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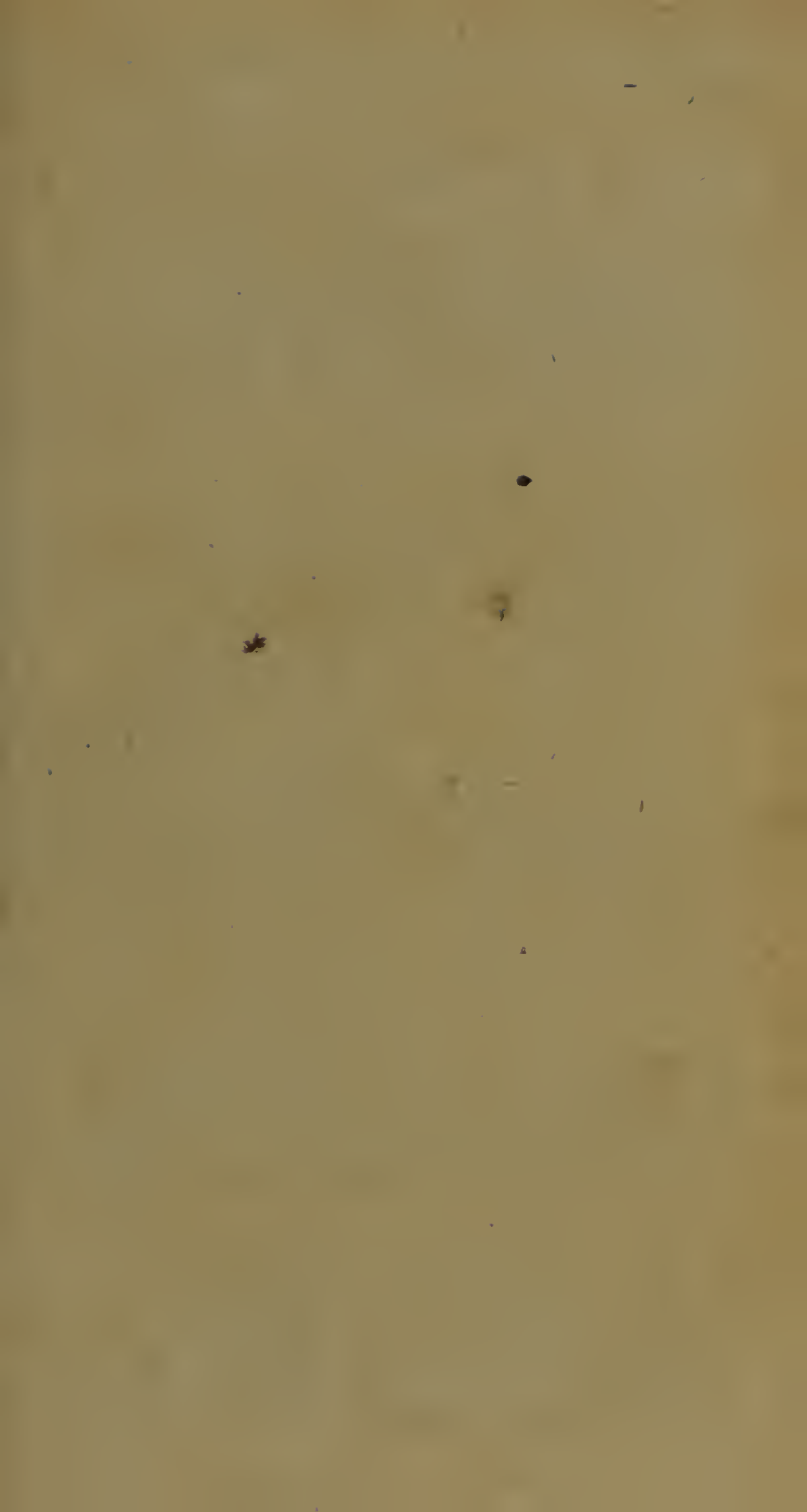
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