ground. They feed principally on fish, water-birds, rats, shrews, moles, and the eggs of tortoises. But they sometimes approach the country houses. The female brings forth three or six young ones at a time.

THE PEKAN WEASEL. LE PEKAN.

Mustela Canadensis. L.

The pekan is an American species of the marten family of the old world, with which it corresponds in all the specific characters. It is in general about eighteen inches long, and the tail measures about a foot. The figure is from a specimen in Mr. Bullock's late collection.

This animal inhabits holes in the banks of rivers; and feeds more especially on such small quadrupeds as live near the water, and on fish.

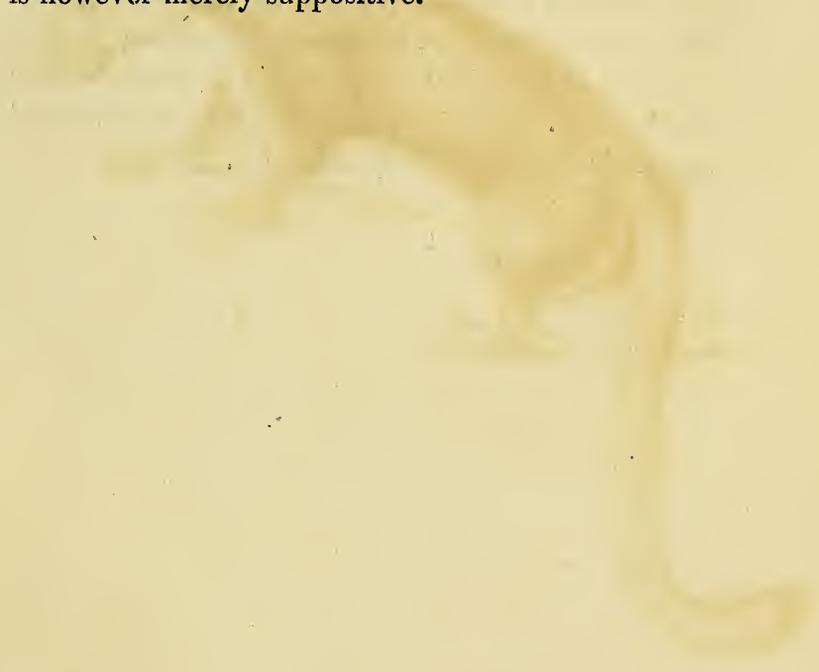
The head, neck, shoulders, and upper part of the back are varied with gray and brown hairs; the nose, back of the neck, tail, and legs are black-brown. It has mostly a white spot under the throat.



THE PEKAN *Var?*

THE PEKAN. VAR.?

In Mr. Bullock's collection was exhibited another specimen of the American martens, which appeared, as far as could be discovered from the skin and toes, to be a variety of the pekan. A figure of it is given in the opposite plate. Its identity with the pekan is however merely suppositive.



THE RED WEASEL. LA MARTE MARRON.

Mustela Rufa.

Desmaret has described a specimen from the Museum of Natural History at Paris, which has the following characters: it is entirely of a very dark red chestnut colour above and below; each hair is annulated with brown, chestnut, and yellow; the tail is brown at its point; and the toes are distinct from one another. Both the country where it was found and its habits are entirely unknown.



Griffith

THE FISHER WRASSEL, OF PENNANT.

THE FISHER-WEASEL, LA MARTE PECHEUSE,

Mustela Pennanti,

Is decidedly distinct, and is so named by the fur-hunters of America. It is considerably larger than the common weasel; is of a glossy silvery black colour, which is paler towards the fore quarters, and slightly rufous about the nose; the tail and legs are velvet black; the hair is silky, and the fur beautiful. The head is small, the ears short, and the claws are very much crooked. It inhabits the banks of rivers and lakes; and pursues the fish, which are its principal prey, with ease and effect. We present a figure of it, from a fine drawing by Major Smith, who has seen many specimens.

THE ZORRA. ZORRA.

Mustela Sinuensis. Humboldt.

The Baron Humboldt describes this species of American marten as having the body less vermiformed than the race in general; of a blackish gray colour, with the under parts and insides of the ears white; the tail half the length of the body, and but little covered with hair.

THE WHITE-EARED WEASEL.

Mustela Leucotis. Temminck.

In the museum of that celebrated naturalist, Mr. Temminck, is preserved a weasel, which he has named leucotis, apparently because of the whiteness of the ears. It is twenty inches long. The fur is of a deep glossy sepia brown colour, like the beaver, but the insides of the ears are white.

THE WHITE-CHEEKED WEASEL.

Mustela Harigula.

This animal, which was mentioned by Mr. Pennant under this name, is described as black, with the chin and cheeks white; and the throat, back, and belly yellow. Its country is not known. We have but slender premises to establish the conclusion, and can therefore advert only to an apparent probability, that this and the foregoing species, as well as the zorra of Humboldt, a mephitic weasel, are the same. They are all distinguished by white marks about the head.

THE CUJA, *Mustela Cuja*;THE QUIQUI, *Mustela Quiqui*;

Are mentioned by Molina; but nothing seems to have occurred since Molina wrote to warrant his treatment of these as distinct species: the former is considered as one of the varieties of the mephitic weasels; and the latter is probably a common weasel.

THE MEPHITIC WEASELS.

Most surprising accounts have been given, by almost all writers on the animals of America, of certain weasels, found in various parts of that continent, which are provided by nature with a very singular but effectual mode of self-defence, in the power they possess of emitting, at will, a most insupportable and disgusting stench, which seems equally noxious to every animal, those of their own species only excepted. Such extraordinary powers of defence seem the more unaccountable, when it is considered, that the predacious habits of these animals, in common with the weasels in general, seem rather to demand means and weapons for offensive operations, with which indeed they are otherwise well provided, than so strange a protection against the attacks of others. Timidity of disposition, accompanied with celerity of motion, afford a frequently availing defence to many of the herbivorous animals against their natural enemies; but it is not apparent why extraordinary powers, for mere self-preservation, should be granted to animals, the existence of which depends on their capability of overcoming and destroying others; and it does not appear, that they actually capture or destroy their prey by means of their vapour, but merely call it into action when irritated, or attacked, simply in self-defence.

It is scarcely possible to discover, from books, how many species of the mephitic weasels exist. A probability is assumed, that the same species has been described by different writers, under different names, and the numbers of them, consequently, erroneously increased. The principal external differences in them appear to consist of the number of white stripes, which pass down the back and sides of the animals, on a black ground. The descriptions of the mephitic stench of all seem nearly to accord.

Buffon collected together several accounts, from various voyages and travels, from which, and from the observation of a few skins, he established four species. These he called, *coase*, *conepate*, *chinche*, and *zorillo*; and the supplement to his work contains a fifth, under the name of *mouffette de Chili*.

The first of these, the *coase*, does not, certainly, correspond with any known animal; and, as has been surmised, may be described from a mutilated skin of the *coatimondi*, a plantigrade animal, whence it has been dismissed as supposititious.

The *conepate* is thought to be the animal described by Catesby, and not the *yagouaré* of Azara, as this traveller conjectured. It is the *viverra putorius* of Gmelin.

The *chinche*, the *viverra mephitis* of Linnæus, appears also to be distinct.

The *zorillo* was certainly described by Buffon from a specimen of the Cape marten before mentioned; and the name he attributed to it belongs properly to the animal described in his supplement, under the

name of mouffette de Chili. It is probably the same as the viverra conepatl of Hernandez, and the mapurito of Mutis, which Gmelin adopted as a distinct species.

The Baron Cuvier seems to have bestowed very great pains to clear up the existing difficulties on the subject of these animals. He quotes, from various writers, the description given by each of the mephitic weasels; and we shall subjoin the result of his inquiries, premising, that their cheek-teeth correspond in number with those of the pole-cat subdivision; but the molar, or flat tooth, is larger; and the opposite tooth to it, in the lower jaw, has two tubercles. The claws on the fore feet are also very long, calculated for digging, and indicating subterraneous habits; but their most distinctive peculiarity consists in the preeminently offensive vapour they emit, which exceeds any thing of the kind other weasels are capable of, and separates them, in a remarkable manner, from all other animals.

Azara (*Animaux de Paraguay*, t. 1, p. 211) describes the yagouaré, which has two white bands, extending to the tail; but which bands, he says, are altogether wanting in certain individuals, and are but slightly indicated in others.

Kalm (*Voyage*, p. 452) describes the skunk of the Americans, which has one dorsal white band, and another on each side.

Gemelli-Carreri (*Voyage*, t. 6, p. 212) mentions the zorille merely as being black and white, with a very fine tail.

Gumilla (Hist. Nat. de l'Orénoque, t. 3, p. 240) describes the mafutiliqui of the Indians, having the body spotted with black and white.

Lepage-Dupratz (Hist. de la Louisiane, t. 2, p. 86) describes the puant, the male of which is of a fine black colour; and the female black, bordered with white.

Fernandez (Hist. Nov. Hisp., c. 16, p. 6) describes the orthula of Mexico, which is black and white, with yellow in some parts. Fernandez also mentions the tépémactla, which is without any yellow.

Humboldt (Partie Zoologique) describes the zorra of Quito, which is a plantigrade, with two white bands.

Hernandez describes the ysquiepatl, having several white stripes.

Catesby (Carol., ii, p. 62, tab. 62) figures the mephitic pole-cat, marked with nine white stripes.

Buffon (t. 13, pl. 40) has the conepate, with six white rays.

Hernandez (Mexico, p. 332) describes the cone-patl, having but two white rays.

Mutis (Act. Holmiens., 1769, p. 68) named from him the mutis (*viverra mapurito*, Gm.), with a single white stripe, extending only half-way down the back. This has been recognized by the Baron Humboldt.

Buffon (Suppl. t. 7, pl. 57) describes the mouffette de Chili with two white stripes on the back, which unite behind the head, and form a crescent.

Buffon gives also another (t. 13, pl. 39) under the

name of chinche (*viverra mephitis*, Gm.) with two very large white stripes behind.

Feuillée (Journal du P. Feuillée, p. 272) also describes the chinche, having two white rays, which go off, and are dispersed on the sides.

Raffinesque (Ann. of Nat.) describes the mephitis interrupta, which is brown, with two short white parallel rays on the head; eight on the back, the four anterior of which are equal and parallel, and the four posterior rectangular.

THE YAGOUARÉ OF AZARA.

This animal is generally identified with the mouffette de Chili of Buffon, and the viverra conepatl of Gmelin. It is described at length, by Azara, as an inhabitant of South America, and generally found in the open country rather than in the forests. It lives on insects, eggs, and such birds as it can seize by surprise. Its motion is gentle and gliding, and it carries its tail horizontally. It will not run from a man; and, indeed, exhibits no signs of fear at the sight of any animal, however powerful; but if it perceive itself about to be attacked, it curves its back, raises its hairy tail into a vertical position, and then ejects, with considerable force, its urine, which is mixed with such an insupportably fetid liquid, produced by certain glands for the purpose, that neither man, dog, nor any animal, however fierce, will

venture to touch it. If a single drop of this most powerful liquid fall on a garment, it is rendered absolutely useless; for washing it twenty times over will not destroy its horrible stench, which it will even diffuse throughout the whole house in which it is kept. Azara declares, he was not able to endure the disgusting stink, which a dog, that had received it from the yagouaré a week before, communicated to some furniture, although the dog had been washed and scrubbed with sand above twenty times.

This animal is comparatively slow in its motions; for although it gallops occasionally, it does not then go faster than a man. It digs holes in the ground for retreat, and deposits its young in them. Its fetid urine, when ejected in the dark, is said to emit a phosphoric light.

When they are hunted, it appears the natives irritate them first with a long cane, in order to make them void their urine, and exhaust their means of defence. They will also approach by surprise, and, seizing them by the tail, will quickly suspend them by it, in which situation they are incapable of emitting their offensive liquor; and the hunters are enabled to destroy the pouch in which it is secreted before they kill and skin them. When taken by these means, and deprived of their strange mode of annoyance, they are said to be sometimes domesticated.

Azara observed a considerable tendency in his species to variety; and he found also that their skins became subject to change their colours, when kept any time, which seems to strengthen the probability,

that, although animals in a wild state, in general, are much less subject to vary than those that are domesticated, yet this tribe of weasels may be more particularly liable to this influence, whence individuals of the same species may have been described so differently, and treated as distinct.

The above observations are intended to convey, as nearly as possible, the opinions of the greatest zoologists of the day on these singular animals; which opinions, however deserving of respect in themselves, have generally been formed by those, who, from necessity, study the fallible writings of travellers more than the book of nature itself. Individuals of the mephitic family of weasels are very seldom brought to this country; and the zorilla of the Cape, which has been occasionally to be seen in our menageries and collections, has been very generally confounded with the transatlantic animals; a confusion which results from the similarity of the African zorilla to the mephitic weasels, as well as from the former animal being improperly called by an American appellation. But little additional information can be expected on this subject, except from those who have for some time resided in America, and are urged to observation by an energetic and inquisitive mind.

Major Smith has favoured me with his opinion* on these animals, which, though he admits the confusion of writers, and the varieties of the species,

* This was not received from Guernsey until after the previous observations on these animals had been written.

differs from that of Cuvier, inasmuch as he is not prepared to discard any, that have been described and figured as different. He inclines to think the coase of Buffon, though not corresponding with any animal elsewhere described, is distinct, principally because the character of the figure has something positive, which a mutilated skin could hardly have produced. He thinks it may be one of a class, also, but little known; namely, the smaller gluttons or grisons, of at least three undescribed species, of which the Major has made drawings; and he would, consequently, not dismiss it as factitious, but leave the matter open for future investigation.

The Major acknowledges, also, the conepatl of Buffon, as well as the chinche, which he has frequently seen, and is well figured in Buffon's work. Catesby's animal he also has no doubt is distinct. It is longer, more slender, has the nose more pointed, and the markings very different from the conepatl, or any other. The mouffette de Chili is very nearly allied to a drawing in the major's collection, though it differs in some degree, resulting, probably, from the type being found in a different part of the country from that of Buffon's animal.

The opposite figures, selected from the Major's collection (for attention to economy obliges the author most reluctantly to omit a host of most interesting drawings), are from the male, and young of the animal commonly known in America by the name of skunk. The types were in the museum of New York. The white marks differ in shape in the

female. The hairs are long in the tail: two thirds, from their root upwards, they are white; the remaining third of each hair is black.

These mephitic animals are very clumsy, and not nearly so active as their congeners; whence a certain awkwardness, resulting from their make, is very probably the cause of their being provided with their singular mode of defence; and thus, as their means of flight are limited, nature has supplied them with powers the most effectual, not merely for self-defence and preservation, but also for actual annoyance. It is a known fact, that young and sporting dogs, unacquainted with their quality, sometimes pounce upon them; but the dash of fetid liquid in their nose instantly forces them to quit the animal: they then dig, with miserable whinings, in the earth, rub their noses into it, and scratch themselves so violently at the same time, as to produce considerable bleeding. They are seldom appeased till exhausted with fatigue, and never will pursue a second of the same species. Washing and baking clothes is insufficient; and Mr. Skidder, the owner of the New York Museum (as Major Smith informs me), had a set of clothes spoilt, which, after washing, were hung upon the roof of his house, full fifty feet high, and yet could be very distinctly smelt some distance off in the streets, or the square near the house. On one occasion, as Major Smith was travelling by the coach, the vehicle gained upon a skunk, which was attempting to get through a fence, which any other species would have passed in a moment: not suc-

ceeding, however, in its endeavours before the coach came up with it, it emitted the mephitic vapour, and, by a whisk of the tail, sent it on the seat of the driver, next to whom sat a young buxom American girl, all of whose clothes were completely ruined by a few drops.

The residence of Major Smith, in South America, was principally in the east and north-east low lands of that continent, which are parts but little frequented by the mephitic weasels. His observations were principally made on such as are met with in North America.

Similar powers appear to be possessed by a Javan animal, described by Dr. Horsfield; but, as it is a plantigrade, it will be found among the animals of that description.

THE OTTERS.

THE otters have four carnivorous cheek-teeth above, with a large and long molar tooth behind them, and four carnivorous teeth below. The last tooth of this description, on each side, is furnished with a rounded lobe on the inner side. Their head is large and flat; the ears short and rounded; and the tongue somewhat rough. But the characters, which more particularly distinguish them from the preceding animals, are their webbed feet and compressed tails, indicating aquatic habits. They are covered with two sorts of hair; the one short and very thick, the other long, brilliant, and close. There is a small gland placed near the anus, which secretes a fetid liquor. They live principally on fish; but the common otter is known to eat vegetables, and gnaw the bark of trees.

THE COMMON OTTER. LA LOUTRE COMMUNE.

Mustela Lutra.

The otter is a very destructive and ferocious water animal; and will destroy its prey by biting off the head, and leaving the remainder; thus killing many more than are necessary for its sustenance.

. Rapine and spoil
 Haunt e'en the lowest deeps: seas have their sharks;
 Rivers and ponds inclose the rav'nous pike;
 He, in his turn, becomes a prey—on him
 Th' amphibious otter feasts
 nor spears
 That bristle on his back, defend the perch
 From his wide greedy jaws; nor burnish'd mail
 The yellow carp; nor all his arts can save
 Th' insinuating eel, that hides his head
 Beneath the slimy mud; nor yet escapes
 The crimson-spotted trout, the river's pride,
 And beauty of the stream.

It is found in all parts of Europe, and in the north of Asia, and in North America. It averages about two feet in the length of its body, and the tail is about sixteen inches. It is said that, when the waters are frozen, it attacks and devours smaller quadrupeds. It is very fierce; and, when hunted, will often turn on the dogs, and bite them severely. Notwithstanding the natural ferocity of its character, which, how-

ever, is principally directed against fish, there are many instances of its having been tamed, and rendered of considerable service in fishing. Buffon, in his original edition, expressed his doubts of this, though, in the supplement, he retracted them.

It is not properly amphibious, or capable of living either on land or in the water. It is true that it is an excellent diver, and can remain a considerable time under water; but it has been known to have been drowned when entangled among weeds in the pursuit of fish.

It does not dig a retreat for itself, but takes to hollow places under rocks, &c.

A variety of the common otter is found in the neighbourhood of Paris, which has the sides covered with a great number of small round white spots, irregularly placed.



THE BRAZILIAN OTTER . SARICOVIENNE BUFFON.

LUTRA BRASILIENSIS.

THE BRAZILIAN OTTER, LE LOUTRE D'AMÉRIQUE,

Lutra Braziliensis,

Is brown, or yellowish, with a throat generally white, but sometimes yellow. It is something larger than our otter, and is found in the rivers both of North and South America.

This otter appears to be gregarious, inhabiting the rivers in small troops. Occasionally, but not always, it swims with the head above the water; and by its manners, as well as the noise it makes, seems to be menacing: but it is never known to do harm, even to bathers, in the water inhabited by it. It either digs or takes possession of a hole in the banks. Several females inhabit a single burrow, and bring forth their young together.

Azara mentions one which was domesticated. It ate fish, meat, bread, cassavas, and other things, though it preferred fish to all other food. It went about the streets, and returned of itself to the house, knew its owner's family, and followed them like a dog, though it soon became fatigued by exercise. It knew and answered to its name, and sported with the dogs and cats of the house; but as it bit severely in playing, no one was often willing to sport with it. It was never known to attack the poultry, or any

other animal, except a very young pig, which it would have killed, had it not been rescued.

The American or Brazilian otter is occasionally met with at a considerable distance from water, when it is supposed to be in pursuit of a new domicile. On land it moves very slowly, and almost on the belly; runs or gallops very clumsily, and may be easily caught, and held by the skin of the back, in which situation it is not able to offer much resistance. The tail, though very flexible, is generally carried straight. The specimen, figured from Major Smith, was five feet three inches long from the nose to the end of the tail.

THE CANADIAN OTTER.

Lutra Canadensis.

The otter of Canada appears to be distinct from that of Brazil. The latter is much longer, though it does not exceed the girth of the former. The neck of this species is also shorter; and the tail is compressed from near the base to the end, while that of the Brazilian animal is compressed only near the tip.

THE SEA OTTER. LE LOUTRE DE MER.

Mustela Lutris.

This is full twice the size of the common otter : the body is very long, and the tail about one third the length of the body. Its skin, shining like velvet, is the most esteemed of all furs, and consequently the most expensive. It is black, with a shade of brown ; but, about the head, there are, in general, some white hairs*. The hinder legs, in particular, are very short, and placed nearer the anus than in quadrupeds in general, which assimilates it to the seal, to which it bears a considerable general affinity. It sometimes weighs as much as seventy or even eighty pounds. It is found, perhaps exclusively, in the northern parts of the Pacific Ocean, where the Asiatic and American continents nearly approach each other, and in the intervening islands. It is said, that a single skin is sometimes sold, in the Chinese or Japanese markets, for upwards of twenty pounds sterling.

In the eighty-sixth volume of the Philosophical Transactions is a very elaborate description of the anatomy of the sea otter, by Sir Everard Home and Mr. Menzies. The subject was taken near Queen

* The white hairs prevail, more or less, in different individuals.

Charlotte Island. It measured four feet four inches from the nose to the extremity of the tail. The body was compressed, and of nearly the same thickness throughout. Its circumference was two feet four inches and a half. The figures given of the cheek-teeth show them to have been very much tuberculated, and, like those of the seal, apparently adapted for a piscivorous regimen.

We have, in this animal, a decided link between the otters and the seals; and we know that the otters are very much assimilated to some other species of the weasels.