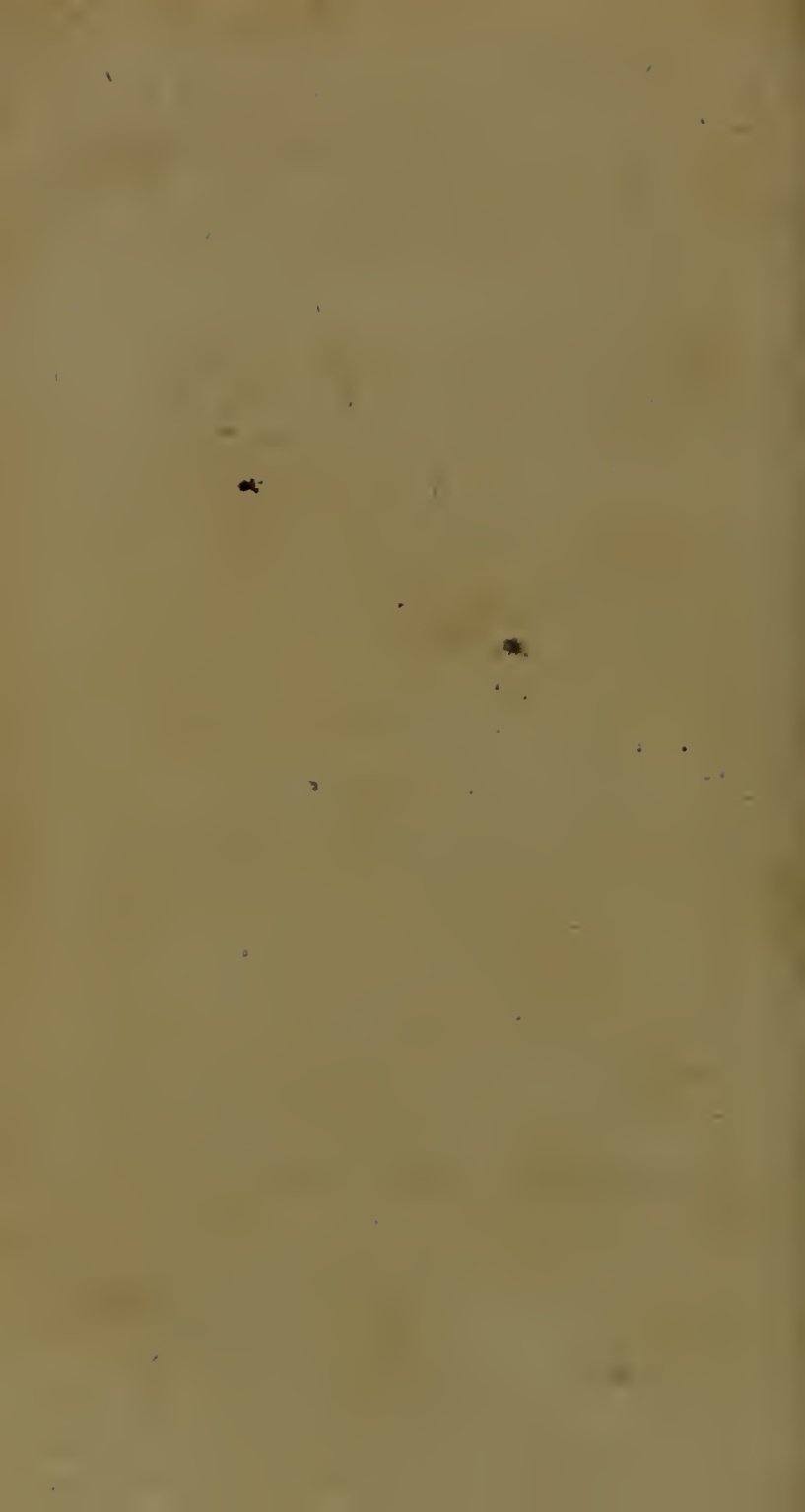
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O F T H E

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A N I M A T E D N A T U R E.

*revised*  
B Y

*Oliver*  
O L I V E R G O L D S M I T H.

*in*  
I N E I G H T V O L U M E S.

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A N E W E D I T I O N.

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V O L. I V.

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A N  
H I S T O R Y  
O F  
A N I M A L S.

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C H A P. I.

*Of Animals of the Hare Kind.*

**H**AVING described in the last chapter a tribe of minute, fierce, rapacious animals, I come now to a race of minute animals, of a more harmless and gentle kind, that, without being enemies to any, are preyed upon by all. As Nature has fitted the former for hostility, so it has entirely formed the latter for evasion; and as the one kind subsist by their courage and activity, so the other find safety from their swiftness and their fears. The Hare is the swiftest animal in the world for the time it con-

tinues; and few quadrupedes can overtake even the rabbit when it has but a short way to run. To this class also we may add the squirrel, somewhat resembling the hare and rabbit in its form and nature, and equally pretty, inoffensive, and pleasing.

If we were methodically to distinguish animals of the hare kind from all others, we might say that they have but two cutting teeth above and two below, that they are covered with a soft downy fur, and that they have a bushy tail. The combination of these marks might perhaps distinguish them tolerably well; whether from the rat, the beaver, the otter, or any other most nearly approaching in form. But, as I have declined all method that rather tends to embarrass history than enlighten it, I am contented to class these animals together for no very precise reason, but because I find a general resemblance between them in their natural habits, and in the shape of their heads and body. I call a squirrel an animal of the hare kind, because it is something like a hare. I call the Paca of the same kind, merely because it is more like a rabbit than any other animal I know of. In short, it is fit to erect some particular standard in the imagination of the reader, to refer him to some animal that he knows, in order to direct him in conceiving the figure of such as he does not know. Still, however, he should

should be apprized that his knowledge will be defective without an examination of each particular species; and that saying an animal is of this or that particular kind is but a very trifling part of its history.

Animals of the hare kind, like all others that feed entirely upon vegetables, are inoffensive and timorous. As Nature furnishes them with a most abundant supply, they have not that rapacity after food remarkable in such as are often stinted in their provision. They are extremely active and amazingly swift, to which they chiefly owe their protection; for being the prey of every voracious animal, they are incessantly pursued. The hare, the rabbit, and the squirrel, are placed by Pyerius, in his Treatise of Ruminating Animals, among the number of those that chew the cud; but how far this may be true I will not pretend to determine. Certain it is that their lips continually move whether sleeping or waking. Nevertheless, they chew their meat very much before they swallow it, and for that reason I should suppose that it does not want a second mastication. All these animals use their fore-paws like hands; they are remarkably salacious, and are furnished by Nature with more ample powers than most others for the business of propagation. They are so very prolific, that were they not thinned by the constant depredations made upon them by most other

B 2

animals,

animals, they would quickly over-run the earth.

Of all these the hare is the largest, the most persecuted, and the most timorous; all its muscles are formed for swiftness; and all its senses seem only given to direct its flight. It has very large prominent eyes, placed backwards in its head, so that it can almost see behind it as it runs. These are never wholly closed; but as the animal is continually upon the watch, it sleeps with them open. The ears are still more remarkable for their size; they are moveable, and capable of being directed to every quarter; so that the smallest sounds are readily received, and the animal's motions directed accordingly. The muscles of the body are very strong, and without fat, so that it may be said to carry no superfluous burthen of flesh about it; the hinder feet are longer than the fore, which still adds to the rapidity of its motions; and almost all animals that are remarkable for their speed, except the horse, are formed in the same manner.

An animal so well formed for a life of escape might be supposed to enjoy a state of tolerable security; but as every rapacious creature is its enemy, it but very seldom lives out its natural term. Dogs of all kinds pursue it by instinct, and follow the hare more eagerly than any other animal. The cat and the weasel kinds  
are

are continually lying in ambush, and practising all their little arts to seize it; birds of prey are still more dangerous enemies, as against them no swiftness can avail, nor retreat secure; but man, an enemy far more powerful than all, prefers its flesh to that of other animals, and destroys greater numbers than all the rest. Thus pursued and persecuted on every side, the race would long since have been totally extirpated, did it not find a resource in its amazing fertility.

The hare multiplies exceedingly; it is in a state of engendering at a few months old; the females go with young but thirty days, and generally bring forth three or four at a time\*. As soon as they have produced their young they are again ready for conception, and thus do not lose any time in continuing the breed. But they are in another respect fitted in an extraordinary manner for multiplying their kind; for the female, from the conformation of her womb, is often seen to bring forth, and yet to continue pregnant at the same time; or, in other words, to have young ones of different ages in her womb together. Other animals never receive the male when pregnant, but bring forth their young at once. But it is frequently different with the hare; the female

\* Buffon, vol. xiii. p. 12.

often, though already impregnated, admitting the male, and thus receiving a second impregnation. The reason of this extraordinary circumstance is, that the womb in these animals is divided in such a manner that it may be considered as a double organ, one side of which may be filled while the other remains empty. Thus these animals may be seen to couple at every period of their pregnancy, and even while they are bringing forth young laying the foundation of another brood.