THE VIVERRÆ.

A SLIGHT difference in the teeth distinguishes the viverræ from those which have preceded. They have four carnivorous cheek-teeth above, and five below, the foremost of which are generally deciduous; and they have also two molar teeth above, and one below, situate beyond the carnivorous teeth in each jaw, like the dog's, the last of which has two blunted lobes on the inner side. The head is long, the muzzle pointed, and the end of the nose large; the nostrils are large, and pierced on the side; the pupils of the eyes contract in a transverse line; the tongue is covered with hard bony papillæ; the ears are shortish, and rounded; the feet have five toes (except one species), which are separate from one another, and armed with semiretractile claws. Near the anus there is placed a deep pouch, which contains a fatty and very odoriferous substance; but, in some species, this is only a simple folding of the skin. The tail is long, and covered with hair. The fur is soft, and marked with longitudinal dark-coloured spots.

This genus is confined to the warm climates of the ancient continent, and is divided, by the modern zoologists, into four subdivisions: those included in the first of these are called the true civets; which are distinguished by the following characters; viz.

the pouch is situate between the anus and the organs of generation, and is deep, and divided into two sacs, which are filled with a sort of fatty matter, which has a very strong musky odour.

THE CIVET. LA CIVETTE.

Viverra Civetta.

The civet is frequently called a cat. “Civet is of a baser birth than tar—the very uncleanly flux of a cat*.” But, independently of the teeth, the production of this odoriferous matter separates it entirely from the cat family. It is an inhabitant of the hottest parts of Africa; is about two feet long, and the tail measures about fourteen inches more. The mane, which extends from the top of the neck to the extremity of the tail, is capable of being erected when the animal is irritated. The drug called civet is secreted in a deep double pouch, situate beneath the anus, and is voided by the animal when the reservoir has become full. Though an article in the more ancient materia medica, and still employed by the Oriental physicians, it is with us chiefly used in perfumes. Shaw says, it has a very fragrant smell, and a subacid taste; it unites readily with oils, both expressed and distilled; in watery or spirituous men-

* As You Like It. Act I. Sc. 2.

strua it does not dissolve, but impregnates the fluids strongly with its odour. It may, however, be made to unite with, or be soluble in water, by means of rubbing with mucilages. The animal is imported, and kept confined in Europe, for the sake of this luxury of the toilet, of which each will yield about a dram a week.

The habits of the animal are very little known in its wild staté. It is nocturnal, and has very much the manners of the cats. It lives by the chase of small animals, and more particularly birds, which it entraps, like the foxes. The cry is like that of a dog when irritated. It prefers sandy places and dry mountains, in Africa, more especially near Abyssinia.

THE ZIBETH. LE ZIBETH, OU LE MUSC.

Viverra Zibetha.

This species is found in India and the Indian Islands*; it is also kept by the Malays, for the purpose of obtaining the perfume, which they call *jibet*, or *dedes*.

The particulars in which it differs, personally, from the civet, will appear by the figure, which is from a specimen lately in Mr. Bullock's museum. They are about the same size. But little of the habits, either of this animal or the civet, when in a state of nature, is known. There appears to be a smaller variety, which the Malays call *tang-galung padi*.

The second subdivision, or genettes, is distinguished from the true civets by the pouch between the organs of generation and the anus being here reduced to a simple slit, or fold of the skin, and by not yielding any sensible excretion. The cutting teeth, feet, and fur, are like the civet's.

* La Peronie says, it is found in Africa ; but this is not probable.

THE TIGERINE WEASEL. CHAT-BIZAAM DE VOSMAËR.

Viverra Bizaan.

This animal is about the size of a cat, and has been generally referred to that species. The body is cinereous, with a black stripe from head to tail, and the sides are spotted. The teeth are said to correspond with those of the weasels, and not to be feline; but the claws appear to be nearly, if not quite, as retractile as those of the cats; and it still appears probable, that the animal, like the *felis gracilis* of Horsfield, is connected with both genera. It was named the Bizaam cat by Vosmaër.

1



2



1, THE GENET, LA GENETTE.

2 THE CIVET, LA CIVETTE.

VIVERRA GENETTA L.

VIVERRA CIVETTA L.

THE GENET. LA GENETTE.

Viverra Genetta.

The figure of this species, also, is from one in Mr. Bullock's collection. It is about the size of a small cat; is found in Asia; and appears, according to the opinion of Cuvier, to be indigenous from the south of France to the Cape of Good Hope. It is frequently domesticated, and is said to be as serviceable as the cat in preserving houses from the depredations both of rats and mice.

Those found in France and Spain, and on the rock of Gibraltar, are considered by Mr. Pennant as a distinct species, under the name of *pilosello*. He says it is not so large as the ferret.

THE MUSANG.

Viverra Musanga. Horsfield.

The East India Company's Museum appears, by Sir Stamford Raffles's catalogue, in the thirteenth volume of the Linnean Transactions, to have a specimen of this genus, which the Malays call *musang bulan*, and which is the same as Marsden describes.

An elaborate description and figure of a Javanese variety of this animal is given in Dr. Horsfield's Zoological Researches in Java, now publishing. Its length is one foot ten inches, and the tail is eighteen inches. The body is variegated, gray and black, slightly inclining to tawny, very obscurely striated; but the belly is lighter, and a light colour prevails round the throat and sides of the neck, and terminates in a point over each eye. The tail is tapering. The two following animals have many points of affinity, according to Dr. Horsfield, to this species.

The habits of this animal accord with those of the genet. If taken while young, it becomes patient and gentle during confinement, and is said to receive readily animal and vegetable food.

It is most abundant near the villages situate at the confines of large forests, and constructs a simple nest, in the manner of squirrels, of dry leaves, grass, and small twigs, in the forks of large branches, or in

the hollows of trees. From these it sallies forth at night to visit the sheds and hen-roosts of the natives, in search of eggs, chickens, &c. Its rambles are also particularly directed to the gardens and plantations, where fruits of every description within its reach, and particularly pineapples, suffer extensively from its depredations.

The coffee plantations in Java are greatly infested by the musang; in some parts of the island it has, on this account, obtained the name of coffee rat. It devours the berries in large quantities, and its visits are soon discovered by parcels of seeds which it discharges unchanged. It selects only the ripest and most perfect fruits, and the seeds are eagerly collected by the natives, as the coffee is thus obtained without the tedious process of removing its membranaceous arillus.

The injurious effects occasioned by the ravages of this animal in the coffee plantations are said, however, to be fully counterbalanced by its propagating the plant in various parts of the forests, and particularly on the declivities of the fertile hills: these spontaneous groves of a valuable fruit in various parts of the western districts of Java afford to the natives no inconsiderable harvest, while the accidental discovery of them surprises and delights the traveller in the most sequestered parts of the island.

THE FOSSANE. LA FOSSANE.

Viverra Fossa.

This seems very likely to be a mere variety of the genet, with a deeper colour. Cuvier briefly says, it is yellow in those parts where the genet is black, and it has scarcely any perceptible rings on the tail. It is about the size of the genet, but more fierce, and is found in the south-eastern parts of Asia and the neighbouring islands.

THE BLACK CIVET. CIVETTE NOIRE.

Viverra nigra. Desmarest.

There is a species of the viverra in the Museum, in Paris, which is covered with hair of two sorts, one of which is short, and of a yellowish gray colour, the other much longer, and of a deep black; which last colour predominates, with a lighter shade on the under parts, and a white spot above and another below each eye.

The tail of this animal is long, and has the appearance of being prehensile. It came from Pondicherry, but was said to have been a native of the Moluccas.

THE BANDED CIVET. CIVETTE A BANDEAU.

Viverra fasciata. Geoffroy.

M. Geoffroy has described this animal, which is also in the French Museum. It is said to resemble the last mentioned, but the tail is not stated to be prehensile. The bottom of the fur is light yellow, with brown narrow spots very close, and disposed in longitudinal lines; on the back and sides there are some yellowish white streaks about the face, and the lower part of the body is of a yellowish gray.

THE INDIAN CIVETTE. CIVETTE DE L'INDE.

Viverra Indica. Geoffroy.

This species is also described by Geoffroy. Its prevailing colour is yellowish white, with eight longitudinal, narrow, brown bands. It was brought from India by Sonnerat.

THE FASCIATED WEASEL. PUTOIS RAYÉE, DE L'INDE,
BUFF.

Viverra fasciata. Gm.

This is identified with the black-banded wild cat of Sonnerat. The ground colour of the body is pale yellow, but the head and tail have a brown tinge, and there are six large blackish brown bands passing along the sides, three on the thighs and flank, and another on the shoulder, which are not more than half the length of those on the body. It is about two feet long, and the tail nine inches. It is a native of the coast of Coromandel, but its habits are not known.

M. Blainville informs us, that there are two drawings of weasels in the Museum of the East India Company, which he describes as new, under the names of the viverra prehensilis and viverra bondar.

Pallas described a viverra under the name of *v. hermaphrodita*; but has not given sufficient characters to distinguish it from the others, and it has not been figured; as is the case also with his viverra *Zeylonica*.

The third subdivision, or ichneumons, is distinguished from the others by the pouch being ample, and situate at the lower part of the belly, in the base of which the anus is placed. The middle cutting tooth on each side is a little out of the series; the



THE AFRICAN ICHNEUMON. *MINGOUSTE d'EGYPTE.*

VIVERRA ICHNEUMON. L.

feet have five toes, and the hairs are long and annulated. The eyes are capable of being completely covered with a nictitating membrane.

THE AFRICAN ICHNEUMON*. LA MANGOUSTE D'EGYPTE.

Viverra ichneumon.

The figure of the African ichneumon here given is from a very fine specimen, which was in the possession of Mr. Leadbeater. It was nearly four feet long. The hair is coarse and mottled, and the depth of colour differs in different individuals.

M. D'Opsonville possessed an ichneumon, which he brought up for a time perfectly tame, as it mixed with his poultry without disturbing them. Anxious to see what effect would be produced by exposing a snake to him, which the ichneumon had never before seen, he procured a small one for the purpose. The animal quickly leaped on the reptile, and bit it mortally; but the experiment seemed to alter its nature, for it thenceforward became rapacious, and destroyed its former companions of the poultry yard.

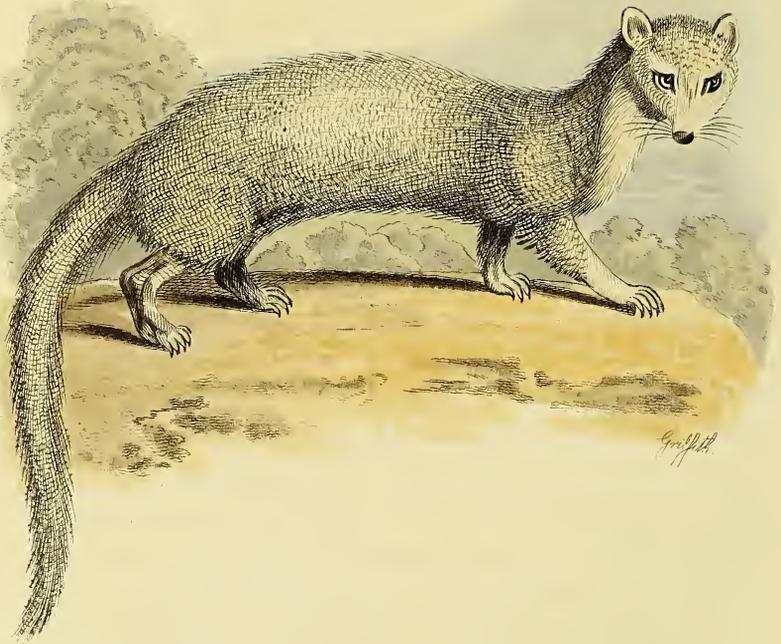
This animal was an object of worship in the Egyptian mythology; and if it were deified by them for its supposed useful qualities, they also paid equal honours to some other animals, the pretensions of which to utility it is now difficult to make out.

* ΙΧΝΕΥΜΩΝ.

Sonnini represents the ichneumon as having lost all the importance once attached to it by the people of Egypt. Generally predacious, like the rest of the tribe, it is as great an enemy to domestic poultry as to those animals, which are noxious and injurious to mankind. The consequent mischief it commits is therefore to be balanced against its beneficial services. It is said to be kept by the Egyptians in a domestic state*; but this is positively denied, by Sonnini, to be the case at present; or to have been so in the memory of man; and he adds, that the modern Egyptians have no greater regard for the ichneumon, than we have for the marten or polecat.

Well-meaning persons, who are more remarkable for the warmth of their imagination than the soundness of their judgment, sometimes injure the cause of true religion by attributing objects and intentions to Nature, or rather to Nature's God, which are puerile in themselves, and far below what we may rationally presume to be the economy of the great Author and Preserver of all things. Thus the ferocious character of the ichneumon, which seems equally directed against all things that are inferior to it in power, has been represented as a divine interposition to rid Egypt of crocodiles; because, whenever they find crocodiles' eggs in the sand, they eat them. But it happens, unfortunately for such reasoners, that, from the mouth of the Nile to the town of Siout ichneumons are very common, and there are no cro-

* Belon, Prosper Alpinus, &c.



THE ASIATIC ICHNEUMON, MANGOUSTE.

VIVERRA MUNGOS.

codiles ; while in Upper Egypt the former are scarce, and the latter abound. It may be said, perhaps, that in Lower Egypt the ichneumons have performed their destined office ; but, if so, circuitous means seem to have been employed to perform that partially, which more direct agency might have effected altogether.

THE INDIAN ICHNEUMON. LA MANGOUSTE DES INDES.

Viverra Mungos.

The Indian species of the ichneumon much resembles that of Egypt, but is generally more than a third less in size, and is without the tuft at the extremity of the tail. The hair is very coarse, and the colour varies from gray to brown.

The Indian ichneumon will attack and destroy the most deadly vipers ; and is said, by Kæmpfer, to cure itself, if bitten, by eating of a certain plant (*ophiorrhiza mongoz*), the efficacious virtues of which, in such cases, were pointed out to us by the instinct of this animal.

It is often kept domesticated by the inhabitants of the East Indies, for the purpose of destroying rats, mice, and other small destructive animals ; and is sometimes brought to and kept in this country for the same purpose. If irritated, it will fly at and bite a person.

EDWARDS' ICHNEUMON.

Herbestes Edwardii. Desm.

Edwards, in his Gleanings (p. 199), has figured this, which Geoffroy, in his Paper on the History of Egypt, in the Memoirs of the Institute, has described as a new species, from that plate. It is distinguished by the back and tail being annulated with brown on an olive ground; the nose and ears are brown-black; and the tail pointed. It is found in the East Indies.

THE CAFFRARIAN ICHNEUMON. NEMS. BUFF.

Viverra Cafra. Gm.

This species is about two feet long, and is found in Southern Africa, according to Buffon; but Geoffroy says in India. It is uniform in its colour, which is a dark brown, except the tip of the tail, which is quite black.



THE CAFFRARIAN WEASEL,

LE NEMS,

VIVERRA CAFFRA, Gm.

THE GALERA. VANSIRE. BUFF.

Mustela Galera. Gm.

This is also of a dark brown colour, with the tips of the hairs yellowish. It is about fifteen inches long, and the tail is eight or nine. It is found in Madagascar, and also in the Isle of France; but is exotic in that island. Its habits are not much known, but it is said to be very fond of bathing.

THE ICHNEUMON OF JAVA.

THE RED ICHNEUMON.

M. Geoffroy has described these two species. The first is of a chestnut colour, dotted with yellowish white; but the head and limbs are deep chestnut only. The body is a little more than a foot long; and the tail, which is cylindrical, is about nine inches.

The other is of a very bright ferruginous red colour, particularly on the head. It is about eighteen inches long, and the tail nearly a foot. Its country and habits are unknown.

The next species is separated, by methodical writers, into a distinct subdivision; because it has but four toes, and the claws are calculated for digging; in all other respects it corresponds with the common ichneumons.

THE SURIKATE. LE SURICATE.

Viverra Tetradactyla. Gm.

This is a South African species, and resembles the ichneumons as to make and colour; but the upper jaw is said to be longer than the lower; and the claws of the fore feet are longer than those behind. It seldom exceeds eighteen inches in length, including the tail; and lives on small quadrupeds. It is named by the Dutch surikate, from a slight subacid odour it emits.

The surikate differs from all other weasels in having but four toes on each foot. Major Smith thinks, also, that the character of the animal differs considerably from that of the true viverræ. It becomes very tame and playful; the expression of the countenance is mild; and the habit of having the fore feet standing and those behind resting on the heels, gives it an appearance of shortness of body. Although the toes and nails are not much crooked, it ascends and descends trees with freedom.

Notwithstanding the present improved state of zoology, much obscurity still prevails in regard to this numerous race of animals. The divisions of the genera, particularly where the digitigrades pass into plantigrades, are still unsatisfactory; and several are so constructed, that they are nearly both heel and toe walkers; and, as they frequent trees, the climbing occupation seems, in some degree, to require both modes of locomotion. When the skins alone are regarded, it is probable some misconception may ensue as to the mode of walking, in consequence of the fur being partly injured by climbing; hence dissection of the heels alone can firmly and satisfactorily determine the question. In regard to the mephitic family in general, some of which are called digitigrades, and others plantigrades, by different writers, their respective accuracy is, perhaps, only to be ascertained by anatomical experiment. There remains much to be learnt in regard to the genera, as well as to the species, of the weasel race.

All the preceding animals of this order may be called purely carnivorous; it is their most distinguishing and determinate character; generally speaking, and except from necessity, they feed on animal substances, and on them alone. Most of them may also be called sanguivorous, delighting in sucking the blood of their prey while fluent. The cruelty and ferocity of their nature is not the result of their necessities, for they frequently appear to delight in butchery beyond the reach of their appetites. Their subsist-

ence is precarious, and their lives passed in painful and uncertain watchfulness and pursuit : constantly induced to their bloody avocation by the cravings of appetite, they form a strong contrast to the herbivorous animals, the repose and quiet of which seem only disturbed by fears of their ferocious enemies.

THE DOGS.

A REMOVE farther from the perfect adaptation to a carnivorous regimen is to be found in the teeth of the dog tribe; which consists in their having two posterior molar or flat teeth behind the carnivorous or cutting teeth. The first of these, in the upper jaw, is very large; and the antepenultimate, or last tooth but two in the lower jaw, has the anterior lobe cutting; but the posterior part of this tooth is also molar: the consequence of which arrangement is, as was observed of the weasels, that any food placed at the back of the mouth will be pounded; while the cutting lobes of the other teeth, crossing each other like a pair of scissars, will cut in the manner of this instrument. There are six cheek-teeth in the upper jaw, and seven in that below; and two canine teeth, and six incisive in each. The various species of this genus, like the cats, agree in the character of the teeth, so that the opposite delineation of those of the wolf is alike applicable to all.

Their tongue is smooth and soft. The ears, when in a state of nature, are always erect and pointed. The tail is of a moderate length. Their fore feet have five toes, and those behind but four, armed with long nails, which, not being at all retractile, are exposed to constant wear, and become in con-

sequence much blunted, and incapable of fastening on their prey.

This genus is wonderfully extended over the surface of the Earth, as no country is known now to be without dogs, except some of the islands in the Pacific Ocean.

The genus is arranged in two principal divisions; the first of which is distinguished by the pupil of the eye being circular; and the second, which includes the foxes only, has the pupil elongated.

THE COMMON WOLF. LE LOUP.

Canis Lupus.

This is a large species, and measures about four feet in length. The colour is dark gray, with a yellowish tinge, and with a blackish band on the forelegs. The tail is carried straight. As the wolf grows old, its fur becomes whiter; and individuals are found, sometimes, of all ages, nearly white. Those met with in high latitudes, also, seem to change their more ordinary colour for white during their long winter. The wolf is the most extensively mischievous of all the carnivorous animals found in Europe, and inhabits every part of that continent, but more particularly where there are forests. It seems to have passed also into America. It will

attack most animals ; which, however, it is observed to do, if possible, not face to face, but by surprise. It is a great glutton, and may almost be called omnivorous. It will feed on carrion, which it is able to smell at a great distance. It is a solitary animal, and only leaves its hiding place in the forest during the night ; but has sagacity enough to unite itself with others of its species during the severity of winter ; and, while its more ordinary prey is scarce, will attack in packs horses or the largest quadrupeds, and sometimes men. The wolf lives from fifteen to twenty years. Although apparently a natural enemy of the dog, there are many instances known of an offspring produced between them, which, unlike hybrid animals, generates with either species. A species is mentioned as distinct, which is found in Java, but it seems to accord very much with the common wolf ; and the same may be observed of the Mexican wolf of Hernandez.

The voracity and savage nature of this beast have not only been very energetically described by naturalists, but have afforded a theme to poets of almost all ages.

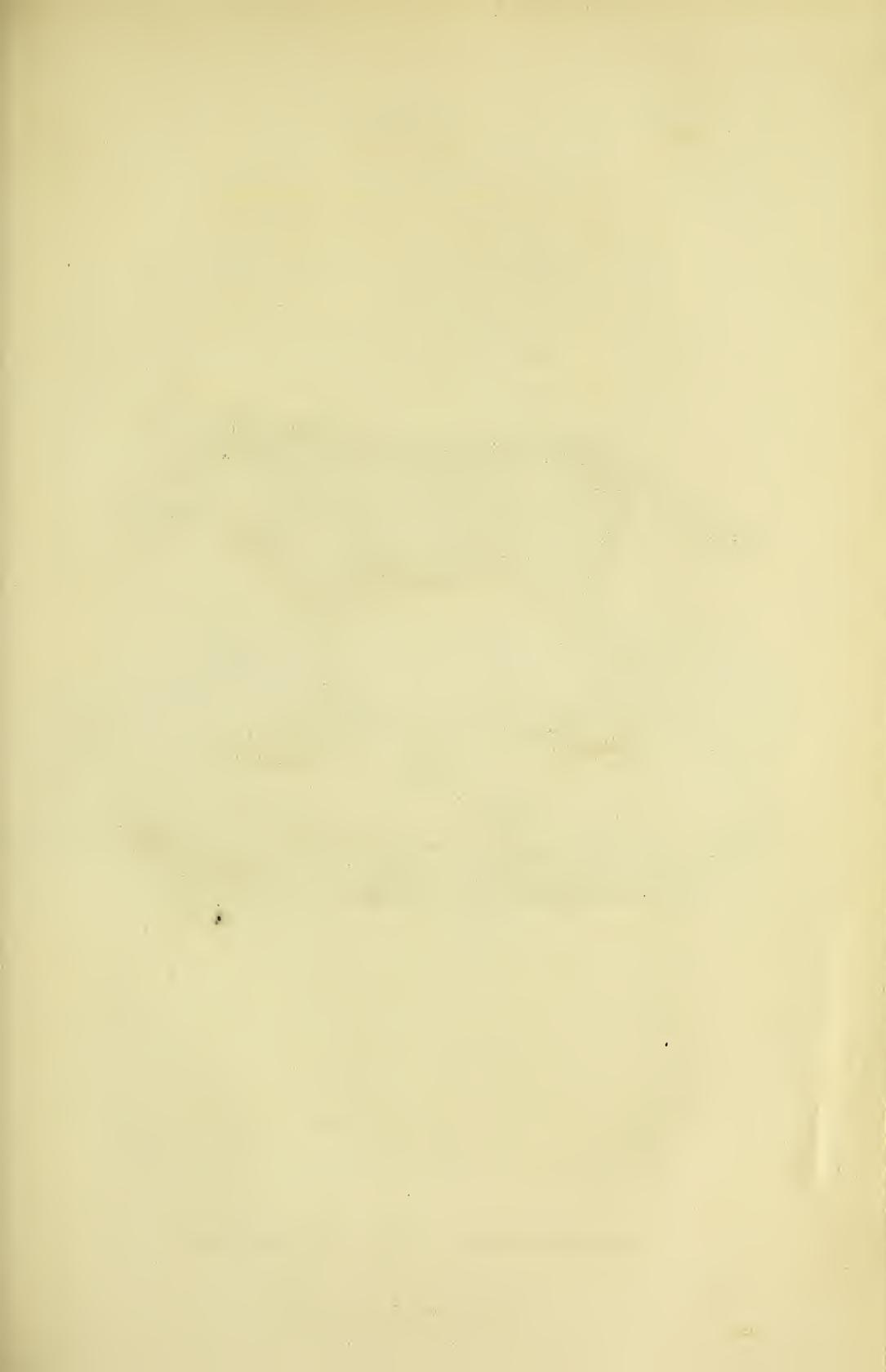
By wintry famine rous'd, from all the tract
Of horrid mountains, which the shining Alps,
And waving Apennines, and Pyrenees,
Branch out stupendous into distant lands ;
Cruel as death, and hungry as the grave !
Burning for blood ! bony, and gaunt, and grim !
Assembling wolves in raging troops descend ;
And, pouring o'er the country, bear along,
Keen as the north wind sweeps the glossy snow.

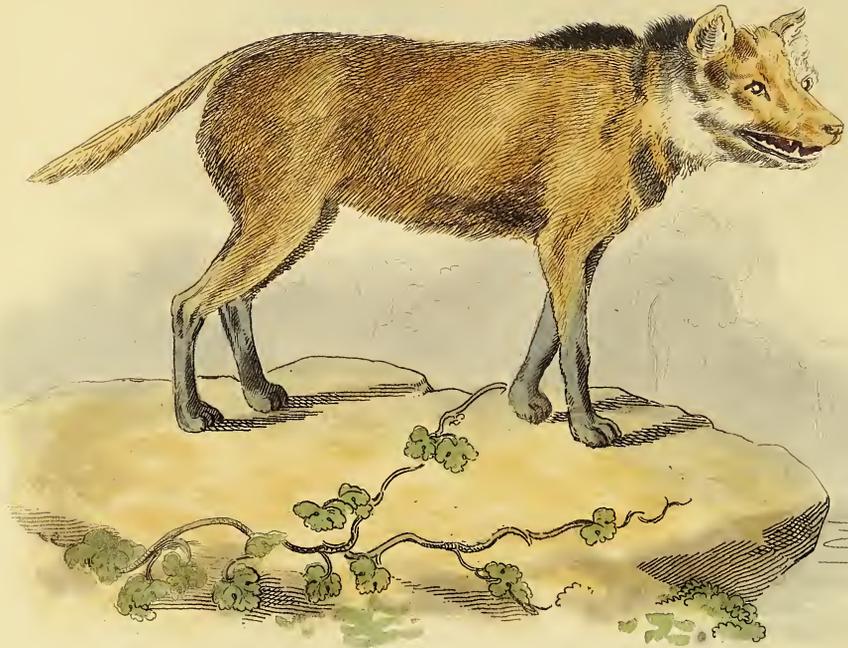
All is their prize. They fasten on the steed,
 Press him to earth, and pierce his mighty heart.
 Nor can the bull his awful front defend,
 Or shake the murdering savages away.
 Rapacious, at the mother's throat they fly,
 And tear the screaming infant from her breast.
 The godlike face of man avails him nought.
 Ev'n Beauty, force divine! at whose bright glance
 The generous lion stands in soften'd gaze,
 Here bleeds, a hapless undistinguish'd prey.
 But if, appris'd of the severe attack,
 The country be shut up, lur'd by the scent,
 On churchyards drear (inhuman to relate!)
 The disappointed prowlers fall, and dig
 The shrouded body from the grave; o'er which,
 Mix'd with foul shades, and frighted ghosts, they howl.

THE BLACK WOLF. LE LOUP NOIR.

Canis Lycaon.

This is said also to be found in Europe, Asia, and America. It is met with, though very rarely, in France; and Baron Cuvier has seen three black wolves killed in that country. Its fur is very harsh; and, unlike that of the black fox, with which it has been confounded, it is uniformly black. It bears a general resemblance to the common wolf, except in colour; and is generally something less, though it is said to be more ferocious.





THE RED WOLF. LE LOUP ROUGE.

CANIS JUBATUS Desmarest.

THE RED WOLF. LE LOUP ROUGE.

Canis Jubatus. Desm.

This animal is much like a common dog; and, when met with wild, may easily be mistaken for it. The general colour of the animal is red; deep on the back, and growing lighter toward the belly, where it is very light; and at the tail, and in the inside of the ears, nearly white. Under the jaws is a large white spot, surrounded with pale red. At the parting of the eyes the red passes gradually to black at the nose; so it does on the toes as it approaches the nails. Some way down the spine is a short mane, the hairs of which are black from about half their length to the end; whence Desmarest has named it *canis jubatus*. It is taller than the common wolf, and the tail is shorter; but it has the same crippled character about the haunches, which that animal possesses. It inhabits the low and marshy grounds of the hot and temperate parts of America, and is an excellent swimmer. Like most beasts of prey, it hunts during the night, and is generally found unaccompanied. It is very light, and quick of motion, and consequently well able to follow and seize its prey. Its howl may be heard to a considerable distance, and frequently disturbs the frightened sheep. Azara had one alive, which was about

three months old when taken : it was necessary to confine it ; and, when any one approached, the animal growled and barked in the manner of the common dog, but louder and more confusedly. It drank by lapping, and ate flesh both cooked and raw, pressing on it with the fore paw, while it pulled at and tore it with the teeth. He also mentions another, which was taken when adult, but could not be tamed : it died of chagrin from loss of its liberty.

THE ANTARCTIC DOG. LE CHIEN ANTARCTIQUE.

Canis Antarcticus. Shaw.

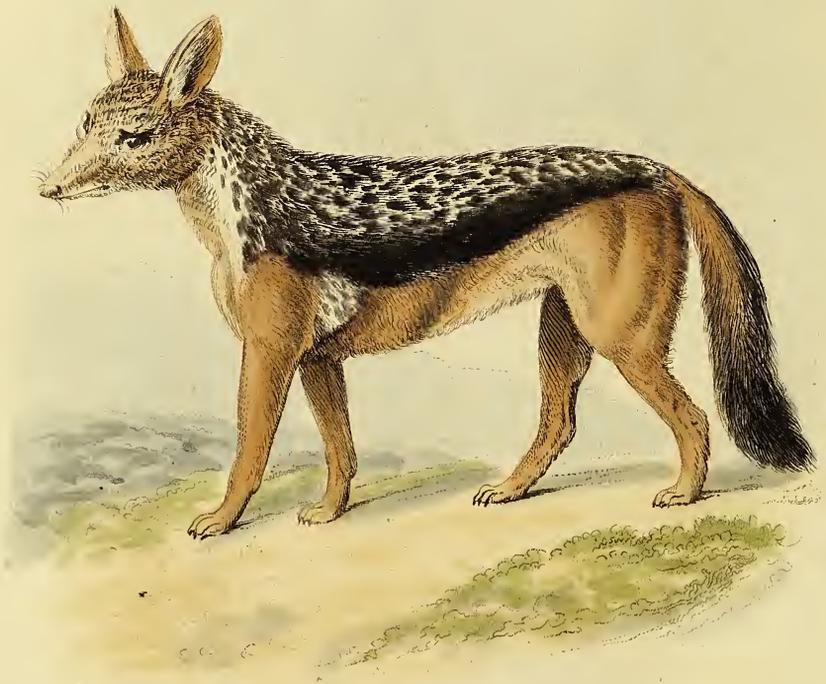
There is every reason to suppose, that this is the *culpeu* of Molina, which he describes as a wild dog, differing but little from the common fox, except in its size ; its colour, which is a dark brown ; and in having a long straight tail, covered with short hair, like that of the common dog. From the point of the nose to the root of the tail it is two feet and a half in length, and its height is about twenty-two inches. Whenever the *culpeu* perceives a man, it comes straight toward him, and, at the distance of five or six paces, stops and looks attentively at him. If the person do not move, the animal remains for some minutes in this situation, and, without attempting to do him any injury, retires. This singular curiosity of the *culpeu* is so well known to the in-



Goussier

THE ARCTIC DOG. *Refs.*

This should have been
The Jackal - or Spotted
Fox



THE CAPE FOX. RENARD MESOMELAS.

CANIS MESOMELAS Erxleben.

habitants, that no one is afraid of it. The name appears to be derived from the Chilian word *culpem*, which signifies madness, or folly; and is strikingly applicable to the conduct of this animal, which constantly exposes it to be shot by the hunters, and is probably the reason why it is less common in Chili than the fox, though it is equally prolific.

THE JACKAL. LE CHACAL.

Canis Aureus.

The jackal is less than the wolf, and measures about two feet six inches. The figure is from a specimen which was in the Tower. It is gregarious, and inhabits a great part of Asia and Africa, from India and the shores of the Caspian, as far west as Guinea. It is extremely voracious, and hunts frequently in packs, in the manner of the dog, which animal it approaches very closely both in conformation, and in a facility of disposition for being rendered tame and the associate of mankind. It emits a disagreeable odour.

Jackals are very numerous in Egypt; and Sonnini says, that the catacombs serve as a retreat for them. They go in large packs, and prowl round the habitations. Their howl is very disagreeable, particularly during the night; it is a kind of yelping, that may be compared to the shrill cries of children of different

ages. They greedily devour dead bodies, and filth of every kind. In a word, they are equally cruel and voracious, and are dangerous enemies even to man. Every thing that authors have said of the wolf, and even of the fox of Africa, must be understood of the jackal; for, granting that these animals have a considerable resemblance to each other, it is nevertheless true, that there are neither wolves nor foxes in Egypt.

Pennant describes as a distinct species the Barbary jackal, which Sonnini names *thaleb*. It appears not to be gregarious like the common jackal, but solitary; and Sonnini represents it to have much the manners of Molina's culpeu, not fleeing from a man, but appearing at first too much astonished at the sight to move, and then retreating silently and deliberately.

The jackal is said sometimes to satisfy its appetite with the refuse of the lion's meal; and, for the purpose of doing so, is thought to follow that animal. It is possible, that the lion may sometimes avail himself of the opportunity of seizing such animals as come within his reach, which have been started by the jackals when hunting in packs; and this incident has been converted into a friendly league between the two animals for mutual advantage, whence the jackal has been called, "the faithful spy of the king of beasts."

VERY few, if any, animals offer so much matter interesting to the observer of animated nature, as the varied races of the common dog. Its intellectual superiority over quadrupeds in general induces the thinking mind into a wide field of wonder and speculation, while the remarkable tendency to variety in person leads the physiologist to endeavour to trace out the causes of the facts he observes, and to apply them more generally to the whole animal creation. Every instance of a new variety being raised, and preserved hereditary, whether spontaneously or by human artifice, is an argument to show, that the countless forms, in which animal life exhibits itself to us, have sprung up probably in a very great, though unknown degree, during the lapse of ages; whence we seem naturally led on to inquire, whether all, or what proportion of the number of animals we find, may not have descended from a single pair, or a very few original stirpes or roots.

It is said, that the shepherd's dog, transported into the temperate climates, and among people entirely civilized, such as England, France, and Germany, will be divested of its savage air, its pricked ears, its rough, long, and thick hair, and, from the single influence of climate and food alone, will become either a matin, a mastiff, or a hound. The last, whether staghound, foxhound, or beagle, transported into Spain or Barbary, where the hair of quadrupeds in general becomes soft and long, will be converted into the land-spaniel and the water-spaniel, and these

of different sizes. The gray matin-hound, transported into the north, becomes the great Danish dog; and this, sent into the south, becomes the greyhound, of different sizes. The same, transported into Ireland, the Ukraine, Tartary, Epirus, and Albania, becomes the great wild dog, known generally by the name of the Irish wolf dog*. If these premises be correct, it seems to follow, that these varieties of the dog are not of original creation, but result from climate, or other unknown causes, acting on the first species.

In pursuing this observation in regard to animals which appear still more foreign from each other, we find, that the common dog breeds together with the wolf and the fox; and, although zoologists and comparative anatomists have ascertained, that there is a certain similarity of physical structure in all these animals, whence they have classed them in one genus, yet the wolf, the fox, and the dog, are very distinct animals, when not viewed scientifically. It has been already observed, that one or two species of the cats, as well as the whole genus of the hyænas, are nearly as much like dogs as cats, or, in other words, are really very like both these genera; and we may presume, not irrationally, that these intermediate species may sometimes breed, or may have, at some time, bred with either of the races they seem to approach. We have also noticed, that certain species of the cats approach nearly, if not completely,

* But these assertions must be taken rather as matters of probability than of ascertained truth.

to the weasels; and certain weasels, again, to the seals and bears; and these last to the herbivorous and granivorous races. Thus a pedigree as rational and perhaps not more presumptive than that on which a coronet or estate may depend, might be made out, connecting the different animals with a very few original progenitors, which went out from Noah's ark. Such physical hypotheses are susceptible of corroboration, if not of actual proof, by human industry and research; and, if founded on truth, may perhaps, in time, be satisfactorily established.

Conjectures on the intellectual, moral, or invisible works of the Creator are less capable of demonstration; and the moment they tend to oppugn the only certain knowledge we have of these subjects, which is derived from Scripture, they wander from truth to error, and lead to the miseries of a doubting mind, or the madness of infidelity.

The most eminent writers, poetical and prosaic, have exercised their oratory in describing and eulogizing these highly useful and interesting animals. The subjugation and domestication of them by man may be called reason's conquest of nature; and it is the most complete, singular, and useful conquest, man has ever made. It is true, that, in the refined state of society in which we live, this is not so apparent: but a little observation on the state of such of our fellow-creatures, as are yet beneath us in intellectual improvement, will probably satisfy us, that we owe, originally, much of our advance to, and progress in civilization, to the powers of the dog; and

there is too much of a vicious inclination in our nature, leading us to spurn the ladder, by which we have attained the elevation desired. The greatest naturalist of the present day observes, "The whole of this race is become our property. Every individual of it is absolutely devoted to his master: assumes his very habits; knows and defends his property; and is attached to him even in death: and all this not arising from the necessities of the animal, or the constraint of his master, but entirely from gratitude and pure friendship on the part of the former. His rapidity, strength, and the acuteness of his scent, have made him a most powerful ally of mankind against the other animals; and were, possibly, necessary to the establishment of civil society. Although change of place and climate may probably have contributed greatly to multiply the existing varieties of the dog, it is remarkable, that this animal is the associate of mankind in every climate and situation; while the generality of animals, especially those of a wild nature, are local, and very much circumscribed as to the parts they inhabit."

The females are pregnant sixty-three days, and produce, generally, three, four, or five at a time: but some of the more fertile species bring from six to ten; and I have been informed of one instance of a spaniel, which had thirteen whelps at a litter. They are born with the eyes closed, which do not open for ten days or a fortnight. They live, ordinarily, fourteen or fifteen years; but frequently

suffer much from age and decay in their latter days.

Mr. Pennant cites Galen, Hippocrates, and Pliny, to prove, that the ancients were fond of the flesh of dogs as food. He states, also, that the New Zealanders and inhabitants of the Society Islands eat them at the present day. The Chinese are said, also, to be fond of this sort of food, which is commonly sold in their markets; and the celebrated Captain Cook's recovery from a serious illness at sea was much accelerated by the broth and flesh of a dog.

Notwithstanding the endless varieties of the dog, and the near relationship, which numerous instances of the mixtures of the breeds evince with the wolf and fox, the dog, properly so called, is always distinguishable by its tail, which, in all cases, takes an arched direction, more or less perfect in the different varieties; and it is observed, that all dogs, which have any white about them, always have the tail tipped with this colour.

It would be desirable to arrange the varieties of this species in successive groups, as they diverge from the original stock; and much research has been made for this purpose, from which different opinions have resulted as to the original type in a state of nature, which has been so remarkably excited to variety by domestication or other causes. Some have considered the dog as a domesticated wolf: others think it is a jackal; and many, observing that wild dogs are found always to have the

ears erect, have from this circumstance, principally, concluded, that the shepherd's, or wolf-dog, is the original root. Since, however, the shape of the head has so much excited the attention of naturalists, it has been found, that some dogs correspond more in this particular with the wild dogs than with any domesticated variety; and the dingo, or New Holland dog, a half reclaimed animal, and its like, are placed at the head of the list, as being supposed to be nearest to the wild and original stock. Thus Mr. Frederic Cuvier has arranged the varieties of the dog, upon this principle, into three groups, each differing materially in the shape of the head, and the length of the jaws and muzzle.

Without attempting to determine which of the known varieties is the most ancient, or to decide upon the claim of pureness of blood and descent, to which each may pretend, we shall merely refer to the anatomical principles, which form the groundwork of this arrangement.

The first of these, which includes the greyhounds and their consimilars, have the head more or less elongated; the parietal bones insensibly approaching each other; and the condyles of the lower jaw placed in a horizontal line with the upper cheek-teeth.

The next group of dogs includes much the most intelligent, interesting, and useful varieties. Their head and jaws are shorter than those proper to the first division, but they are not so completely truncated as in those of the third. To speak anatomically, the parietal bones do not approach each other above

the temporal fossæ, but, on the contrary, they widen so as to enlarge the cerebral cavity and the forehead. The spaniels, hounds, shepherd's, and wolf-dogs, and the still more useful Siberian and Eskimo races of this genus, are included under this description.

The third subdivision of the dogs has the muzzle more or less shortened; the frontal sinuses considerable; and the condyle of the lower jaw extending above the line of the upper cheek-teeth. The construction of the heads of these animals renders the capacity of the cranium smaller, when compared with the jaws and face, than in the preceding divisions.

THE DINGO, OR NEW HOLLAND DOG.

The head and elongated snout of this half-wild variety are like those of a fox. In its other proportions it agrees with the shepherd's dog. It is about two feet six inches long, and about two feet high. The fur, composed both of silky and woolly hairs, is of a deep yellowish brown colour, lighter on the lower parts of the body.

It is very voracious and fierce; and Mr. Pennant mentions one, that was brought to this country, which leaped on the back of an ass, and would have destroyed it in a short time, had not the animal been rescued. It is very active, and runs with the tail stretched horizontally, the head elevated, and the ears erect.

THE DHOLE,

Or wild dog of the East Indies, is made like the dingo, but the hairs of the tail are not bushy. It is of a uniform bright red colour, and is found in South Africa, and in various parts of the East, where it is named dhole.

The South American half-reclaimed variety is about the size of a spaniel. The head has much of the character of the last, but the hairs are longer, particularly on the tail. The back is brown-gray; the spots on the flanks and legs are ochrey; and the ground colour is gray, lightest on the belly.

This animal is very much like a wolf; and probably the same as is noticed by the early voyagers to America, who assert, that the Indians tamed wolves.

THE NORTH AMERICAN DOG

Of the Indians is also a half-tamed breed, which differs materially from the South American race, though it corresponds, apparently to identity, with the dogs found in the Falkland Islands. It is said, indeed, that the Spaniards landed this breed of animals on these islands after the Falkland Island dis-

pute with England, in order to make any attempt of our countrymen to settle there difficult or impossible.