The young of these animals are brought forth with their eyes open, and the dam suckles them for twenty days, after which they leave her, and seek out for themselves \*. From this we observe, that the education these animals receive is but trifling, and the family connexion but of short duration. In the rapacious kinds the dam leads her young forth for months together; teaches them the arts of rapine; and, although she wants milk to supply them, yet keeps them under her care until they are able to hunt for themselves. But a long connexion of this kind would be very unnecessary as well as dangerous to the timid animals we are describing; their food is easily procured; and their associations, instead of protection, would only expose them to their pursuers. They seldom, how-

\* Buffon, vol. xiii. p. 12.



ever, separate far from each other, or from the place where they were produced; but make each a form at some distance, having a predilection rather for the place than each other's society. They feed during the night rather than by day, chusing the most tender blades of grass, and quenching their thirst with the dew. They live also upon roots, leaves, fruits, and corn, and prefer such plants as are furnished with a milky juice. They also strip the bark of trees during the winter, there being scarce any that they will not feed on, except the lime or the alder. They are particularly fond of birch, pinks, and parsley. When they are kept tame, they are fed with lettuce and other garden herbs; but the flesh of such as are thus brought up is always indifferent.

They sleep or repose in their forms by day, and may be said to live only by night\*. It is then that they go forth to feed and couple. They do not pair, however, but in the rutting season, which begins in February; the male pursues and discovers the female by the sagacity of its nose. They are then seen, by moon-light, playing, skipping, and pursuing each other; but the least motion, the slightest breeze, the falling of a leaf, is sufficient to disturb their revels; they instantly fly off, and each takes a separate way.

\* Buffon, vol. xiii. p. 12.

As their limbs are made for running, they easily outstrip all other animals in the beginning; and could they preserve their speed it would be impossible to overtake them; but as they exhaust their strength at their first efforts, and double back to the place they were started from, they are more easily taken than the fox, which is a much slower animal than they. As their hind legs are longer than the fore, they always chuse to run up hill, by which the speed of their pursuers is diminished, while theirs remains the same. Their motions are also without any noise, as they have the sole of the foot furnished with hair; and they seem the only animals that have hair on the inside of their mouths.

They seldom live above seven or eight years at the utmost; they come to their full perfection in a year; and this, multiplied by seven, as in other animals, gives the extent of their lives\*. It is said, however, that the females live longer than the males: of this Mr. Buffon makes a doubt; but I am assured that it is so. They pass their lives, in our climate, in solitude and silence; and they seldom are heard to cry, except when they are seized or wounded. Their voice is not so sharp as the note of some other animals, but more nearly approaching that of the squalling of a child. They are not so wild

\* Buffon, vol. xiii. p. 12.

as their dispositions and their habits seem to indicate; but are of a complying nature, and easily susceptible of a kind of education. They are easily tamed. They even become fond and caressing, but they are incapable of attachment to any particular person, and never can be depended upon; for though taken never so young, they regain their native freedom at the first opportunity. As they have a remarkable good ear, and sit upon their hind-legs, and use their fore-paws as hands, they have been taught to beat the drum, to dance to music, and go through the manual exercise.

But their natural instincts for their preservation are much more extraordinary than those artificial tricks that are taught them. They make themselves a form particularly in those places where the colour of the grass most resembles that of their skin; it is open to the south in winter, and to the north in summer. The hare, when it hears the hounds at a distance, flies for some time through a natural impulse, without managing its strength, or consulting any other means but speed for its safety. Having attained some hill or rising-ground, and left the dogs so far behind, that it no longer hears their cries, it stops, rears on its hinder legs, and at length looks back to see if it has not lost its pursuers. But these, having once fallen upon the scent, pursue slowly, and with

united skill; and the poor animal soon again hears the fatal tidings of their approach. Sometimes, when fore hunted, it will start a fresh hare, and squat in the same form; sometimes it will creep under the door of a sheep-cot, and hide among the sheep; sometimes it will run among them, and no vigilance can drive it from the flock; some will enter holes like the rabbit, which the hunters call going to *vault*; some will go up one side of the hedge, and come down the other; and it has been known, that an hare sorely hunted has got upon the top of a cut quick-set hedge, and run a good way thereon, by which it has effectually evaded the hounds. It is no unusual thing also for them to betake themselves to furze bushes, and to leap from one to another, by which the dogs are frequently misled. However, the first doubling an hare makes is generally a key to all its future attempts of that kind, the latter being exactly like the former. The young hares tread heavier, and leave a stronger scent, than the old, because their limbs are weaker; and the more this forlorn creature tires, the heavier it treads, and the stronger is the scent it leaves. A buck, or male hare, is known by its chusing to run upon hard highways, feeding farther from the wood-sides, and making its doublings of a greater compass than the female. The male having made a turn or two about its form, frequently

quently leads the hounds five or six miles on a stretch ; but the female keeps close by some covert side, turns, crosses, and winds among the bushes like a rabbit, and seldom runs directly forward. In general, however, both male and female regulate their conduct according to the weather. In a moist day they hold by the highways more than at any other time, because the scent is then strongest upon the grass. If they come to the side of a grove or spring, they forbear to enter, but squat down by the side thereof, until the hounds have overshot them ; and then, turning along their former path, make to their old form, from which they vainly hope for protection.