We present portraits in outline of these half-reclaimed varieties of the dog, in order to show their similarity in the length and shape of the muzzle and head. They are from drawings of the respective animals by Major Smith, from specimens indigenous in Asia, Africa, and North and South America. And it is worthy of observation, that, although the endless domesticated varieties of this genus differ so materially from each other, from the pointed nose of the greyhound to the truncated muzzle of the bulldog, the wild dog, wherever it may be found, has the elongated jaws of the dingo, dhole, and North and South American semi-barbarous breeds here portrayed, as well as that of the wolf and fox. These may, therefore, be said to exhibit a sort of average representation of the wild dog all the world over.

The following brief sketches are of the most prominent domesticated races.

THE ALBANIAN DOG.

This breed has been noticed by historians, naturalists, and poets, ever since Europe first began to be raised into consequence and importance. A supernatural origin, and infallible powers, have been attributed to it. Diana is said to have presented

Procris with a dog, which was always sure of its prey; together with a dart, which never missed its aim, and always returned to its owner. To the former the canine genealogists of antiquity attributed the origin of the celebrated race of the south-east of Europe, particularly Molossus and Sparta. The very fine breed of dogs, now found very plentifully in this corner of Europe, particularly in Albania, accords with the descriptions existing of its progenitors, indigenous in the same countries, and does not seem to have degenerated.

They are as big as a mastiff; their thick fur is very long and silky, generally of different shades of brown; their tail is long and bushy; the legs seem more calculated for strength than excessive speed, being stouter and shorter than those of the greyhounds; their head and jaws are elongated, and the nose is pointed.

THE FRENCH MATIN. LE CHIEN MATIN.

Canis Laniarius. L.

The French writers seem to consider this variety or breed as the most important of the race, and as the progenitor of many others; the reason for which is not very apparent, unless it is, that a venial patriotism is apt to decide in favour of our own country, when certainty and truth are unattainable. Mr. Pennant

identifies it with the Irish greyhound (*canis graius Hibernicus* of Ray), and there certainly seems every reason to conclude, that the Molossian or Albanian breed, the French matin, and the Irish greyhound, possibly, also, the Danish dog, and the greyhound and its varieties, are ramifications from each other.

This variety has the head elongated, and the forehead flat; the ears are partly erect, but pendulous toward the tips. It is about three feet long, and two feet high; very muscular, but active. The colour is ordinarily a yellowish fawn, with blackish, oblique, and parallel, but indistinct rays. It will attack the wolf or wild boar eagerly, but is more commonly used in France as a house or sheep-dog.

THE IRISH GREYHOUND

Is much like the last, if not the same animal; but is said to attain a larger size, and is sometimes seen four feet in height. It is to this breed, that the Irish owe the extirpation of wolves from their island, since which time the race has gradually disappeared, and is now become extremely rare.

THE GREAT DANISH DOG, LE GRAND DANOIS,

Is presumed, by Buffon, to be the matin transported to a northern latitude. It is commonly white, marked all over with small round black spots; and

is generally used as a stable-dog, and to accompany a carriage.

THE COMMON GREYHOUND. LE CHIEN LEVRIER.

Canis Grajus. L.

This variety is familiar to every one, and is very remarkable for its elongated jaws and compressed head, as well as for its speed, which exceeds that of all other dogs. It is frequently without the fifth toe; and, in some individuals, this peculiarity occurs on the hind feet, but not on those before.

THE SCOTCH GREYHOUND

Has long, curling, stiffish hair, generally white, inclining to a reddish brown tinge. It is also called the wiry-haired greyhound.

THE RUSSIAN GREYHOUND

Has also long and bushy hair. The tail forms a spiral curl.

THE ITALIAN GREYHOUND.

THE TURKISH GREYHOUND.

These are small varieties of this group, which are very timid, and seem to suffer much from the cold of this part of Europe. The former is either white or sable coloured. The latter has the skin nearly naked.

These which next follow are included in the second subdivision of the dogs of Mr. F. Cuvier, before alluded to.

THE SHEPHERD'S DOG. LE CHIEN DE BERGER.

Canis Domesticus. L.

This well known animal is covered with long shaggy hair, and has little personal beauty to recommend it. The colour is, in general, varied black and gray. The ears, unlike those of most of the domesticated varieties, are short and erect; and the tail, which is bushy, is sometimes found directed horizontally, or even pendant, but more generally a little curved.

The peculiar and eminently useful services of this variety to the shepherd appear almost to arise from an intuitive disposition in the animal, rather than from laboured training ; at least, there is an astonishing aptness exhibited by it in acquiring its lesson ; with an apparent interest, patient perseverance, and courageous fidelity, accompanied by a discriminating sagacity in the performance of its task, when acquired, as notorious as it is surprising.

An instance is recorded of a young farmer, in Cumberland, who had the misfortune to break his leg while at some distance from his home, during a very severe winter. In his distress he hit upon the expedient of tying his glove, in his handkerchief, round the neck of his dog, of this description, which, at the word of his master, ran off home, and returned with the anxious father of the young man, who rationally concluded, that some mischief had happened, the nature or extent of which was, of course, unknown to him till he found his son.

This breed is confined to the temperate and southern parts of Europe ; and in England there are two varieties of it ; first, the shepherd's dog, properly speaking, or that which is the usual attendant on the flocks while in their pastures ; and, secondly, that which may be called the drover's dog, which is larger than the former, and more usually employed to assist in driving sheep to the London market.

THE TERRIER.

Two distinct varieties are used for the purpose of entering the burrows of foxes, badgers, &c. in hunting, both of which are thence called terriers.

The first is generally black on the back, sides, head, and tail; but has the belly, neck, paws, and tip of the tail a bright or reddish brown, with a spot of the like colour over each eye. The hair is short; the tail is carried slightly curved upwards; the ears are short and erect; and the snout is moderately elongated. Though small, it is a very resolute dog, and a determined enemy of rats, rabbits, and many other animals, in the pursuit of which it evinces an extraordinary and untaught alacrity. Some of them will even draw a badger from his hole*.

The other species of the terrier alluded to is generally of a dirty white colour, except about the eyes and ears, which are brown. It stands higher before than behind; has the muzzle more truncated than the other, and beset with stiff bristles; the hair all over is rather long and curly; and the ears are partly erect and partly pendulous.

* I have a favourite dog in my possession, the offspring of a bitch of this breed and a tame fox, belonging to Lord Cranley, which is excellent as a house-dog, as well as for the destruction of vermin.

It is now sufficiently notorious, that the common dog will breed both with the wolf and fox.

This is, perhaps, in general, more powerful than the other. It is equally courageous, and quite as well fitted for the purposes from which they both take their name. It is sometimes called the Scotch terrier.

THE WOLF, OR POMERANIAN DOG, LE CHIEN LOUP,

Canis Pomeranus, L.

Has the hair short on the head, feet, and ears, but long and silky on the body and tail. It is white, black, gray, or yellowish in colour; and has almost all the sagacity of the shepherd's dog, accompanied with much more strength. It is also used as a guard for the flocks, particularly in countries pestered with the wolf, which it never fails to attack with success, while the former can only frighten that animal.

THE SIBERIAN DOG.

Canis Sibiricus. L.

This appears to be nearly related to the last, and very like it, except that it is covered with long hair, even on the head and paws. Mr. Pennant adds, that the other varieties in the inland parts of Russia and Siberia are chiefly from the shepherd's dog; and there is a high-limbed, taper-bodied kind,

the common dog of the Calmuc and independent Tartars, excellent for the chase, and all other uses.

This breed is trained to the most important services in its cheerless native country, which appear to be very ill repaid, if the accounts we have of their treatment be correct. During the short Siberian summer, they are said to be turned adrift, to seek their own sustenance; and at the commencement of winter they are taken home for a series of fatiguing labour. Four of these dogs are attached by pairs to a sledge, and before them is placed a leader, on the good training of which much of the utility of the set seems to depend. These sledges carry but one person, who guides them principally by his voice, with the assistance of a stick, and of reins fastened to the collars of the dogs. It is said they will thus draw a sledge between seventy and eighty miles in a day; and when the falling snow hides the beaten track from the sight of their master, they will keep or regain it by the power of their scent.

THE ESKIMO DOG.

This highly useful breed is described by Mr. Desmarest as having the head shaped like that of the wolf-dog; the tail spreading and curved; and the ears erect. The hair is of two sorts; one silky, which is thinly scattered; the other woolly, which is extremely thick, very fine, and curly, and may be pulled off in flocks from the animal. The colour is black, or reddish gray, with large marks of white.

THE HUDSON'S BAY DOG.

The opposite figure is from one of these animals, brought to England by Captain Ross, in his late expedition, and is now in the British Museum.

THE SPANIEL. L'EPAGNEUL.

Canis Extrarius. L.

The spaniel has the hair very long in parts. It is generally white, with large brown, liver-coloured, or black spots, of irregular shape and size. The nose is sometimes cleft. The ears are very long and pendulous, and covered with long hair. This race came originally from Spain, whence its name.

THE SETTER.

The setter is sometimes called the English spaniel. It corresponds in every point with the true spaniel; but is trained more immediately for field sports.

THE ALPINE SPANIEL.

The Alpine or St. Bernard's variety of the spaniel breed exceeds all others in size and beauty. It ge-

nerally reaches two feet in height at the shoulders, and full six feet from the nose to the end of the tail. There is a peculiarity about the corners of the eyes of this animal, which is attributed to the snow, and to the high windy regions it inhabits.

Two of these dogs are sent out to scour the mountain, in search of lost or wearied travellers; one with a warm cloak fastened on his back, the other with a basket tied round his neck, containing a bottle of cordial. They are frequently of the most eminent use in meeting the traveller, in these snowy and dangerous regions, in time to lead him to the convent. It is said, that, in cases where a man has been found by them in an exhausted state, perishing with cold and fatigue, they will lie close to him, and afford warmth from their own bodies, to assist his resuscitation.

THE NEWFOUNDLAND DOG.

This admired species is also highly useful in its native country and climate, where it is employed for many purposes of labour, particularly drawing wood on sledges to the sea-coast, which they do without a driver, and return by themselves for more. Four of them are said to draw three hundred weight, on these sledges, a considerable distance.

They are fitted by nature and inclination for the water, being semiwebbed between the toes, which

greatly facilitates their swimming; and many instances are to be found of their saving persons from drowning. Their disposition is extremely docile, though their powers are great.

THE SMALLER SPANIEL. LE GREDIN.

KING CHARLES'S DOG. LE PYRAME.

Canis Brevipilis. L.

This is a small variety of the spaniel, prized as a fancy lap-dog in proportion to its diminutiveness. It is sometimes found entirely black, and is then called, in England, King Charles's dog, from the liking evinced by our second Charles for this variety.

THE MALTESE DOG. LE BICHON.

THE LION-DOG. LE CHIEN LION.

Canis Leoninus. L.

These, also, are small species of the spaniel. The first is supposed to have sprung from the intercourse of the little spaniel with the smaller water-dog. It

has the hair, all over the body, extremely long and silky, and generally pure white. The other has long silky hair about the head, neck, shoulders, and extremity of the tail; but on the other parts it is short, giving the little animal a leonine appearance. It is probably bred between the little spaniel and one of the naked varieties.

THE GREAT WATER-SPANIEL, LE GRAND BARBET,

Canis Aquaticus, L.,

Has long, curly hair, and is, in other respects, much like the large land-spaniel; but the head is larger and rounder.

The small water-spaniel is presumed to be the offspring of the great water-dog and the little spaniel. It is very much like the former animal; but the curly hair is more silky, and like that of the land-spaniel.

There is also a useful variety of this breed between the water-spaniel and shepherd's-dog.

These animals are used as finders in shooting water-fowl, which their great fondness for water, and consequent aquatic habits, enable them to bring to the sportsman when the birds are shot, and have fallen into this element.

THE HOUND. LE CHIEN COURANT.

Canis Sagax. L.

The hounds have the muzzle nearly as long as that of the dogs included in the first division, but much larger; their head is large and round; the ears are large, long, and pendulous; the limbs long and strong; the body is thick and long; the tail elevated; the hair uniformly short, and the colour is white, with large irregular, black, brown, or yellow patches.

The largest variety of the hound, used for stag-hunting, is also sometimes trained to follow the scent of blood, and is thence called the blood-hound. This variety was formerly much fostered in Great Britain; and was probably of particular use during the existence of the severe forest-laws. It is still kept and trained in the New Forest in Hampshire; and a late instance, recorded by Mr. Bingley, evinces its utility. The marks of blood were found on a stile; and, as it was known that both deer and sheep had been lately stolen in the neighbourhood, a blood-hound was brought to the spot, and laid on the scent. After following for about a mile the track which the depredator had taken, it came at last to a heap of furze faggots, belonging to the family of a cottager. The woman of the house attempted to drive the dog

away, but was prevented; and, on the faggots being removed, a hole was discovered in the ground, which contained the body of a sheep recently killed, and also a considerable quantity of salted meat. The dog was not brought to the scent until more than sixteen hours after the sheep had been stolen.

The king of Saxony kept a breed of hounds of immense size and powers for boar hunting. They were larger and taller than our largest mastiff, and had the transverse dark shades on the body, which characterize this animal in general rather than the hound. The ground colour was white, and the markings of a reddish or brownish yellow in the different individuals. There is, in the museum of Dresden, a dwarf dog, which attained two years of age. Major Smith observed, that this diminutive animal measured only five inches and a half in length, which was just the length, from the corner of the eye to the tip of the nose, of a specimen of the Saxon boar-hounds he saw.

The fox-hound is a smaller variety of the stag or blood-hound, used in fox-hunting. It is extremely persevering in the chase.

The harrier is a still smaller variety of this species, used in hare-hunting. There are, again, particular breeds of the harrier, as the beagles, and southern hounds, which rather interest the sportsman than the zoologist.

The name of talbot appears to have been applied to the several varieties of the hound.

THE POINTER. LE CHIEN BRAQUE.

Canis Avicularius. L.

The muzzle of this variety is rather shorter and smaller than that of the hounds in general; the head is shorter; and the ears, which are smaller, are partly erect and partly pendulous. There is a large breed, called the Spanish pointer, which is considered as having greater acuteness of scent than the smaller or English pointer. The Dalmatian pointer is a beautiful spotted kind, which is white, with very small black or yellow spots. It is sometimes erroneously called the Danish dog.

THE TURNSPIT. LE CHIEN BASSET.

Canis Vertagus. L.

There are two varieties of the turnspit; one with the fore legs crooked, the other with the legs straight. The head is like that of the pointer and hound.

The third subdivision of Mr. Frederic Cuvier includes the following varieties.

THE BULL-DOG. LE CHIEN DOGUE.

Canis Molossus. L.

The round, thick head, turned-up nose, and thick pendulous lips of this formidable dog, are familiar to all. The nostrils of this variety are frequently cleft.

The want of that degree of discernment, which is found in so many of the canine varieties, added to the ferocity of the bull-dog, make it extremely dangerous, when its courage and strength are employed to protect the person or property of its owner, or for any domestic purpose ; since, unlike many of the more sagacious, though less powerful dogs, which seem rather more anxious to give the alarm, when danger threatens, by their barking, than to proceed immediately to action, the bull-dog, in general, makes a silent but furious attack ; and the persisting powers of its teeth and jaws enable it to keep its hold against any but the greatest efforts, so that the utmost mischief is likely to ensue, as well to the innocent visitor of its domicile, as to the felonious intruder.

The savage barbarity, which, in various shapes, is so apt to show itself in the human mind, particularly when unchecked by education and refinement, has encouraged the breed of this variety of the dog, in

order that gratification may be derived from the madness and torture of the bull and other animals, when exposed to the attacks of these furious beasts; and it is observed, that, since the decline of such sports, bull-dogs have diminished in number; an instance whence we may learn, how much the efforts of mankind operate on the domesticated genera of the animal kingdom.

There is said to be a variety of the bull-dog found in Thibet, which is of a black colour.

The pug-dog may almost be called a diminutive variety of the bull-dog, to which it is nearly assimilated in appearance, though its tail is more curled. But this animal differs altogether in disposition from the bull-dog, being as timid, as the other is courageous.

THE MASTIFF. LE CHIEN DE FORT RACE.

Canis Anglicus. L.

This powerful breed is considered as English; it is said, however, to be bred between the Irish wolf-dog and the bull-dog. The ground-colour is generally a dirty white, with numerous dark hairs all over the body, and transverse stripes of a darker hue. It is a very large and powerful dog, and being much more capable of training, and not less courageous than the bull-dog, it is much fitter for do-

mestic purposes. It is frequently known to protect its master's house and property by menaces only, even when a stranger is completely within its power; and will not be excited to violence, unless an imprudent perseverance should render it necessary for the protection of its charge: and, in such cases even, it has been known to pull a man down, and stand over without hurting him a considerable time, till its master appeared.

This breed was assiduously fostered by the Romans, while they had possession of this island; and many of them were exported to Rome, to combat other animals in the amphitheatre.

There is a degree of generosity about this animal, which commonly attends true courage; and, as if conscious of its superiority, the mastiff has been known to chastise with great dignity the impertinence of an inferior. An instance is recorded of one, which, being frequently molested by a mongrel, and teased by its continual barking, at last took it up in its mouth by the back, and, with great composure, dropped it over the quay into the river, without doing it any further injury.

Buffon's work, with Daubenton's additions, contains figures of the German dog, or mopse; the Iceland dog (c. d' Islande); the little Danish dog, which is said to be improperly named, as there is no similarity of make or size between this and the great Danish dog; the bastard pug; the Artois dog, which is supposed now to be extinct; the naked,

or Turkish dog; and a variety of it with a sort of mane.

To the foregoing profiles of wild dogs from distant parts of the earth, resembling each other almost to identity, specimens are selected for the opposite plate, which exhibit the disparity in the shape of the head and jaws, incident to the domesticated varieties, that have induced the modern subdivisions of this variable race.

Fig. 1. represents the common greyhound. Fig. 2. the spaniel of Mont St. Bernard. Fig. 3. the boarhounds of the King of Saxony, beforementioned. And Fig. 4. the bull-dog.

Fig. 1.

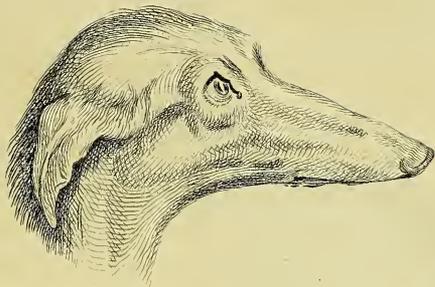


Fig. 2.

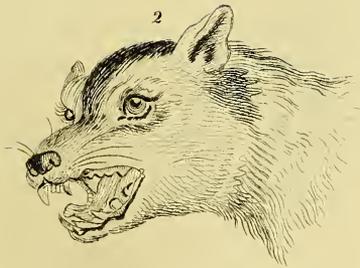


Fig. 3.



Fig. 4.





THE FOXES.

THE foxes exhibit very slight physical differences from the dog tribe in general : the leading characters of the teeth and nails are the same, except that their upper incisor teeth slope a little outwards ; and the principal aberration from the common type is in having the pupils of the eyes oval, and not round, like the dogs in general ; their tail is something longer, and more bushy ; and the muzzle is more prominent and narrow. They emit a fetid odour, and burrow under ground. There are many species, or varieties.

THE COMMON FOX. LE RENARD ORDINAIRE.

Canis Vulpes.

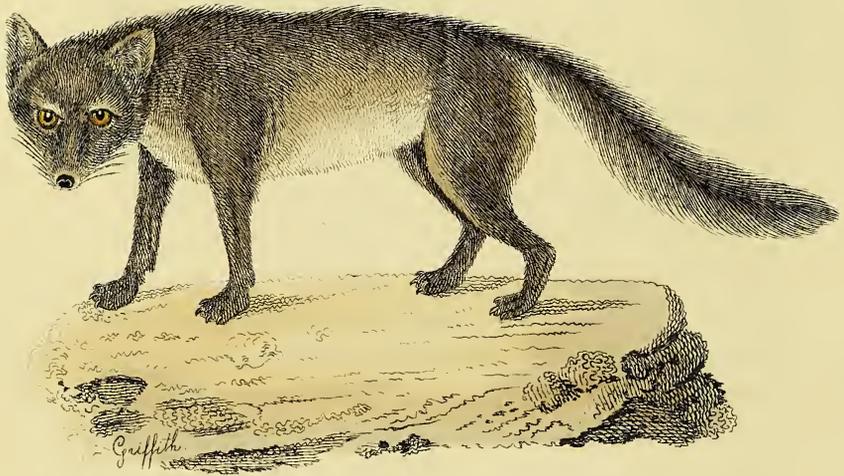
The common fox is about the size of the jackal. It is yellowish above, and white on the belly ; but the hind part of the ear is black. The tail is very bushy, and terminated by some black hairs.

The fox, in general, remains in its subterraneous hole during the day ; providing itself with this retreat not in the depths of the forest, but at its borders, and not far from human habitations, in and about which it principally seeks its prey.

Old Æsop, the amusing companion of our youth, and instructive moralist of our riper years, has represented the trickery of wily men so frequently under the crafty, subtle character of the fox, that poor Renard has ever been viewed through the medium of a certain degree of prejudice. It is, however, doubtless very adroit in its vocation; and "barks not when it would steal the lamb." When it attacks a poultry-yard, it generally kills all it finds, and carries off successively to its retreat as many as it can before daylight and danger warn it to desist. Eggs, milk, fruit, especially grapes, and honey, are all acceptable to it, as well as the smaller quadrupeds, and fishes.

A variety of the fox is found, principally in Alsace and Burgundy, which has been frequently described as distinct, under the name of *alopex*. It is of a something deeper red colour, and the fur is thicker than in the ordinary fox, which latter peculiarity gives it a more thick and squat appearance. Some, also, are found, which have more black hair than common along the dorsal line, and across the shoulders, and these have been called the European cross fox. The cross disposition of black stripes is met with in three or four species or varieties of the fox; but the distinctive epithet is applicable, properly, only to a South American species, very distinguishable by this peculiarity.

The Egyptian fox is treated as distinct by Geoffroy, under the name of *canis Niloticus*. It differs in a very slight degree from the common species.



THE ARCTIC FOX. *L. ISATIS*?

CANIS LAGOPUS?



Griffith

THE ARCTIC FOX. L'ISATIS.

CANIS LAGOPUS. Schreb.

THE CORSAC.

Canis Corsac. Gm.

This animal, described in Guldenstedt's Voyage, is the smallest species of the fox, not being larger than a small cat. It is of a uniform grayish yellow colour, with the tip of the bushy tail black; and the ears are large. It is gregarious; and digs retreats in the earth. It emits a disagreeable odour.

THE ARCTIC FOX. L'ISATIS.

Canis Lagopus. L.

The Arctic fox exhibits in a remarkable degree the mutation of colour, which certain Polar animals seem to undergo on the change of seasons.

It is an inhabitant of the mountainous and open countries of the Arctic region, where it burrows under ground during the short time that the earth is soft enough for this purpose.

The opposite white figure of the Arctic fox represents it in its winter dress. The other is of one in its summer dress, which is now living in the British Museum. It was brought from Spitzbergen by Capt.

Ross, when on his voyage of discovery. During and until near the conclusion of the process of the mutation of its colour, the animal looks very rough and ragged; but when the change is completed, the colour is uniform, as is represented during summer, and of a pure white in winter. In summer it is sometimes observed to have a dorsal line of a darker colour, with transverse stripes on the shoulders, whence it has, occasionally, been identified with the cross fox. The paws are entirely covered with long hairs; those on the other parts of the body are about two inches in length.

But it is not without hesitation, that the figure of Captain Ross's fox is inserted under the name of lagopus. Its general make and appearance approach nearer the common fox than to the common Arctic species; but in its colours, and their change, it is assimilated to the latter.

There is also a variable fox, an inhabitant of the Arctic regions, which has the tips of the ears and tail black, like those of the variable hare.

A beautiful black species is also sometimes seen, which is distinct both from the *canis lycaon* of Linnaeus and the *canis argentatus* of Geoffroy.



THE FULVOUS NECKED FOX. BERNARD TRICOLOR. THE AMERICAN CROSS FOX in Winter

CANIS CINEREO ARGENTEUS . L .

CANIS DECUSSATUS .



THE CAPE FOX. RENARD MESOMELAS.

CANIS MESOMELAS Erxleben.

THE CAPE FOX. LE RENARD DU CAP.

Canis Mesomelas. L.

The pointed muzzle, long bushy tail, and more especially the elliptical pupils of the eye, distinguish the subdivision of foxes from the other species of this genus. These characters determine this animal to be a fox, although it has been very generally called the Cape jackal. The marks are very singular, and are represented in the opposite figure of a Cape fox, which was recently exhibited in London. It is about the size of a small dog. These animals are found about the Cape of Good Hope, and are represented as having the habits and manners of the jackal.

THE TRICOLOURED FOX. LE RENARD TRICOLOR.

Canis Cinereo-argenteus. L.

The tricoloured fox is an inhabitant of South America, dwelling either in the interior of the forests, or in holes in the earth, in the open country.

It is said to be easily tamed, if taken young; and in this state will be very playful with those it knows, distinguishing the family of its keeper from strangers.

If a dog enter its master's dwelling, it immediately makes great show of courage, and drives the intruder out, but will associate with the dogs of the house. Its propensity to sleep during day, when domesticated, indicates sufficiently its nocturnal habits in a state of nature. Notwithstanding its perfect tameness, Azara states, that it is not easily compelled to enter or quit any place, but will rather submit to blows, which it answers by growling.

All the manners and all the cunning of the European fox are attributed to this animal in America, where it is said to be the legitimate representative of its wily congener on this side the Atlantic.

THE SILVER, OR BLACK FOX. LE RENARD ARGENTÉ.

Canis Argentatus. Geoff.

THE CROSS FOX. LE RENARD CROISÉ.

Canis Decussatus. Geoff.

There seems to be considerable probability, that these are mere varieties, or the same species, seen at different seasons. Indeed, foxes seem so much liable to change their colour, particularly in high latitudes, that much observation and caution are necessary, before different individuals are treated as distinct species, on account of any actual difference of colour ;

and even if one of them be kept in this country, and no change be found to take place, it is not to be therefore concluded, that it would not alter in its own country, in which it may be principally, if not entirely, exposed to the requisite excitement.

The skin of the silver, or black fox, is highly esteemed by the furriers. It is very silky, and of a beautiful black, but with the tips of many of the hairs of a fine silvery white; and the end of the tail white. It is shaped like the common fox, but is said to be less in size. Specimens have been brought from the North of America, as well as Asia.

The cross fox is described, by Geoffroy, as a South American animal, as big as the common fox. The fur is varied with black and white, giving a gray appearance on the upper part of the body, with a black stripe placed transversely over the shoulders. The muzzle, lower part of the body, and paws, are black; the flanks, and parts about the anus, have a yellow tinge; and the extremity of the tail is grayish white.

The opposite figure is from a drawing of Major Smith's, done from the life in America. The animal appears referable to the cross fox of Geoffroy, which is, probably, a mere variety of the silver, or black fox of the same naturalist: but as the reddish yellow colour of the forehead; the white band, passing from the back of the mouth under the eye, and terminating in the ear; the fox-coloured ring round the throat; the general inclination to a yellow brown tinge of the

body; and the annuli on the tail, are not noticed; it appears, that this specimen was probably either a variety, or was seen in its summer dress.

We shall merely mention several other foxes, that have been named by writers, without attempting, from want of data, to determine which of them may be distinct, and which the same described under different names; premising, that much difficulty exists on this subject, from the changes many of these animals undergo in colour at different seasons.

The Virginian fox of Catesby, of a silvery gray colour.

The yellow fox of Desmarest, very like the common fox, but which presented a slight anatomical variety in the shape of the crêtes laterales.

The red fox of Bartram, from Florida, entirely red.

The Surinam fox of Pennant (*canis thous*, Gm.), gray all over.

The Bengal fox of Pennant, a small species, the body of which is pale brown.

The sooty fox of Pennant, which appears to correspond with that found in the Arctic regions.

PLANTIGRADES.

THE plantigrade carnivorous animals are they which bring all the under part of the foot, as far as the heel, in contact with the ground in walking or running; the whole of which is denuded, or without hair, and is generally callous, the better to protect it from injuries it might otherwise receive from the hardness or sharpness of stones, &c.; their nails, though generally very long, and much curved, are exposed to injury and wear, as they are not at all retractile.

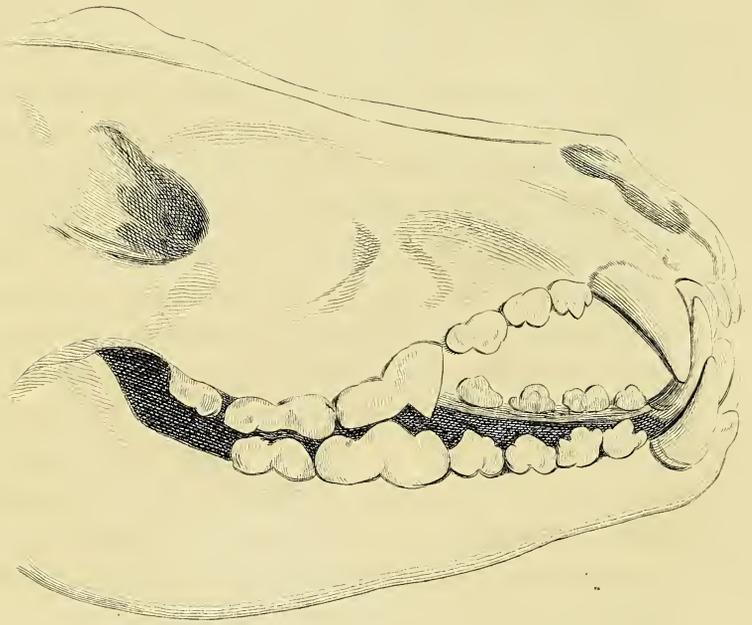
By this arrangement of the feet they are necessarily less expeditious in their locomotion than the digitigrades, and are therefore by so much the less qualified for predacious habits; as their claws are little fitted for such purposes, it is principally on their teeth that they rely for attack and defence; and an examination of these will show, decidedly, that they qualify them as little for the tearing and masticating flesh, as their other physical properties for the pursuit and destruction of living prey. They may therefore be considered the second principal gradation of carnivorous animals; or may, indeed, be treated as semicarnivorous; for, although they feed on flesh, when they can obtain it, they can be sustained altogether on herbs, a peculiarity which enables many of them to inhabit parts, where they

would frequently famish for want of animal food, if this were necessarily their only sustenance. The Creator, therefore, while he has thought fit to give them an appetite for a carnivorous regimen, has only partially empowered them to gratify this propensity; but he has, at the same time, enabled them to subsist on vegetable matter, which is denied to the digitigrades, or more perfectly carnivorous animals: the latter can live only so long as they can get flesh to eat, and their powers of procuring it are therefore proportionate to their necessities; but these, when they are not able to obtain flesh, can live without it; it is not, altogether, vitally necessary for them, and their powers of offence are therefore limited: what is denied to them on the one hand, is granted on the other.

The construction of the hinder feet of the plantigrades enables them, though awkwardly, to stand erect on them alone*, which the digitigrades can by no means accomplish.

Their habits are generally nocturnal, and many of them, which are proper to the Polar countries, remain lethargic during the winter, concealed in caves of their own making, for which they are well calculated by their long, crooked, and strong claws.

* The hind legs of the bear are not very dissimilar to human legs, which has enabled the itinerant exhibitors of animals, to impose on simple credulity by showing a shaved bear, cruelly strapped in a sitting position in a chair, for a human being, found in a wild and savage state.



TEETH of the GENUS

CANIS.

THE BEARS.

THE genus *ursus* includes the largest and most powerful of the plantigrade animals. They have six incisor teeth, two large and long canine teeth, and six cheek-teeth on each side: the first three of these are very small, and appear to be almost useless, as they do not appear during the nonage of the animal, and fall out when it is old: beyond these are the three principal teeth, which are rounded, and consequently ill qualified for tearing flesh; but, as they do eat it, the middle one of these three, or the penultimate tooth in the jaw, may be said to correspond with the large carnivorous tooth found in the digitigrade animals; the last, which would then agree with the posterior carnivorous tooth, is the largest of them all. The cartilage of their nose is lengthened, moveable, and hard, which assists them to burrow their retreats in the earth.

The body, in most of the species, is covered with long, thick hair; the head is large; the ears are small, and slightly pointed; the tongue is smooth; and all the feet have five toes.

THE COMMON BEAR. L'OURS.

Ursus Arctos. L.

The forehead of this animal is convex; the fur is brown, and more or less woolly; there are some almost yellow; and in others the fur is so sleek and reflecting as to look silvery. They vary much in height, without reference to the age or sex of individuals. When young, they have a whitish collar round the neck. They are found on the mountains, and in the great forests of Europe; and over a considerable part of Asia, and probably in America*. Its flesh is good when young, and the paw is always esteemed a *bonne bouche*. It was the opinion of antiquity, that the cubs of bears were born without shape or form. Virgil† calls them *informes ursi*. Pliny‡ says, they are shapeless (*informis caro*), white, but little larger than mice, without eyes, without hair, and with the nails scarcely observable:

* Mr. Pennant says, the brown bear is found in North America. Dr. Shaw, in his Zoology, says so, with an *on dit*; but Cuvier states their residence to be only in Europe and Asia. The American brown bear is observed to emigrate towards the South in winter; but its European congener is not known to quit its native mountain or forest; whence, apparently, their principal difference.

† Georgic iii. 246.

‡ Nat. Hist. lib. 8. c. 36.

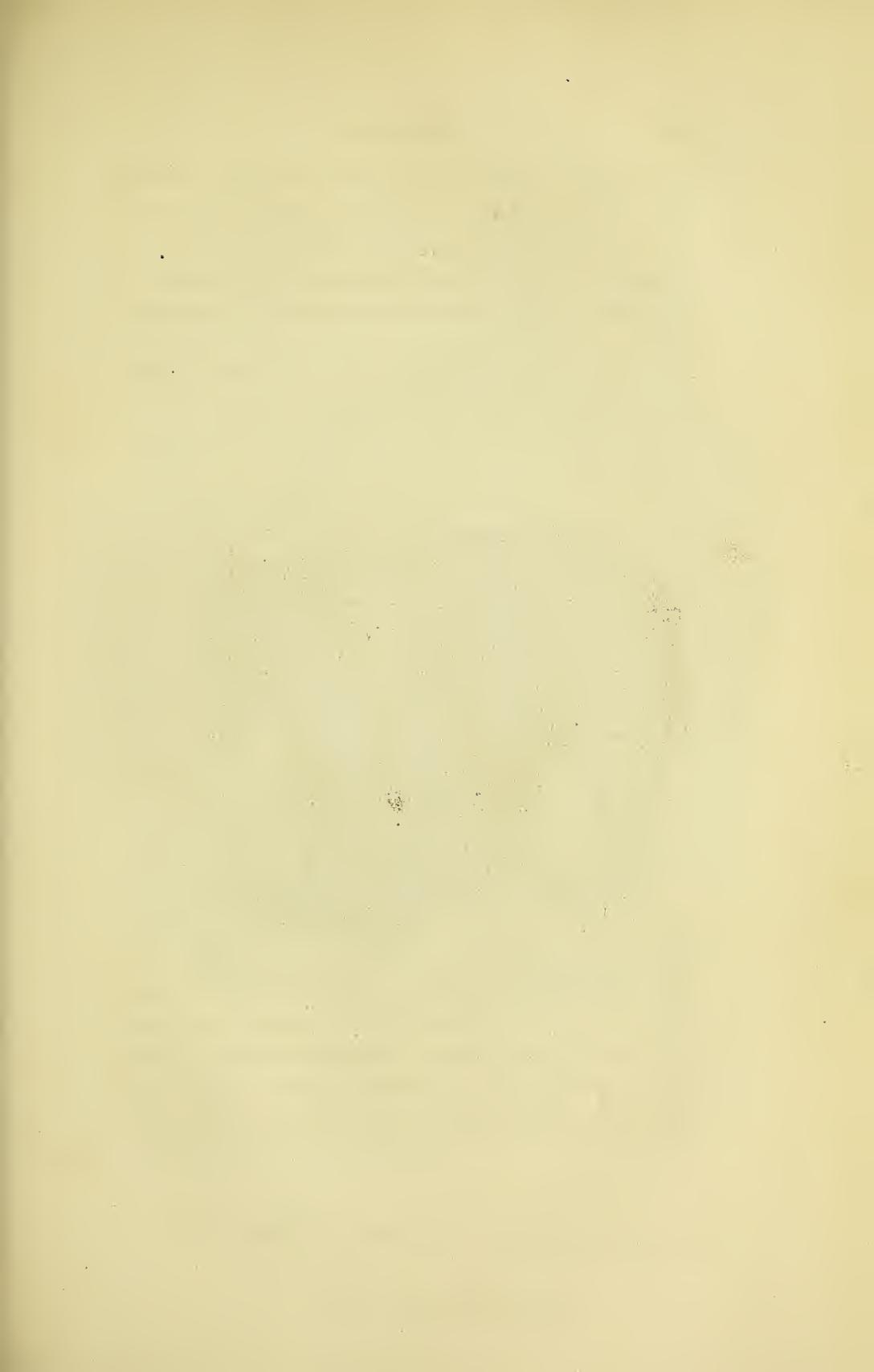
he adds, that they are licked into shape (*hanc lambendo paulatim figurant*); and although the opinion is now perfectly negatived, the words "unlicked cub" are still sometimes used as a figure of speech. Mr. Pennant states, as a fact, that in their winter retreat they are sustained by sucking their paws; and that the females, when pregnant, hide themselves in the most obscure places, in order that the males may not devour their young. Both these statements, however, are certainly erroneous: it is true, that, in the autumn, they become exceedingly fat, and in this condition retire to their winter quarters, whence they emerge much reduced in weight; but it does not follow, that the exhalent particles they can procure from any part of their own body contain qualities, which would at all serve the purpose of sustaining animal life. They may lick the paws, as cats do, probably from cleanliness, indulgence, or habit, but not for sustenance. Both sexes retire in the winter; and the period of parturition of the female is in the spring, after a gestation of seven months. She produces from one to five young at a time.

Bears feed chiefly on vegetable substances, and eat flesh only occasionally; they will, however, sometimes destroy the live stock of a farm-yard, as also fish, and are thought to suck the blood; they are also very fond of honey, and show some agility, notwithstanding their clumsy make, in mounting trees wherein the bees may have a magazine of it. Their

principal mode of attack and defence is by seizing their enemy, and squeezing it between the arms and breast, so as to deprive it of life. They will not attack mankind, unless much pressed by hunger, in which state they are said to associate in search of animal food.

Major Smith made a drawing of an European bear at Dresden, which appears to be distinct. It was about four feet in height at the shoulders; the physiognomy was different from the common sort; the ears were small and round; the facial line was much depressed at the junction of the nasal and frontal bones; the colour was a fiery yellow on the head and back, passing into chestnut and red on the sides and hams; the belly and paws were brown, and there was a dark streak upon the nose, spreading into branches toward the orbits. The form of the animal was extremely heavy.

The Major also drew from a specimen at Buda in Hungary, which appeared some time ago on the shores of the Danube, in Upper Hungary. As he was destructive to the cattle in no common degree, every effort was made to take or destroy him: he received many shots, and when pressed, always swam across the Danube, and resumed his depredations on the other side till again forced to swim back. In this manner he was fairly hunted into Lower Hungary, having travelled much of his way by water. From Semlin he was chased beyond Belgrade; but the Turkish peasantry drove him back, and it was





THE BLACK BEAR. L'OURS D'AMERIQUE.

URSUS AMERICANUS, Pallas.

many months before he was killed. Beside his uncommon bulk, his colour was purpurescent. Several balls were found lodged within his skin.

The race, in general, seems destined to inhabit those parts of the globe, in which Nature wears the most forbidding aspect to the generality of animated beings ; and even the common brown variety is found in the greatest numbers in the Arctic regions of inhospitable Siberia.

There through the piny forest half absorpt,
 Rough tenant of these shades, the shapeless bear,
 With dangling ice all horrid, stalks forlorn :
 Slow-paced, and sourer as the storms increase,
 He makes his bed beneath th' inclement drift,
 And with stern patience, scorning weak complaint,
 Hardens his heart against assailing want.

THE BLACK BEAR. L'OURS NOIR.

Ursus Americanus. Pallas.

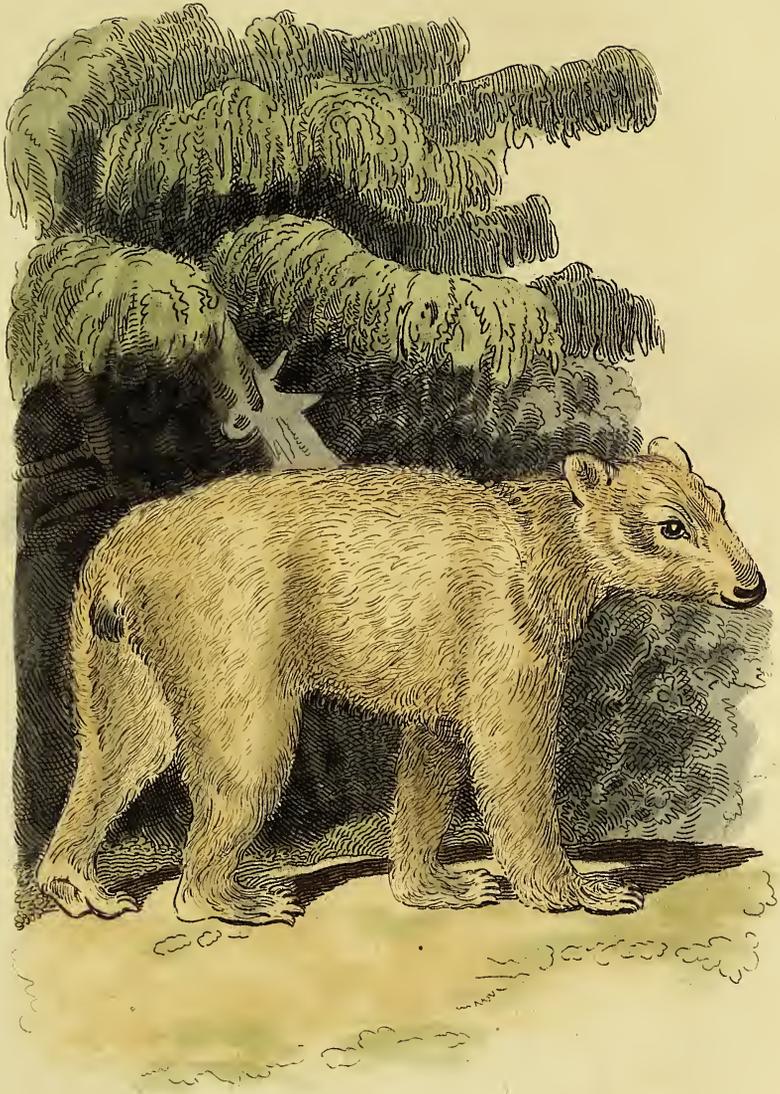
This American species has the head flatter than the common bear ; the fur black and smooth ; the muzzle yellowish ; the little teeth, behind the canine, more numerous than in the common bear ; it has also spots, inclining to yellow, over the eyes, on the throat, and chest. It lives commonly on wild fruits, but frequently destroys the cultivated crops ; it will also take the fish on the sea-coast.