Hares are divided, by the hunters, into mountain and meased hares. The former are more swift, vigorous, and have their flesh better tasted ; the latter chiefly frequent the marshes, when hunted keep among low grounds, and their flesh is moist, white, and flabby. When the male and female keep one particular spot, they will not suffer any strange hare to make its form in the same quarter ; so that it is usually said, that the more you hunt the more hares you shall have ; for, having killed one hare, others come and take possession of its form. Many of these animals are found to live in woods and thickets ; but they are naturally fonder of the open country, and are constrained only by fear to take

shelter in places that afford them neither a warm sun, nor an agreeable pasture. They are, therefore, usually seen stealing out of the edges of the wood, to taste the grass that grows shorter and sweeter in the open fields, than under the shade of the trees; however, they seldom miss of being pursued; and every excursion is a new adventure. They are shot at by poachers; traced by their footsteps in the snow; caught in springs; dogs, birds, and cats are all combined against them; ants, snakes, and adders drive them from their forms, especially in summer; even fleas, from which most other animals are free, persecute this poor creature; and so various are its enemies, that it is seldom permitted to reach even that short term to which it is limited by Nature.

The soil and climate have their influence upon this animal, as well as on most others. In the countries bordering on the north pole, they become white in winter, and are often seen in great troops of four or five hundred, running along the banks of the river Irtysh, or the Jenisca, and as white as the snow they tread on. They are caught in toils for the sake of their skins, which on the spot are sold for less than seven shillings an hundred. Their fur is well known to form a considerable article in the hat manufacture; and we accordingly import vast quantities of it from those countries where the hare abounds in  
such

such plenty. They are found also entirely black, but these in much less quantity than the former\*; and even some have been seen with horns, though these but rarely †.

The hares of the hot countries, particularly in Italy, Spain, and Barbary, are smaller than ours: those bred in the Milanese country are said to be the best in Europe ‡. There is scarce a country where this animal is not to be found, from the torrid zone to the neighbourhood of the polar circle. The natives of Guinea knock them on the head as they come down to the sides of the rivers to drink. They also surround the place where they are seen in numbers, and clattering a short stick, which every man carries, against that which the person next him carries, they diminish their circle gradually, till the hares are cooped up in the midst. They then all together throw their sticks in among them, and with such deadly force, that they seldom fail of killing great numbers at a time §.

The flesh of this animal has been esteemed as a delicacy among some nations, and is held in detestation by others. The Jews, the ancient Britons, and the Mahometans, all con-

\* Klein Disp. Quadrup. p. 52. † Johnston de  
 Quad. lib. ii. cap. 2. ‡ Dictionnaire Raisonné,  
 Lievre. § Hist. Gen. des Voyages, tom. iv. p. 171.

sidered it as an unclean animal, and religiously abstained from it. On the contrary, there are scarce any other people, however barbarous, at present, that do not consider it as the most agreeable food. Fashion seems to preside and govern all the senses; what mankind at one time consider as beautiful, fragrant, or savoury, may at another time, or among another nation, be regarded as deformed, disgustful, or ill tasted. That flesh which the ancient Romans so much admired, as to call it the food of the wise, was, among the Jews and the Druids, thought unfit to be eaten; and even the moderns, who like the Romans consider the flesh of this animal as a delicacy, have very different ideas as to dressing it. With us it is simply served up without much seasoning; but Apicius shews us the manner of dressing an hare in true Roman taste, with parsley, rice, vinegar, cummin seed, and coriander\*.

### THE RABBIT.

THE Hare and the Rabbit, though so very nearly resembling each other in form and disposition, are yet distinct kinds, as they refuse to mix with each other. Mr. Buffon bred up several of both kinds in the same place; but

\* Vid. Apicii, &c.



from being at first indifferent, they soon became enemies; and their combats were generally continued until one of them was disabled or destroyed. However, though these experiments were not attended with success, I am assured that nothing is more frequent than an animal bred between these two, which, like all other mules, is marked with sterility. Nay, it has been actually known that the rabbit couples with animals of a much more distant nature; and there is at present in the Museum at Brussels, a creature covered with feathers and hair, and said to be bred between a rabbit and an hen.