Cuvier thinks, that it subsists, when left to its choice, on vegetable matter in preference to flesh; but it seems more probable, that it takes the former, generally, from incapability of procuring the latter; it is known frequently to devour the hog, which is, perhaps, less able to escape than most other quadrupeds; and young fawns furnish it, in the season, a common repast.

THE YELLOW BEAR.

Ursus Luteolus.

The American yellow bear has been spoken of as a variety of the black bear of that continent. Independently of the individual mentioned in Shaw's Zoology, Major Smith has a drawing of one, taken in Louisiana; and there is a fine specimen now in the Tower, which is aptly called, from its colour, the cinnamon bear. This last is smaller; the forehead more convex; the nose more conical than in the black species; the ears, also, stand farther back; the physiognomy may be said to be more fox-like, and the hair is not so long or thick. It is gentle in disposition, which, indeed, is expressed in the countenance of the animal very decidedly. We cannot, therefore, but conclude, that the hereditary distinctive differences of colour, organization, and moral character, are quite sufficient to constitute this a separate species.



THE YELLOW BEAR.

URSUS LUTEOLUS.



THE WHITE OR POLAR BEAR, L'OURS BLANC,

URSUS MARITIMUS, L.

The yellow bear was formerly common in Virginia, and is still frequently met with in North-Western Louisiana, where it is called the white bear; and seems generally, though without doubt erroneously, to be considered an accidental variety, the offspring of the black bear. It subsists on honey, acorns, &c. as well as flesh.

THE ARCTIC, OR WHITE BEAR. L'OURS BLANC.

Ursus Maritimus. L.

This is a very distinct species: the head is much longer and flatter than in other bears, and the fur is white and shining. It lives on seals, and other marine animals, and is hardly known to eat vegetables. The teeth are very large, particularly the canine, and the animal, altogether, is much more formidable than the common bear. Captain Ross, in the account of his late voyage of discovery to the Arctic regions, states, that he received a message from one of the whalers he fell in with, requesting surgical assistance for the master, whose thigh had been very severely lacerated by a wounded bear, which had attacked and dragged him out of the boat. The animal was pierced by three lances, before it would relinquish its hold; when, disengaging itself from the weapons, it swam to the ice, and made off.

He describes one which was killed by his crew,

the skin of which is deposited in the British Museum, from which the print is taken. Its length, from snout to tail, was seven feet eight inches; and its weight, after a loss of blood estimated at thirty pounds, was $1131\frac{1}{2}$ lbs.

THE GRISLY BEAR.

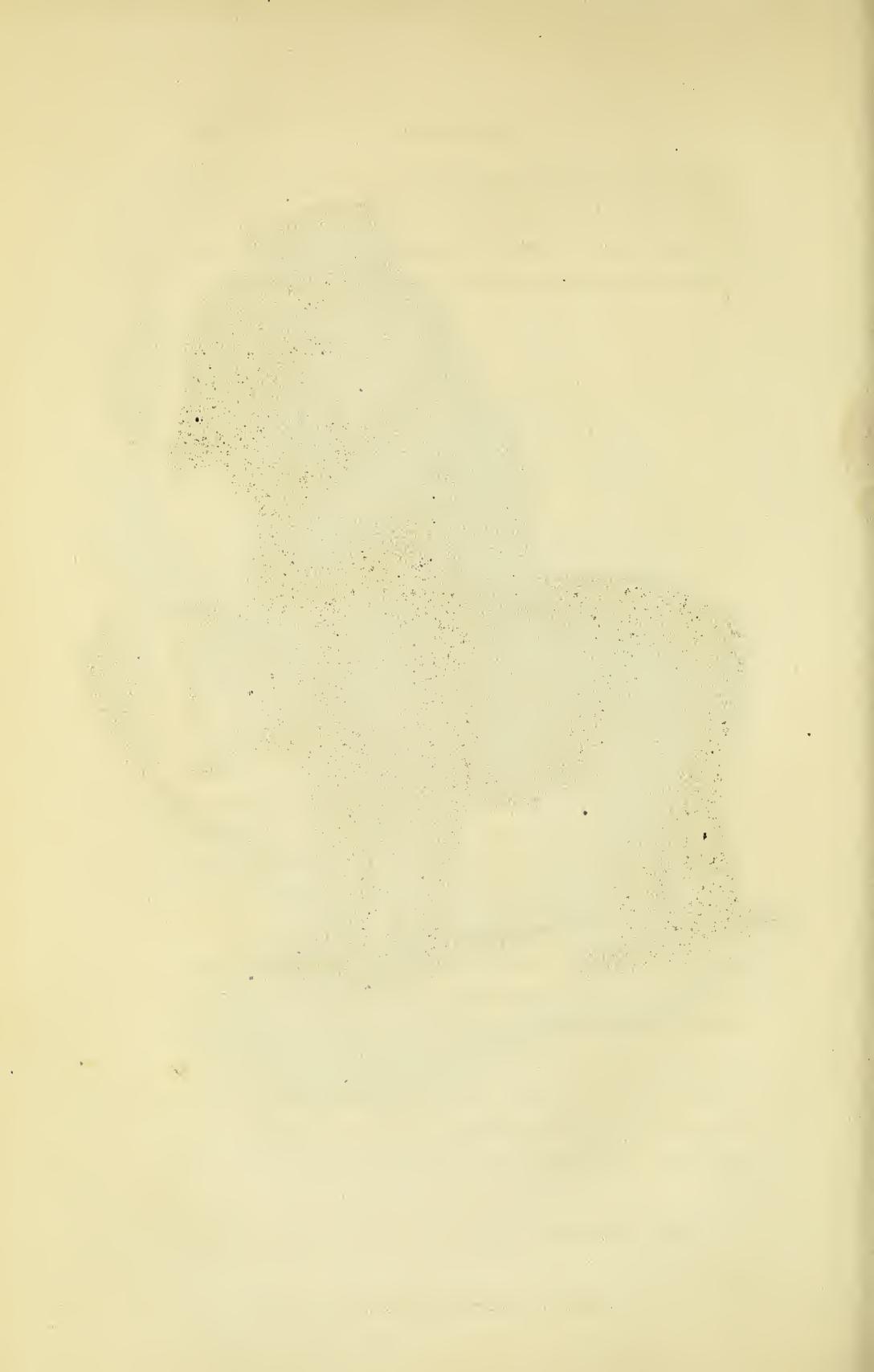
Ursus Candescens. Hamilton Smith.

One species, at least, of the bears is found in North America, which exceeds in size, ferocity, and powers either of these already mentioned, except the last, and seems indeed to be an extremely ferocious and dangerous beast. Lewis and Clarke, in their travels, have given a number of interesting adventures, hair-breadth escapes, and surprising anecdotes relative to the North-American bear: but they have not stated any satisfactory anatomical particulars; and much uncertainty, and some confusion in their work, render it very difficult to determine as to the identity or distinctness of species of the several individuals they mention. It appears, by their account, either that there are many species of this genus to be found in the Arctic regions of America, endowed with great powers and a corresponding ferocity; or that, if they all form but one, individuals belonging to it are subject to many shades and varieties of colour. The latter supposition seems on the whole, perhaps, the most probable; and that



THE GRISLEY BEAR. IL OURS GRIS.

URSUS CANDESCENS. Hamilton Smith.



this species, which may be called the grisly bear, is different in size, and still more in ferocity, from the common black bear of America, the yellow bear of the same continent, and the ordinary species of the old world, as well as from the white or Polar bear, the *ursus maritimus* of Linnæus.

From the observations of these American travellers, as well as from the information they derived from the Indians, they seem inclined to believe, that there are two species of the bear, each of which may be called the *ursus ferox*, and each subject to many varieties: the white, or grisly bear, under which epithets they seem to include the pure white, the deep and the pale grisly red, the grisly dark brown, in short, all those they mention with the extremities of the hairs of a white or frosty appearance, without regard to the ground-colour, forms one distinct species: and that the black and reddish brown, &c. in which appear to be included the black, with a few entire white hairs intermixed, or with a white breast, the uniform bay, the brown, and light reddish brown, form a second species, equally distinct from the white, or grisly bear, above mentioned, and the common black bear of America. This last seems not to be met with where the two former species abound; and though in most respects similar, it differs from them in having much finer, thicker, and longer hair, with a great proportion of fur mixed with it; and also in having a variety of colours, while the common black bear has no intermixture or change of colour, but is of a uniform black.

The opposite figures are from drawings by Major Smith. Fig. 1 was from a stuffed specimen at Philadelphia, and was sent from the Missouri country by Messrs. Lewis and Clark. The animal was clumsy and compact, and the hairs on the neck and back were tipped with white. Fig. 2 is from a specimen brought from Hudson's Bay, which was in the Tower. This animal was more slender, and better proportioned than the other; was very active, and exceedingly fierce. It was three feet three inches in height at the shoulder, and appeared to be adult. The teeth of these specimens were similar, and both wanted the usual number of the small cheek-teeth, which immediately follow the canine teeth in the common species*.

It seems probable, that the second is the black variety particularized by Lewis and Clark: but, as difference of colour alone, more especially in the Polar animals, is certainly insufficient to determine distinctness of species, till more decided and anatomical distinctions are pointed out, the most probable conclusion seems to be, that there is only one species of the ferocious bear, which branches into two principal varieties, each again subject to differ in colour; though Major Smith has aptly applied the epithet *candescens* to all of them; for, let the colour of the animal be what it may, there is always observed

* As these teeth are frequently deciduous in the common species, the nonexistence of them in these two specimens does not determine a distinctive character.

in it a certain tendency to whiteness, subject to which determinate character individuals are found of various tints and colours, as mentioned by Lewis and Clark*.

On one occasion Captain Lewis, who was on shore with a hunter, met two white bears. He says, "Of the strength and ferocity of this animal the Indians had given us dreadful accounts: they never attack him but in parties of six or eight persons, and even then are often defeated, with the loss of one or more of their number. Having no weapons but bows and arrows, and the bad guns with which the traders supply them, they are obliged to approach very near to the bear; and as no wound, except through the head or heart, is mortal, they frequently fall a sacrifice if they miss their aim. He rather attacks than avoids a man; and such is the terror which he has inspired, that the Indians, who go in quest of him, paint themselves, and perform all the superstitious rites customary when they make war on a neighbouring nation†. Hitherto those we had seen did not appear desirous of encountering us; but, although to a skilful rifleman the danger is much di-

* They mention a female bear, black, with a considerable mixture of white hairs, which was killed, together with two cubs, one of a black, and the other of a light reddish brown colour.

† Pennant gives an account of the ceremonies practised by the Indians previously to a bear-hunting expedition. It was doubtless the adventurous chase of the *ursus ferox* here described, and not that of the common species, which was entered upon with such superstitious and barbarous ceremonials.

minated, yet the white bear is still a terrible animal." On approaching these two, both Captain Lewis and the hunter fired, and each wounded a bear: one of them made his escape; the other turned upon Captain Lewis, and pursued him seventy or eighty yards, but being badly wounded, he could not run so fast as to prevent him reloading his piece, which he again aimed at him; and a third shot, from the hunter, brought him to the ground.

Another instance of the tenacity of life of this species occurred in one, which received five balls through his lungs, and five other wounds, notwithstanding which he swam more than half across a river to a sand-bar, and survived twenty minutes. He weighed between five and six hundred pounds at least, and measured eight feet seven inches and a half from the nose to the extremity of the hind feet; five feet ten inches and a half round the breast; three feet eleven inches round the neck; one foot eleven inches round the middle of the fore leg; and his claws, five on each foot, were four inches and three eighths in length.

THE MALAY BEAR.

Ursus Malayanus. Raffles.

Sir T. S. Raffles observes, " This deserves to be ranked as a distinct species from the common bear, and from that of the continent of India. The most



THE MALAY BEAR.

URSUS MALAYANUS. Raffles.

striking difference is in the comparative shortness of its hair, and the fineness and glossiness of its fur ; in which particular it appears to resemble the American bear. It is farther remarkable in having a large, heart-shaped spot of white on the breast. The muzzle is of a ferruginous colour. It stands lower, but is a stouter and better proportioned animal than the common bear*.”

When taken young, they become very tame. One lived for two years in Sir T. S. Raffles' possession ; and that gentleman adds, “ He was brought up in the nursery with the children ; and when admitted to my table, as was frequently the case, gave a proof of his taste by refusing to eat any fruit but mangosteens, or to drink any wine but champaign. The only time I ever knew him to be out of humour was on an occasion when no champaign was forthcoming. He was naturally of a playful and affectionate disposition, and it was never found necessary to chain or chastise him. It was usual for this bear, the cat, the dog, and a small blue mountain bird, or lory of New Holland, to meet together, and eat out of the same dish. His favourite playfellow was the dog, whose teasing and worrying was always borne and returned with the utmost good-humour and playfulness. As he grew up, he became a very powerful animal ; and, in his rambles in the garden, he would lay hold of the largest plantains, the stems of which he could scarcely embrace, and tear them up by the roots.”

* Linnean Transactions, Vol. xiii, p. 1.

The figure is from a stuffed specimen presented by Lady Banks to the British Museum. This specimen has not the skull, but Major Smith thinks, from examining the short face, the broad, dog-like nose, and the make of the claws, that this animal will, ultimately, range more nearly with the genus *gulo* than with *ursus*.

THE THICK-LIPPED BEAR.

L'OURS AUX GRANDES LEVRES. Desmarest.

Ursus Labiatus. Blainville.

Prochilus Ursinus. Illiger.

Ursus Tardigradus. Hamilton Smith.

Bradypus Ursinus. Pennant and Shaw.

Multiplicity of synonyms is certainly to be avoided in zoology as much as possible; but it would be highly improper to retain the English name given to this animal by its first describers, who placed it, erroneously, with the sloths. As we have not a better figure of it than is given in Mr. Pennant and Dr. Shaw's work, we shall merely, by favour of Major Smith, delineate the skull and teeth of the identical animal, from which Shaw and Pennant gave

their descriptions; and although it had lost in its lifetime, and before it was inspected by these gentlemen, (probably by violence) all the incisive teeth, yet the alveoli, where they must have been, are as distinct as in the skull of any of the bears, except the two in the middle of the upper jaw, the alveoli of which are merely incipient.

This animal is nearly as large as the common brown bear; is very thick and clumsy, with the back arched, and covered with long, thick, and rough black or brownish hair, which is shorter on the under parts. The face, jaws, and forehead have very short hair, and are much lighter in colour than the body; and the physiognomy strongly indicates heaviness of character, and a moroseness, which does not appear, in reality, to be incident to the disposition of the animal. The lips are extremely long, and moveable, whence one of its numerous synonyms, which is here adopted.

This animal is an inhabitant of the mountainous parts of India. It is said to retire into caverns, and holes, which it excavates by means of its long claws; and to feed principally on white ants, fruits, and honey: but as little of its habits are known with any certainty, it may rationally be presumed, on viewing the teeth, that it is at least as carnivorous as the bears in general.

Major Smith is inclined to refer to this species the disgusting story, in the *Oriental Field Sports*, of a poor Indian, who was attacked, and had both his hands and arms ground into a pulp by his teeth.

If so, this would be the baloo, which name is given generally to the Malay bear last described; and the supposition is strengthened, when it is considered, that this animal has a mark in the shape of the letter V under the throat, similar to, though not so conspicuous, as the mark in the Malay bear.



THE RACCOON, LE RATON.

URSUS LOTOR. L.

THE RACCOONS.

THE following species of plantigrades are arranged by modern writers in the genus raccoon (*procyon*, Cu.) They have three pointed, distinct, anterior cheek-teeth, and three posterior, which are flattened; the whole forming a continued series, different from those already described, in which the first three are insignificant, and may almost be called deciduous. They differ, also, from the bears in having a long tail; and all the teats are ventral*. These in running do not bring the heel into complete contact with the ground, but they do so when standing.

THE RACCOON. LE RATON.

Ursus Lotor. L.

This animal is named by Linnæus from a habit peculiar to it of plunging whatever it is about to eat, if possible, into water, and then rolling it for a time between its paws. The body is generally about two feet long, and the tail about half this length. It is subject to vary in colour, from that represented in

* The genus *ursus* has two pectoral and four ventral teats.

the plate to a brighter hue. It is a South American animal, and is frequently domesticated, and very common. It is very destructive there, to the maize in particular, and to various sorts of fruits. It attacks birds, and kills them by biting off the head, when it sucks the blood. As this animal runs more on its toes than the common bears, it is much more active, and will climb trees with ease and freedom. The specimen figured is in the possession of Dr. Leach.

I have a drawing, from Major Smith's collection, of a specimen of the raccoon, which was of a bright fox colour; and which, though extremely rare, I presume to be the same as the yellow raccoon mentioned by Geoffroy in the catalogue of the collection of the French Museum.

A small variety of the raccoon, with a brown throat, is also mentioned in the same catalogue.

The white badger of Brisson is likewise considered by Desmarest as an albinose variety of this species.

THE CRAB RACCOON. LE RATON CRABIER.

Procyon Cancrivorus. Cuvier.

This is also an inhabitant of South America, and is treated by Cuvier as distinct from the last, though they appear to have been much confounded. It is of a uniform, clear, ash brown colour; and the tail,

though annulated, is much less distinctly so than the last.

The sense of smell in these animals is acute ; but their powers of vision, in the day-time at least, are said to be but small.

THE COATIS.

THERE are two animals, which Linnæus placed among the weasels, that, from their peculiarities, are now arranged as a separate genus of the plantigrades. Their teeth correspond with those of the raccoon, as do also their modes of living; but they are distinct from all by the length of their muzzle, that may almost be called a proboscis, which, together with their long nails, well qualifies them for digging. Their tongue is soft, and the pupils of the eyes are circular; in which respect they differ from the viverræ, with which Linnæus arranged them, as well as in the character of the teeth, the moveable snout, and plantigrade mode of locomotion.

THE COATI-MONDI. LE COATI ROUX.

Viverra Nasua. L.

THE BROWN COATI-MONDI. LE COATI BRUN.

Viverra Narica. L.

The opposite figure of the coati-mondi is from a living specimen, in Mr. Cross's collection, about the



THE COATI-MONDI, *LE COATI*,

VIVERRA NARICA, L.

size of a cat. The brown variety is, in general, rather larger than the other; and is uniform in colour, except about the face and nose, which are spotted with white.

These animals inhabit the woody country in South America, residing almost entirely in the trees.

They are comparatively slow in motion, and their long jaws are ill calculated for seizing on living prey: their carnivorous habits, therefore, go no farther than surprising birds in their nests, and destroying a few defenceless animals.

They are commonly domesticated in America; but it is necessary to confine them, as otherwise they climb every where, and upset and put every thing they can into confusion. In this state they seem to be almost omnivorous; and eat by placing their food, if flesh, under their fore paws, pressing it down with one and tearing it with the other, and taking in the mouth such pieces as they can separate. They do not like to be looked on while eating; and drink by lapping, but take more at each immersion of the tongue than the dog.

When chained and awake, their long snout is constantly in motion. They are very indocile; and, although they will play with any one, do not seem to form any affection, or show any preference. They sleep the whole night, and but rarely in the day, turning the body into a circle, and bringing the nose and tail together. When at rest, they bring the heels of the hind legs to the ground; when uneasy or hungry, they utter a hissing or whistling noise. They

defend themselves with the teeth; and, as the canine teeth are angular, they are sometimes able to cut the throat of their enemy.

THE KINKAJOU. LE KINKAJOU, OU POTTO.

Viverra Caudivolvula. Gm.

This animal is found in America; and its situation, relative to other quadrupeds, has been but of late systematically determined. It has been considered a lemur, and is called by Pennant the yellow macauro; and Gmelin, in his edition of the *Systema Naturæ*, places it among the *viverræ*, with the epithet *caudivolvula*; but it has recently been ascertained to be a plantigrade, and is placed in this family by Illiger as a genus, under the name of *cercoleptes*. The canine teeth stand alone, and are much longer than the rest, of a conical shape, and those of the lower jaw are longer than those of the upper; there are five cheek-teeth in each jaw*, the first two of which, being pointed, have the carnivorous character, and the latter three are tubercular. There are five toes on each foot, the palm of which is naked, and plantigrade, and the nails are bent and sharp. The tail is long and prehensile. The face is short, the ears short and round, and the tongue long and extensible.

* Pallas says six.

It is about a foot and a half in length ; and the tail is nearly as long as the body. The hair is silky, and of a yellow gray or brownish cast, with a darker line down the back, and a shorter dark line underneath. It is found in South America, and in some of the West India Islands, where it is called *poto*. Its aliment is mixed, consisting of fruit, honey, &c., as well as birds, the blood of which it will suck, like the weasels ; notwithstanding which, however, it is a gentle, amusing animal, and can hang by the tail, like the *sapajou*, or prehensile-tailed monkeys. It is a nocturnal animal.

The Baron Humboldt observes of it: “ the *kinkajou*, or *macauco* of Pennant, is much more rare in America than might be expected from the number of skins found in Europe. It presents a curious mixture of the manners of the bear, dog, ape, and civet. The body is very slender ; the ears are small and pointed ; the head is like that of the fox ; and the fur very soft, and of a bright red. The abdomen is white ; and the fur on the inner parts of the thighs reflects a gold colour when in the sun. The tail is as long as the body, covered with hair, and almost as prehensile as that of some American monkeys ; so that the animal uses it as a fifth hand in climbing. It sleeps during the day, hides its face with the tail, and remains awake only while eating, which it does with extreme avidity. Its tongue is very long ; and, as it devours the honey of the wild bees, the missionaries call it the honey-bear (*oso melero*). Next to honey it seems to prefer plantains, eggs, and little

birds. It often sits on its hind legs, and uses the fore paws, like a monkey, in eating. Affectionate, like dogs, it knows and acknowledges its master. It hunts during the night, and becomes very lively at sunset. It prefers the society of man to that of animals of its own species. It never bites, even in play; and shows, by its caresses, how much it likes to be noticed. In some parts of America the potto is domesticated."



THE GLUTTON, *LE GLOUTON*,

URSUS GULO, L.

THE GLUTTONS.

ONE subdivision, or small tribe of plantigrade carnivorous animals, possesses teeth, and consequently habits of regimen, much more nearly allied to the weasels than to the preceding subdivision, and may be considered as the intermediate link between the digitigrades and plantigrades; possessing most of the physical powers and moral characters of the former, combined with the step and mode of locomotion peculiar to the latter.

These animals have six cutting teeth; long and angular canine teeth; and six cheek-teeth, three, and sometimes four of them, anterior to the principal carnivorous, which is the penultimate. The last of the six is small and tuberculated; and the great carnivorous tooth has one small tubercle, but with this exception is completely cutting.

THE GLUTTON. LE GLOUTON.

Mustela Gulo. Lin. Ed. 12.—*Ursus Gulo.* Gm.

The glutton is about the size of the common badger, which it much resembles; but possesses a mere plait, or wrinkle, under the tail, instead of the

pouch that distinguishes the latter. It is, however, more active than the plantigrades in general, and does not retire during the winter, though it is a native of high northern latitudes in Europe, Asia, and America.

The voracity of this animal, though it has been ridiculously exaggerated by some dealers in the marvellous, is very remarkable; and its cruelty is said to be commensurate with it. When a sufficient supply of small quadrupeds and birds is not to be procured, it will lurk on the horizontal branch of a tree, and drop on deer, horses, &c., that may pass beneath. These it destroys by sucking their blood, till faintness and loss of strength sink them a complete captive to this voracious animal, which will conceal its superabundance for a future meal. When tamed, it has been known to devour thirteen pounds weight of flesh in a day.

Edwards describes a variety of this species, under the name of quick-hatch, or wolverene, from a specimen which had lost an eye; and, from this circumstance alone, Linnæus applied to it the epithet *luscus* as a specific term. It appears not to vary from the common glutton in any constant characters, though it is in general of a paler colour.

THE GRISON. LE GRISON.

Viverra Vittata. L.

It must be borne in mind, that this and the following animals, which, when they were first described, were arranged with the weasels, either in the family of viverræ, or that of mustelæ, of Linnæus, are plantigrades, and in this respect differ from the weasels materially.

The grison is an American animal, about fifteen inches in length; and the tail measures about six inches more. The head is flat; the forehead is of a whitish colour; and a broad band of a pure white, which tapers to a point at both ends, passes across the face, immediately above the eyes, and terminates above each shoulder. Some individuals have this band of a lighter colour, and more distinct than others. The hairs covering the upper parts and sides of the animal are black some way up from their roots, but have the extremities of a yellowish white. All the rest of the animal is black. The tail is always carried horizontally. The toes are semiwebbed. When irritated, it emits a musky smell.

This is said to be a very ferocious little animal in a state of liberty; and, although apparently docile while confined and well supplied with food, it will,

nevertheless, not fail to evince the sanguinary cruelty of its natural character, whenever a less powerful animal falls within its reach.

THE TAIRA. LE GLOUTON TAIRA.

Mustela Barbara. L.

This is also given, on the authority of Cuvier, as a plantigrade animal, and appears in many respects to resemble the last. D'Azara describes this under the comparative name of the great weasel; and the former under that of the small weasel.

This animal is about the size of the common marten. Its prevailing colour is a black brown; but a white band, beginning on the upper part of the neck, passes down to the throat, and is there considerably enlarged.

D'Azara, who describes it at some length, gives us no account of its habits; but they are said to resemble in all things those of the common glutton. It is an inhabitant of South America. When irritated, or dying, it emits a scent of musk.

It seems very probable, that the animal figured at page 143 as a variety of the pekan is in reality the taira.

THE CAPE GLUTTON, OR RATEL. LE RATEL.

Viverra Mellivora, et V. Capensis. L.

The modern genus *gulo* includes many species, taken from the *ursi*, *viverræ*, and *mustelæ* of Linnæus and other systematical writers. In the plantigrade step of these animals they are assimilated to the bears; but in the carnivorous character of the teeth they approach the weasels. Identified, therefore, with neither, they are properly separated from both; and the present animal is presumed to be the same as the Cape weasel and honey weasel of Pennant and Shaw.

The opposite figure of the ratel is from a specimen in the museum of the Surgeons' College; and we shall add Col. Hardwicke's account of the animal, as found in India.

“ The claws are unequal; those of the fore feet very long, and awl-shaped; the three middle ones much longer than the two lateral; the interior toe very remote from the rest; the claws of the hind toes remarkably short, nearly equal, and bearing no comparison to the strength of those of the fore feet.

“ This animal is found in several parts of India, along the courses of the Ganges and Jumna, in the high banks which in many parts border those rivers.

It is rarely seen by day ; but at night visits neighbouring towns and villages, inhabited by Mahomedans, and scratches up the recently-buried bodies of the dead, unless they are quickly covered with thorny bushes.

“ The natives, when encouraged by the expectation of purchasers, dig these animals out of their subterraneous retreats, and take them alive. The full grown ones are with difficulty secured, and seldom bear confinement long, but roll and beat themselves about till they die. When taken young, they are very manageable, docile, and playful. It is a bold animal ; its hide remarkably thick, and its strength too much for most dogs of common size. Its general food is flesh in any state ; but it is remarkably eager after birds, and living rats seem almost equally acceptable. It has an inclination to climb upon walls, hedges, and trees : this, however, it seems to execute clumsily ; but seldom falls, and will ramble securely upon every arm of a branching tree, that proves strong enough to bear its weight without much motion. This species burrows with great facility ; scratching the earth, like a dog, with the fore feet, and expelling the loosened soil to the distance of two or three yards backward. In ten minutes it will work itself under cover in the hardest ground ; and is restless till it can form such a retreat to sleep in. It sleeps much by day ; is watchful during the night, discovering inquietude by a hoarse call or bark, proceeding from the throat. The hair is short and wiry,

nor has it any of the softness of fur. It is known to the natives of Hindostan by the name of *beejoo**.”

THE NYENTEK OF THE JAVANESE.

Gulo Orientalis. Horsfield.

This animal has been described by Dr. Horsfield, in his beautiful zoological researches in Java. It seems to be confined to some of the mountainous parts of Java, and is very rare, the doctor never having been able to see it alive. It is somewhat smaller than the English polecat, and is rather more slender in the body than the gluttons in general. The fur is thick, consisting of long hairs, closely arranged, silky at the base, of a brown colour, and somewhat glossy, with a slight tint of reddish brown: in certain lights it appears diversified with grayish and tawny. This fur covers the greatest part of the body and head, and the whole of the tail and extremities. The sides of the head, the neck, the throat, breast, and a broad spot on the top of the head, which passes, gradually decreasing in breadth, to the middle of the back, are white, with an obscure tint of Isabella yellow, of different degrees of intensity. This colour

* Lieut. Col. Thomas Hardwicke, F. L. S., in Vol. ix. of the Linnean Transactions.

also exists, less distinctly, in a longitudinal band along the lowest part of the abdomen. The tail is nearly half the length of the body, and is somewhat bushy, and terminated with long bristly hairs.

THE FERRUGINOUS GLUTTON.

Gulo Castaneus.

In Mr. Bullock's late curious collection was a hitherto undescribed species, belonging to this subdivision of the plantigrades. It measured very nearly four feet, from the nose to the end of the tail, which was two thirds the length of the body. It was long, and vermiformed, like the weasels; but the limbs were extremely robust. The head was broad and depressed; the eyes were very near the nostrils; the ears were far back, and the whole appearance of the animal strongly indicated a predacious and savage disposition. The fur was long and rough, of a dark brown and chestnut colour, mixed; the tail was nearly black, and the feet sepia. The habits, as well as manners of this animal, were entirely unknown.



THE FERRUGINOUS GLUTTON.

GULO FERRUGINEUS.

THE MASKED GLUTTON.

Gulo Larvatus. Temminck.

Another undescribed species of glutton is in M. Temminck's celebrated museum. It is nearly as big, is still more slender, and has the nose more pointed than the last. The colour is a mixture of olive brown and gray; but the end of the tail, and the feet, are black; the ground colour of the head is black, but a white streak passes down the forehead to the nose; there is also a whitish circle round each eye, and a pale band passes round the throat from ear to ear; the ears are small, round, and black. As this specimen is in a private collection, I am not at liberty to engrave from it.

THE BADGERS.

THE badgers form a separate tribe among the plantigrades, distinguished by their teeth, which have little more than a vestige of the carnivorous property. They consist of six cutting teeth, long canine teeth, and five cheek-teeth above, and six below. The first of these cheek-teeth is very small and deciduous; then follow two pointed teeth; beyond these is a tooth that has the outer edge cutting; and lastly a rounded or tubercular tooth, which is the largest. The penultimate tooth below has the outer edge cutting, with two tubercles rising on the inner sides, and partakes, therefore, of a double character. A glandular pouch, situate between the anus and insertion of the tail, in which an unctuous and fetid matter is secreted, distinguishes these animals from the other plantigrades.

THE BADGER. LE BLAIREAU.

Ursus Meles. L.

The habits of the badger accord much with those of the bear: like that animal it is nocturnal, and lives in holes during the day. It feeds more on

vegetable than animal food; but is observed to prefer raw flesh when in a state of captivity.

The common badger is generally about two feet long, and the tail is six inches. It is of a very dark gray colour, having black and white hairs more or less mixed all over the body; the former of which predominate from near the nose along the side of the face, round the eyes and ears, and leave a stripe of white passing up the middle of the face over the forehead. The legs are very short; and the hair, all over the animal, is long.

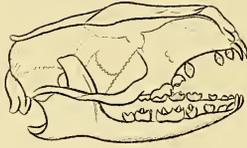
The badger is found in most parts of Europe, and the neighbouring regions of Asia, and occasionally in Canada and the high latitudes of America*. It is every where difficult to be met with, inhabiting the most secluded parts, and passing much the greatest portion of its time in its subterraneous retreat. Though gifted with an appetite for flesh, which it probably prefers to other aliment, the badger is equally capable of subsisting on vegetable food; and by satisfying the cravings of hunger with substances of the latter description, it is more enabled to indulge the propensity of its nature to an inert and solitary mode of living. When attacked, by dogs in particular, it will bite severely; and will succeed, generally, for some time in repelling the terriers, which are sent into its retreat to draw it out, to the great

* The carcajou of the Supplement to Buffon's work, the *ursus Labradoricus* of Gmelin, appears to be a true badger.

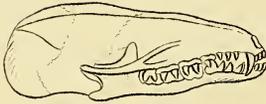
amusement and gratification of those, who have a taste for such sport.

But one species of this genus appears as yet to be known, though a few animals belonging to other genera have been erroneously classed in this.

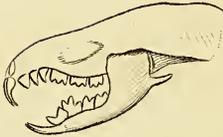
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TEETH OF THE INSECTIVORA.

THE INSECTIVORA.

THE third great division of carnivorous animals, or such quadrupeds as subsist principally, if not entirely, on animal matter, consists of those which feed on insects and worms; whence they are aptly distinguished by the epithet insectivorous.

All the animals included in this division are plantigrades; and it may, therefore, at first sight, appear to be multiplying divisions unnecessarily, when these are separated from those last treated on. But the works of Nature are infinitely varied, and characteristics intimately mixed up: the prominent and striking peculiarities of one set of animals are found only in part, and subservient to different leading principles, in another; so that zoologists are obliged to take advantage of the most remarkable and ostensible characters only, by which to methodise artificially the animal kingdom; and, having employed them to distinguish a certain number, to desert them for new peculiarities that more particularly apply to other animals, with which such characters cease to be most remarkable, though they may still be found as subservient or minor properties.

Thus their insectivorous regimen is a more descriptive character of the creatures now under consideration, than their plantigrade mode of motion;

and it will be seen, that their incisive and canine teeth separate them altogether from those properly distinguished as flesh-eaters.

Professor Illiger names them *subterranea* ; and it may be observed, that they are all furnished with powers of digging and excavating to search for their proper food, as well as to provide themselves with a habitation.

Modern systematic writers, who have been directed by the physical analogy of animals, and mainly by their teeth, have been obliged, in order to be consistent, to subdivide these little quadrupeds into several genera ; hence the science has been encumbered by the introduction of various new terms and appellatives. These seem, particularly at first sight, to perplex rather than aid the student ; especially if he be unacquainted with the Greek language, from which such names are principally derived ; and many are therefore unwilling to improve upon or at all disturb the Linnean plan by any additional refinement or modification.

Zoological arrangement, like an artificial system of mnemonics, is invented to assist the memory by grouping, separating, and methodising by analogy the living productions of Omnipotence. It is not the system of nature, that books can teach us ; but they may offer plans for facilitating the acquirement of a knowledge of her works. It may be a question, whether we do this most effectually by a few general rules, and numerous exceptions ; or by increasing the former, and reducing the number of the latter :

whether we shall best promote useful purposes by calling the desman and the scalope specific exceptions to the shrew genus; the chrysochlore or Cape mole an exception to the mole; and the tenrec an exception to the hedgehog; or whether they will be more readily and methodically committed to the memory as distinct genera. In adopting the first of these alternatives a farther difficulty is incurred: for Linnæus calls the desman a castor; Gmelin and Pallas, a shrew; Johnston and Aldrovandus, a mouse; and Hill and Brisson, a rat. Granting it to be allied to all these, to which, in particular, shall we call it an exception? In defiance, therefore, of *hard words* and Greek compounds (which, however, explain themselves, and are an assistance to the learned), the latter alternative may, perhaps, appear to be the least exceptionable.

The incisive teeth of most of these animals approach nearly to those of the glires; but, as they principally distinguish the genera into which the animals are now arranged, they will be described in succession.

Their canine teeth are called by Illiger *ambigui*; because, although they have the shape of canine teeth in general, they are so situate in the mouth as to make it doubtful whether they do not belong in some to the incisors, and in others to the cheek-teeth. They are also very short, and do not cross each other in the manner of those already mentioned.

The cheek-teeth of this division of the order are

more piercing than cutting or molar; each tooth has one or more rising, conical points, which have neither the lacerating property of the teeth purely carnivorous, nor the grinding or pounding quality of those adapted, in a greater or less degree, to vegetable food*.

The habits of these animals are nocturnal, as well as subterraneous; and most of those which are found in high latitudes pass the winter in a state of lethargic insensibility.

Their legs are short (except in one species), and have five toes, provided with very strong claws or nails.

THE HEDGEHOGS.

Erinaceus. L.

THESE animals have six incisive, or front wedge-shaped teeth; and one ambiguous or canine tooth on each side, distant from the incisives, but close to the cheek-teeth; which last correspond with the brief general description of those of the insectivora in general. They are delineated on the opposite plate at fig. 1.; by which it will be seen, that the intermediate incisive teeth are very long; the ca-

* It is hardly possible to give an adequate idea of the teeth, as they distinguish different animals, by verbal description only; but it is hoped, that the delineations here given may effect this purpose.

nine, on the contrary, very short; the cheek-teeth all conical or pointed; and the whole system of these organs different from that of any of the animals hitherto mentioned as proper to this order.

THE COMMON HEDGEHOG. L'HERISSON.

Erinaceus Europæus. L.

The hedgehog has the body covered with spines instead of hair, which form a defensive armour against more powerful animals; and this is rendered much more effectual in consequence of a faculty it possesses by means of muscles in the skin, that serve to bring the head and feet close up to the belly, so as to form a sort of ball. The tail and ears are very short.

The hedgehog passes its monotonous winter in a rabbit's hole, or some such retreat, where it may be found rolled up, and so surrounded with dried leaves and moss, as not to be recognised at first sight. It is met with in the temperate parts of Europe and Asia. It incurs the ill will of the peasants here from a prevailing idea that it sucks the cows; and Aldrovandus states, that it will carry fruit, such as apples, &c., to its hole, by rolling itself among them, and thus taking it up with its prickles; but these are likely to be some of the numerous errors imbibed respecting various animals.

Notwithstanding such prejudices against it, and notwithstanding the respectable opinion of the elegant Buffon, the hedgehog is now esteemed a very harmless animal, destructive only to worms and insects, on which it feeds, occasionally with roots and vegetables; and it may be rendered very serviceable in a house pestered with the insects commonly called black beetles, as it pursues and feeds on these, and presently clears a dwelling of so unpleasant an inmate.

THE LONG-EARED HEDGEHOG.

L'HERISSON A LONGUES OREILLES.

Erinaceus Auritus. Pallas.

This species is smaller than the common hedgehog, and has very large ears. It is found in the neighbourhood of the river Volga, and from the north of the Caspian as far as Egypt. The legs and belly are covered with fur. In its manners, &c. it resembles the common hedgehog.

That the powers of its stomach are perfectly qualified for an insectivorous regimen may be inferred from Dr. Pallas's observation, that this hedgehog can eat any number of cantharides, while a single one will dreadfully torment a cat or dog.

The specimen here figured measured only four inches and a quarter from nose to tail.

The *hystrix brachyura* of Linnæus is generally thought to be a hedgehog; and Seba describes a species without external ears, said to be found in America.

THE TANRECS, OR MADAGASCAR HEDGEHOGS.

Centenes. Illiger.

IF analogy in external appearance alone be adopted in artificially associating or grouping the animal world, the three following animals would be hedgehogs, as, indeed, they were named by Linnæus and their first describers. But, on the other hand, if the form of the teeth be followed in the arrangement, then must they be separated from their spiny consimilars into a distinct genus, which Illiger has done, and given to it the name of centenes; for their incisive and canine teeth approach the form of those proper to the quadrumana and carnivora, and recede from that form in the insectivora in general, which inclines to that proper to the teeth of the glires*. They have six incisive teeth in each jaw, or four above and six below, which, unlike those of the

* Cuvier divides the insectivora into two principal groups, the latter of which contains only the genera tanrec and talpa, including the common species and the *sorex cristatus* of Linnæus, because the teeth of these two genera approach those of the digitigrades and plantigrades, and recede from those of the other insectivora.

common hedgehogs, though corresponding with the teeth of the mole genus, are shorter than the canine teeth; and one canine tooth and six cheek-teeth on each side in both jaws.

THE TANREC. LE TANREC.

Erinaceus Ecaudatus. L.