The fecundity of the rabbit is still greater than that of the hare; and if we should calculate the produce from a single pair, in one year, the number would be amazing. They breed seven times in a year, and bring eight young ones each time. On a supposition, therefore, that this happens regularly, at the end of four years a couple of rabbits shall see a progeny of almost a million and an half. From hence we might justly apprehend being overstocked by their encrease; but, happily for mankind, their enemies are numerous, and their nature inoffensive; so that their destruction bears a near proportion to their fertility.

But although their numbers be diminished by every beast and bird of prey, and still more by

by man himself, yet there is no danger of their extirpation. The hare is a poor defenceless animal, that has nothing but its swiftness to depend on for safety; its numbers are, therefore, every day decreasing; and in countries that are well peopled, the species are so much kept under, that laws are made for their preservation. Still, however, it is most likely that they will be at last totally destroyed; and, like the wolf or the elk in some countries, be only kept in remembrance. But it is otherwise with the rabbit, its fecundity being greater, and its means of safety more certain. The hare seems to have more various arts and instincts to escape its pursuers, by doubling, squatting, and winding; the rabbit has but one art of defence alone, but in that one finds safety; by making itself a hole, where it continues a great part of the day, and breeds up its young; there it continues secure from the fox, the hound, the kite, and every other enemy.

Nevertheless, though this retreat be safe and convenient, the rabbit does not seem to be naturally fond of keeping there. It loves the sunny field and the open pasture; it seems to be a chilly animal, and dislikes the coldness of its under-ground habitation. It is, therefore, continually out, when it does not fear disturbance; and the female often brings forth her young, at a distance from the warren, in an  
hole,

hole, not above a foot deep at the most. There she suckles them for about a month; covering them over with moss and grass, whenever she goes to pasture, and scratching them up at her return. It has been said, indeed, that this shallow hole without the warren, is made lest the male should attack and destroy her young; but I have seen the male himself attend the young there, lead them out to feed, and conduct them back upon the return of the dam. This external retreat seems a kind of country-house, at a distance from the general habitation; it is usually made near some spot of excellent pasture, or in the midst of a field of sprouting corn. To this both male and female often retire from the warren; lead their young by night to the food which lies so convenient, and, if not disturbed, continue there till they are perfectly grown up. There they find a greater variety of pasture than near the warren, which is generally eaten bare; and enjoy a warmer sun, by covering themselves up in a shallower hole. Whenever they are disturbed, they then forsake their retreat of pleasure, for one of safety; they fly to the warren with their utmost speed; and, if the way be short, there is scarce any dog, how swift soever, that can overtake them.

But it does not always happen that these animals are possessed of one of these external apartments; they most usually bring forth their  
young

young in the warren, but always in a hole, separate from the male. On these occasions, the female digs herself an hole\*, different from the ordinary one, by being more intricate; at the bottom of which she makes a more ample apartment. This done, she pulls off from her belly a good quantity of her hair, with which she makes a kind of bed for her young. During the two first days she never leaves them; and does not stir out but to procure nourishment, which she takes with the utmost dispatch; in this manner suckling her young, for near six weeks, until they are strong, and able to go abroad themselves. During all this time, the male seldom visits their separate apartment; but when they are grown up, so as to come to the mouth of the hole, he then seems to acknowledge them as his offspring, takes them between his paws, smooths their skin, and licks their eyes: all of them, one after the other, have an equal share in his caresses.

In this manner the rabbit, when wild, consults its pleasure and its safety; but those that are bred up tame, do not take the trouble of digging an hole, conscious of being already protected. It has also been observed †, that when people, to make a warren, stock it with tame rabbits, these animals, having been unaccustom-

\* Buffon.

† Ibid.

ed to the art of scraping an hole, continue exposed to the weather, and every other accident, without ever burrowing. Their immediate offspring also are equally regardless of their safety; and it is not till after two or three generations, that these animals begin to find the necessity and convenience of an asylum, and practise an art which they could only learn from nature.