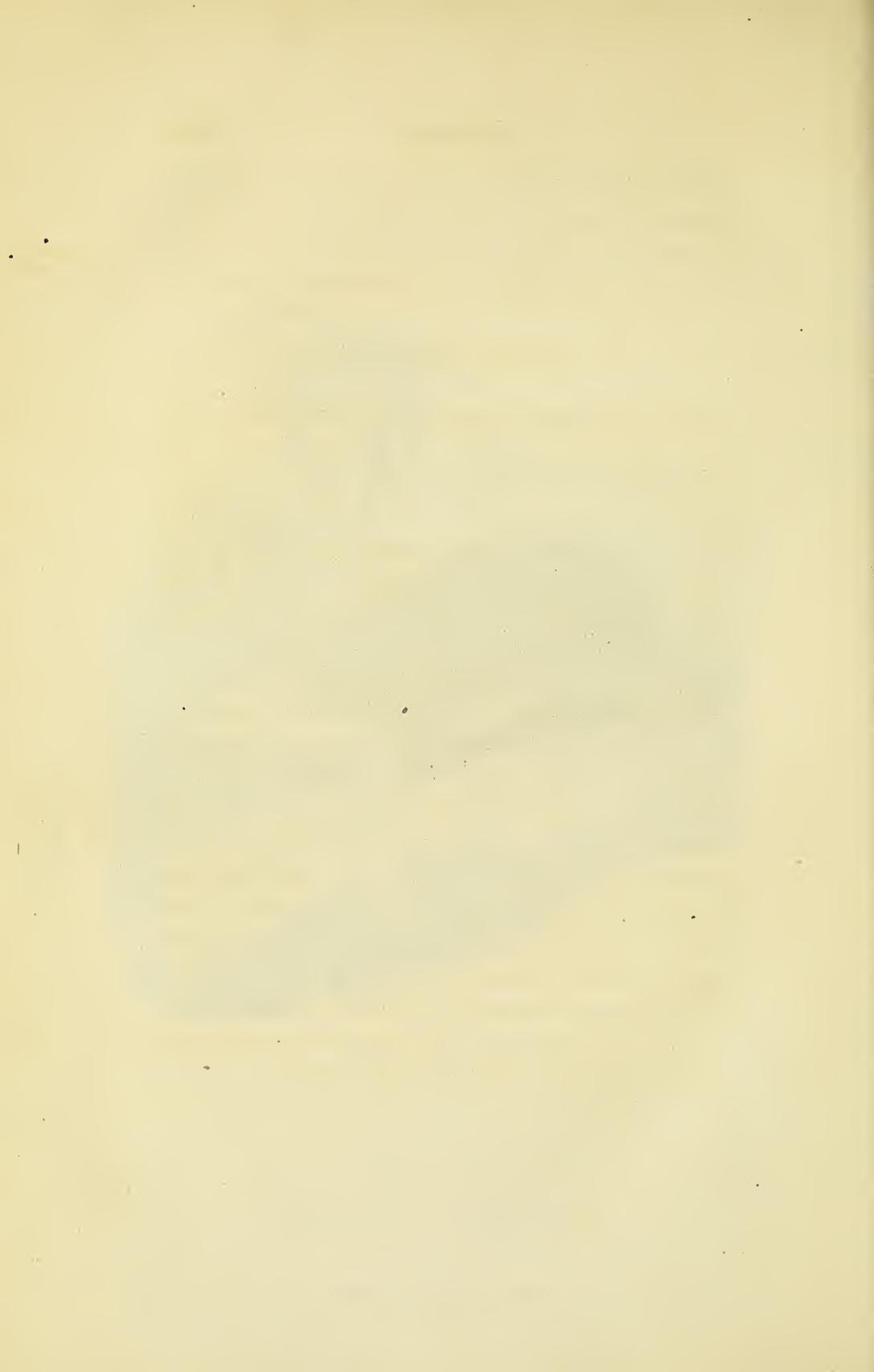
This animal is seven or eight inches long, and formed very like the common hedgehog, as will appear by the opposite figure, to which we shall add no farther description; merely pointing out those distinctions, in which the following species differ from this.

This and its congeners are aquatic in their habits; and, when not visiting the water, are in general at rest in some hole in its neighbourhood. They are said to remain torpid, during several months in the year, in these subterraneous retreats; but, contrary to the habits of most animals, such torpor takes place during the hottest parts of the year.



THE TANREC. TANREC.

ERINACEUS ECAUDATUS, L.



THE TENDRAC. LE TENDRAC.

Erinaceus Setosus. L.

The teeth of this species agree with those of the last, except that there are six incisors in each jaw. The spines are also more flexible, and much longer, and the hairs more silky. It is nearly ten inches long. The spines cover the whole upper part of the animal; are yellowish at their roots and tips, but black in the middle; and have long hairs intermixed with them.

It digs with its snout, and grunts and wallows in the mire like the hog. It burrows a long, sloping, zig-zag hole in the ground; and remains torpid for some weeks, during which time it sheds its bristles. The flesh is much prized by the natives of Madagascar, who take great pains in hunting it.

Some confusion in the application of the synonyms of these two species seems to have occurred. All who have described them appear to have applied the names as they are associated here, with the exception of Boddaert and Desmarest, who make the *erinaceus setosus* of Linnæus to be the tanrec, and the *ecaudatus* of the same great writer to be the tendrac.

THE STRIPED TENREC. LE TENREC RAYÉ.

Erinaceus Semispinosus. Cuvier.

This species of the Madagascar hedgehog is not larger than a common mole, and is covered with silky hair and prickles. It is striped black and yellow; and is the species which Buffon describes in the third volume of the Supplement, and figures at plate 37 as a young tenrec.

THE SHREWS.

Sorex. L.

THE teeth of this genus are also peculiar. They have two long incisive teeth in each jaw, those below being of great length, protruding straight or horizontally from the jaw, and turning up only at the extremities, toward which they become of a bright brown colour: then follow three or four teeth above, and two below, which, though occupying the place of canine teeth, are ambiguous, and may more properly be called lateral incisors; and beyond these are four cheek-teeth above, and three below, of the usual insectivorous character. Fig 3 of the plate of teeth of the insectivora represents them.

The nose of this genus is lengthened almost into a proboscis, which is moveable. The tail is generally long, and flat or round in the different species. The nails are less powerful, and less fitted for digging, than is observed in the insectivora in general. They secrete on the flanks a strongly odoriferous unguent.

THE SHREW. LA MUSARAIGNE, OU MUNETTE.

Sorex Araneus. L.

This little animal is very common in our fields and gardens, and is generally called the shrew-mouse, from its resemblance to the mouse in size, colour, and general appearance, when not examined closely; but it is easily distinguished by its elongated snout. The external ear is very large, having within it two plaits, one below the other, the undermost being at the entrance of the meatus auditorius. The tail is not cylindrical, but almost quadrangular, and is nearly as long as the body. The shrew emits a strong scent; which appears to be the cause that cats, though they will destroy it eagerly, never eat it. It is almost omnivorous; and, in addition to insects, worms, and flesh, will eat grain and roots.

THE WATER SHREW. LA MUSARAIGNE D'EAU.

Sorex Fodiens. Pallas.

This is larger than the preceding, and measures nearly four inches, with a tail almost as long as the body. It is black above, and whitish underneath;

and is found in this country, as well as in Europe generally, and in parts of Asia. It inhabits the banks of rivers ; and seeks its prey, principally frogs, during twilight. The adaptation of the water shrew to the aquatic mode of life is apparent in the ear of this animal, which can be closed almost hermetically, or so as to resist the influx of water, by means of three valves, capable of being employed for this purpose. The stiff hairs which border the feet also afford the animal a facility for swimming, which the common shrew does not require.

THE SQUARE-TAILED SHREW. LA MUSARAIGNE
CURRELET.

Sorex Tetragonurus. Herman.

This species is about the size of the common shrew, but has the tail more decidedly quadrangular, and has two more canine or ambiguous teeth. The colour is a fine black above, and a cinereous gray beneath. Like the common shrew it appears to eat grain. It is an inhabitant of Europe.

Another species is described by Herman, under the epithet *constrictus*, which Dr. Shaw calls the whitish-tailed shrew. It appears to differ from the common species principally in having the tail flatted at the base and extremity, but rounded in the middle; and in having two more canine teeth.

The *sorex lineatus*, *sorex remifer*, and *sorex collaris*, are described by Geoffroy in the seventeenth volume

of the *Annales du Mus.*; but the difference in each from the common type is very insignificant.

Some other species also have been mentioned, among which Linnæus imagined the *sorex minutus* to be the least of quadrupeds; but Pallas insists, that one he describes, under the epithet *exilis*, is less, not exceeding half a drachm in weight.

THE PERFUMING SHREW, MUSARAIGNE D'INDE,

Sorex Indicus, Geoffroy,

Is the largest of the genus known, measuring generally about six inches in length of body. Its form is perfectly the same as that of the common species, and the fur is of a clear gray brown, waved with light reddish tints. Pennant says, it is of an elegant blue gray. It enters the houses in India and the islands, and is very offensive from its musky odour, which is extremely strong.

A similar species, but differing in colour, is said to inhabit the country about the Cape of Good Hope.

The teeth of the shrews before mentioned are similar; but a strict adherence to the character of these organs has induced modern writers to arrange the following species into distinct genera; viz. the *desman*, the *scalope*, the *chrysochlore*, and the *condylure*.

THE DESMANS.

THIS genus differs, according to Cuvier, from the shrews, in having two very small teeth placed between the two great incisives in the lower jaw, and the two upper incisives triangular and flatted.

THE DESMAN. LE DESMAN DE RUSSIE.

Castor Moschatus. L. (12th ed.)—*Sorex Moschatus*. Gm.

This singular species is by our Johnston considered a mouse ; and Linnæus subsequently placed it with the castors. It is as large as a hedgehog ; and of a cinereous gray colour above, and something lighter below. It is almost entirely an aquatic animal, seldom being seen on shore, where it is very weak and slow of motion. The face is lengthened almost to a proboscis, which the animal is constantly moving about ; the tail is long, scaly, and flatted at the sides, like that of the castor ; the feet are webbed ; the eyes are extremely small ; and they have no external ears. Beneath the tail, at the root, are placed several receptacles for a musky oil, secreted in them, which is

very powerful, and may be tasted in eating a pike which has recently fed on them.

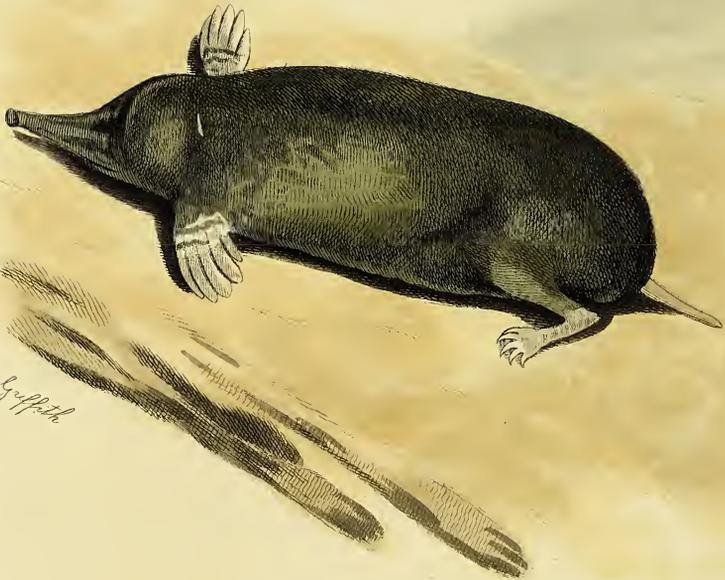
It inhabits, in great numbers, the rivers and lakes of the southern parts of Russia; and feeds principally on leeches. It exhibits much of the sagacity of the beaver in digging its retreat, the mouth of which opens under the surface of the water, but the burrow is thence raised so as to be dry even when the common level of the water is much raised by floods. It is taken principally in nets by fishermen.

A species, about half the size of the last, has been found at the foot of the Pyrenees, and arranged by Geoffroy with this genus; but, according to his specific description, the teeth do not correspond exactly with those of the desman of Russia. The figure of this singular animal is from that given by M. Geoffroy.

THE SCALOPE. (Illiger*.)

THIS new genus has the teeth of the desman, and the pointed muzzle of the shrew; and large fore paws, provided with strong nails for digging, similar to those of the moles.

* The word *σκαλοψ*, whence this is derived, signifies merely a mole, and does not appear therefore to be sufficiently distinctive.



THE SCALOPE OR SHREW MOLE. LE SCALOPE.

Sorex aquaticus. L.

THE SCALOPE, OR SHREW MOLE. LE SCALOPE DU
CANADA.*Sorex Aquaticus.*

This animal forms one of those numerous links, that connect different genera. It is neither a shrew nor a mole; though to the former it is allied by the teeth, and to the latter by its large and broad feet, armed with digging claws. It is the brown mole of Pennant and Shaw; and the water shrew of Linnæus, Gmelin, and Schreber; but, being dissimilar in some important respects to both these races of animals, consistency must be sacrificed in placing it with either, or the refinement of multiplying the genera must be submitted to, in separating it from both.

The scalope has the nose much elongated. The nostrils are small; the eyes and ears small, and almost hidden in the fur; the fore paws large and strong, and the toes joined by a membrane reaching to the last joint. The body is about six inches long, of a yellowish gray colour; and the tail is extremely short. In its habits, as in its form, it appears to be assimilated both to the water shrew and the mole, living generally in holes on the banks of rivers, principally in Canada.

THE CHRYSOCHLORE. (Illiger.)

THIS genus has the teeth of the two preceding ; but the muzzle is short, large, and turned up. The fore feet have only three nails, the outer one being much larger and stronger than the others : the hind feet have five. It is constructed for subterranean habits, and has the fore-arm strengthened with a third bone for this purpose.

THE CHRYSOCHLORE, OR CAPE MOLE. LA TAUPE DORÉE.

Talpa Asiatica. L.

This singular animal partakes of at least a double nature, like the last ; and, if it be arranged according to the teeth, must be placed with the musk shrew and the scalope ; but, if by other characteristics, with the moles.

In addition to the generic peculiarities before noticed, it should be observed, that this animal is something less than the common mole ; has no tail ; and neither the ears nor eyes are externally apparent. Another very singular quality distinguishes it, which is its colour ; displaying some of those brilliant and beautiful metallic variations, that distinguish many

of the birds and insects. The prevailing colour of the fur is green ; but it exhibits, in certain reflections of the light, tints of a bronze or brighter copper colour, which are particularly vivid when the fur is wet, or the animal immersed in clear water. It has very generally, though erroneously, been said to be indigenous in Siberia ; but it is now understood to be an inhabitant of Southern Africa.

THE RED CHRYSOCHLORE, OR RED MOLE OF PENNANT.

Talpa Rubra. L.

This is something larger than the last mentioned, and is distinguished by those peculiarities, which separate that animal from those to which it is in part assimilated, except that the hind feet have four toes instead of five. The fur is reddish, inclining to a clear ash colour. This is said by Seba, whose authority is doubted, to be an American animal.

THE CONDYLORE. (Illiger.)

THIS genus of professor Illiger deserves, certainly, to be separated from that of the *sorex* or shrew, in which Linnæus arranged its principal species, if not

the only one yet known; and from the moles, in which its first describer, Buffon, and Pennant, and others, have placed it. Its peculiarities, as a genus, will appear in the specific description.

THE CONDYLURE, OR RADIATED MOLE OF PENNANT.
LA TAUPE DU CANADA. (Buffon.)

Sorex Cristatus. L.

Delafaille first figured and described this very curious little animal, under the name of the Canadian mole (la taupe du Canada). Its general construction and habits, so far as they are known, assimilate it to the moles; but Linnæus, willing apparently to arrange it after the character of the teeth, and not of the exterior and more general appearance, called it a shrew, under the name of *sorex cristatus*. Professor Illiger, in his *Prodromus*, separates it into a distinct genus (the condylure), founded on a peculiarity of the tail, the articulations of the vertebræ of which are said to be more apparent than in most other animals*. Cuvier assures us, from inspection of the teeth, that this animal is a true mole, and not a shrew; and, lastly, Desmarest has given a precise account of these organs, which certainly separate it

* Κονδυλος, a knuckle, and ουρα, a tail.

both from the moles and shrews. If, therefore, the teeth be adopted as the basis of artificial arrangement, this animal must be separated into a distinct genus; which the other peculiarities incident to it seem still more decidedly to require.

It has six incisive teeth above, and four below; but these are not all of the same shape and size, particularly those in the upper jaw, the two middlemost of which are large and bent, the next to them on each side long and conical, and the outermost very small. There are three above, and five below, of the teeth called ambiguous; and four cheek-teeth above, and three below.

This animal measures not more than four inches, and the tail nearly two. The muzzle is elongated, much wrinkled, and furnished with a bone in the snout; the end is truncated; and the edge of this is surrounded with a considerable number of cartilaginous radii. These, it is said, the animal has the power of drawing together, or dilating, at will, in the manner of the calices of flowers. We are very frequently, though not always, enabled to discover the beneficial purpose intended in the peculiarities or general characters observable in every being; but the use to which this animal applies this singular appendage is not yet satisfactorily ascertained. Indeed, its habits have not been described, although the animal seems common in its native countries. We have not an original drawing of it; but have copied from a figure already published.

It seems more than probable, that this is the animal which Pennant first described under the name of the long-tailed mole, the *talpa longicaudata* of Gmelin and others.

THE MOLES.

Talpa. L.

THE genus *talpa*, or mole, has the teeth approaching the form of the carnivora more closely than most of the insectivorous subdivision of this order. There are six incisives above, and eight below; one canine tooth on each side; and seven cheek-teeth above, and six below. They are represented at fig. 2 of the plate of teeth of the insectivora.

The other generic characters will appear in the specific descriptions.

THE MOLE. LA TAUPE.

Talpa Europæa. L.

This animal is known to every body for its subterraneous life, and its form, so admirably adapted to its mode of living. It is nearly six inches long, and the tail measures about another inch. A very short arm, attached to a large shoulder blade, supported by a strong clavicle, furnished with enormous muscles, carries a very large hand, or foot, the palm

of which is turned outwards. This hand is sharp at its lower edge; the toes are scarcely distinguishable, but the nails with which they are furnished are strong, flat, and cutting. Such is the instrument the mole employs for scratching away the earth. The sternum, like those of birds and bats, has a prominent ridge in the middle, which gives the pectoral muscles an additional power. The mole employs its lengthened head for piercing the ground, when it first descends into it. The muzzle is pointed, and armed at the end with a bone peculiar to it; and the muscles that support it are extremely vigorous. The ligament that covers the neck becomes ossified. The hinder part of the animal is weak, and it moves on the surface of the earth with a difficulty proportioned to its activity when underneath it. The outer orifice of the ear is extremely small, and without any ala, or external wing; but the tympanum is very large, and this accounts for that superior faculty of hearing, with which it is generally thought to be endowed. The eyes are exceedingly small, and so hidden under the fur, that the existence of them has been long denied. The construction of this organ, however, is now proved to be as complex and artificial, if we may employ the word, as in animals that have the eyes more apparent; and though hidden, and protected from external injury, they seem to be more than commonly effective, having a perception of light while under the surface of the earth, and even before the Sun is risen, as it is during the morning twilight that they are particularly active, at which

time they may most easily be taken. Its nourishment consists of insects, worms, and some tender roots; and, although the jaws are said to be weak, it is thought to be ferocious, as it has been known to destroy and devour both a toad and a viper. The female brings four or five young in the month of May, which she fosters in a bed of leaves and grass, carefully made in her subterranean retreat. In forming this it evinces much sagacity, or instinct; as well as in migrating from ground too dry for its sustenance, or such as, from its situation, is likely to become flooded at times.

Buffon, in his fascinating work, expatiates at considerable length on the quietness and retirement of the life of the mole.

There are several varieties of the mole; as the yellow mole of Pennant; the spotted mole of Brisson; and the white mole of Seba; beside those which were formerly considered species of this genus, but are now transferred into others, or made distinct genera.

THE TUPAIA.

For the generic peculiarities, which distinguish the following animals, we refer to the specific descriptions.

THE BANGSRING, OR SINSRING OF THE JAVANESE.

Tupaia Javanica. Raffles.

Sir Stamford Raffles first shortly described both this and the following animal, in the thirteenth volume of the Transactions of the Linnæan Society; but Dr. Horsfield has lately given a more detailed description of them, accompanied with excellent engravings, in his work now publishing on the animals of Java and the neighbouring islands.

It has been already observed, that the insectivora approach, in the form and disposition of their teeth, to the genus glires*. The present genus approaches the squirrels, which are included in the glires, in the form of the body, the proportional length of the extremities, the breadth of the tail, and the faculty

* Except the genera taurec and talpa.

of carrying it on the back as a plume ; but in some other particulars it is assimilated to the insectivora ; and in others, again, to the lemurs ; so that it appears to be intermediate, and connected with at least three distinct genera.

The doctor observes of it, “ although tupaia has been placed among the insectivores, its arrangement in a natural system requires further consideration. It is necessary, for this purpose, that we should be more fully acquainted with its internal structure, and with its manners and habits, than we are at present ; for although in certain characters it approaches near to the genera *sorex* and *mygale* (*desman*) among the insectivores, yet in others it strikingly resembles *tarsius* among the quadrumanes, and withal it is marked by the external form and appearance of a squirrel.”

The upper part of the body and head of this animal are brown, slightly diversified with gray, of different shades ; the lower parts are dirty white, with a slight tint of grayish ; the tail agrees with the back ; and the snout appears, by the figure, to have a reddish tint.

The head and body are a little more than eight inches long, and the tail is of the same length, but much less bushy than that of the squirrel. The snout is much attenuated, the ears are very large, and the nails very much compressed and strong.

But little of the habits and manners of this animal appear to be as yet known. Dr. Horsfield was in-

formed, by the native Javanese, that they fed on fruit and nuts : but he argues, from the system of the teeth, that insects are their proper food ; which appears indeed to have been the case with a specimen mentioned in the proceedings of the Asiatic Society, that was kept some time in Bengal.

THE TUPAIA-TANA. (Raffles.)

This is a larger species, measuring ten inches and more in the length of the head and body ; but the tail is but six inches long.

The teeth of this species differ but little from the last ; but as they present less of flat surface in the aggregate, they are probably still more adapted for masticating animal, rather than vegetable matter. It is very similar to the last, but the snout is rather more elongated, and the colour is brighter, and more like that of the squirrel.

This genus appears to differ from the insectivores in general in not having claws calculated for digging, as well as in many other respects ; and seems to present, in a striking degree, relations in certain particulars to different genera, which renders it necessary to make it distinct. We are led by a natural gradation from the insectivorous division of the order carnivora, through this genus, to the squirrels on the one hand, and the lemurs on the other. Analogous

observations in the animal kingdom have been already frequently made, and a probable hypothesis, which has been founded on such premises, has been alluded to.

The bats and seals are generally arranged with the carnivora, but the singular powers of flight of the former, and the marine habits of the latter, separate them widely from that order; they will therefore be treated as distinct, being more remarkable for other properties than that of their flesh-eating regimen.

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