Rabbits of the domestic breed, like all other animals that are under the protection of man, are of various colours; white, brown, black, and mouse-colour. The black are the most scarce; the brown, white, and mouse-colour, are in greater plenty. Most of the wild rabbits are of a brown, and it is the colour which prevails among the species; for, in every nest of rabbits, whether the parents be black or white, there are some brown ones found of the number. But, in England, there are many warrens stocked with the mouse-colour kinds, which some say came originally from an island in the river Humber, and which still continue their original colour, after a great number of successive generations. A gentleman\*, who bred up tame rabbits for his amusement, gives the following account of their production. I began, says he, by having but one male and

\* Mr. Moutier, as quoted by Mr. Buffon.

female only; the male was entirely white, and the female brown; but, in their posterity, the number of the brown by far exceeded those of any other colour: there were some white, some party-coloured, and some black. It is surprising how much the descendants were obedient and submissive to their common parent; he was easily distinguished from the rest by his superior whiteness; and, however numerous the other males were, this kept them all in subjection. Whenever they quarrelled among each other, either for their females or provisions, as soon as he heard the noise he ran up to them with all dispatch; and, upon his appearance, all was instantly reduced to peace and order. If he caught any of them in the fact, he instantly punished them, as an example to the rest. Another instance of his superiority was, that having accustomed them to come to me with the call of a whistle, the instant this signal was given, I saw him marshalling them up, leading them the foremost, and then suffering them all to file off before him.

The rabbit\*, though less than the hare, generally lives longer. As these animals pass the greater part of their lives in their burrow, where they continue at ease and unmolested, they have nothing to prevent the regularity of their

\* Mr. Moutier, as quoted by Mr. Buffon.

health, or the due course of their nourishment. They are, therefore, generally found fatter than the hare; but their flesh is, notwithstanding, much less delicate. That of the old ones, in particular, is hard, tough, and dry; but it is said, that, in warmer countries, they are better tasted. This may very well be, as the rabbit, though so very plenty in Great Britain and Ireland, is, nevertheless, a native of the warmer climates; and has been originally imported into these kingdoms, from Spain. In that country, and in some of the islands in the Mediterranean, we are told, that they once multiplied in such numbers as to prove the greatest nuisance to the natives. They at first demanded military aid to destroy them; but soon after they called in the assistance of ferrets, which originally came from Africa, and these, with much more ease and expedition, contrived to lessen the calamity. In fact, rabbits are found to love a warm climate, and to be incapable of bearing the cold of the north; so that in Sweden they are obliged to be littered in the houses. It is otherwise in all the tropical climates, where they are extremely common, and where they seldom burrow, as with us. The English counties that are most noted for these animals, are Lincolnshire, Norfolk, and Cambridgeshire. They delight in grounds of a sandy soil, which are  
warmer

warmer than those of clay; and which also furnish a softer and finer pasture.

The tame rabbits are larger than the wild ones, from their taking more nourishment, and using less exercise; but their flesh is not so good, being more insipid and softer. In order to improve it, they are chiefly fed upon bran, and are stinted in their water; for, if indulged in too great a plenty of moist food, they are apt, as the feeders express it, to grow rotten. The hair or fur is a very useful commodity, and is employed in England for several purposes, as well when the skin is dressed with it on, as when it is pulled off. The skins, especially the white, are used for lining cloaths, and are considered as a cheap imitation of ermine. The skin of the male is usually preferred, as being the most lasting, but it is coarser; that on the belly in either sex, is the best and finest. But the chief use made of rabbit's fur, is in the manufacture of hats; it is always mixed, in certain proportions, with the fur of the beaver; and it is said to give the latter more strength and consistence.

The Syrian rabbit, like all other animals bred in that country, is remarkable for the length of its hair; it falls along the sides in wavy wreaths, and is, in some places, curled at the end, like wool; it is shed once a year in large masses; and







*W. Kirtland del.*

*J. Taylor sculp.*

The Squirrel.

and it often happens that the rabbit, dragging a part of its robe on the ground, appears as if it had got another leg, or a longer tail. There are no rabbits naturally in America; however, those that have been carried from Europe are found to multiply in the West-India islands in great abundance. In other parts of that continent they have animals that in some measure resemble the rabbits of Europe; and which most European travellers have often called hares or rabbits, as they happened to be large or small. Their giving them even the name will be a sufficient excuse for my placing them among animals of the hare kind; although they may differ in many of the most essential particulars. But before we go to the new continent, we will first examine such as bear even a distant resemblance to the hare kind at home.

### T H E S Q U I R R E L.

THERE are few readers that are not as well acquainted with the figure of a squirrel as that of the rabbit; but supposing it unknown to any, we might give them some idea of its form, by comparing it to a rabbit, with shorter ears, and a longer tail. The tail, indeed, is alone sufficient to distinguish it from all others, as it is extremely long, beautiful, and bushy, spreading like a fan, and which, when thrown up behind,

behind, covers the whole body. This serves the little animal for a double purpose; when erected, it serves, like an umbrella, as a secure protection from the injuries of the heat and cold; and when extended, it is very instrumental in promoting those vast leaps that the squirrel takes from tree to tree: nay, some assert that it answers still a third purpose, and when the squirrel takes water, which it sometimes does upon a piece of bark, that its tail serves it instead of a sail\*.

There are few wild animals in which there are so many varieties as in the squirrel. The *common squirrel* is of the size of a small rabbit, and is rather of a more reddish brown. The belly and breast are white; and the ears beautifully ornamented with long tufts of hair, of a deeper colour than that on the body. The eyes are large, black, and lively; the legs are short and muscular, like those of the rabbit; but the toes longer, and the claws sharper, so as to fit it for climbing. When it eats, or dresses itself, it sits erect, like the hare or rabbit, making use of its fore legs as hands; and chiefly resides in trees. The *grey Virginian squirrel*, which Mr. Buffon calls the Petit Gris, is larger than a rabbit, and of a greyish colour. Its body and limbs are thicker than those of the common

\* Klein. Linnæus.

squirrel; and its ears are shorter; and without tufts at the point. The upper part of the body, and external part of the legs, are of a fine whitish grey, with a beautiful red streak on each side lengthways. The tail is covered with very long grey hair, variegated with black and white towards the extremity. This variety seems to be common to both continents; and in Sweden is seen to change colour in winter. The *Barbary squirrel*, of which Mr. Buffon makes three varieties, is of a mixed colour, between red and black. Along the sides there are white and brown lines, which render this animal very beautiful; but what still adds to its elegance is, that the belly is of a sky blue, surrounded with white. Some of these hold up the tail erect; and others throw it forward over their body. The *Siberian white squirrel* is of the size of a common squirrel. The *Carolina black squirrel* is much bigger than the former, and sometimes tipped with white at all the extremities. The *Brazilian squirrel*, which Mr. Buffon calls the Coquallin, is a beautiful animal of this kind, and very remarkable for the variety of its colours. Its belly is of a bright yellow; its head and body variegated with white, black, brown, and orange colour. It wants the tufts at the extremity of its ears; and does not climb trees, as most of the kind are seen to do. To this list may be added the

*little ground squirrel of Carolina*, of a reddish colour, and blackish stripes on each side; and, like the former, not delighting in trees. Lastly, the *squirrel of New Spain*, which is of a deep iron-grey colour, with seven longitudinal whitish streaks along the sides of the male, and five along those of the female. As for the flying squirrels, they are a distinct kind, and shall be treated of by themselves.

These, which I suppose to be but a few of the numerous varieties of the squirrel, sufficiently serve to shew how extensively this animal is diffused over all parts of the world. It is not to be supposed, however, that every variety is capable of sustaining every climate; for few animals are so tender, or so little able to endure a change of abode, as this. Those bred in the tropical climates, will only live near a warm sun; while, on the contrary, the squirrel of Siberia will scarce endure the temperature of ours. These varieties do not only differ in their constitutions and colour, but in their dispositions also; for while some live on the tops of trees, others feed, like rabbits, on vegetables below. Whether any of these, so variously coloured, and so differently disposed, would breed among each other, we cannot tell: and since, therefore, we are left in uncertainty upon this point, we are at liberty either to consider each as a distinct species by itself; or only a variety,

that accident might have originally produced, and that the climate or soil might have continued. For my own part, as the original character of the squirrel is so strongly marked upon them all, I cannot help considering them in the latter point of view; rather as the common descendants of one parent, than originally formed with such distinct similitudes.

The squirrel is a beautiful little animal\*, which is but half savage; and which, from the gentleness and innocence of its manners, deserves our protection. It is neither carnivorous nor hurtful; its usual food is fruits, nuts, and acorns; it is cleanly, nimble, active, and industrious; its eyes are sparkling, and its physiognomy marked with meaning. It generally, like the hare and rabbit, sits up on its hinder legs, and uses the fore paws as hands; these have five claws or toes, as they are called, and one of them is separated from the rest like a thumb. This animal seems to approach the nature of birds, from its lightness, and surprising agility on the tops of trees. It seldom descends to the ground, except in case of storms, but jumps from one branch to another; feeds, in spring, on the buds and young shoots; in summer, on the ripening fruits; and particularly the young cones of the pine-tree. In autumn

\* Buffon.

it has an extensive variety to feast upon; the acorn, the filbert, the chesnut, and the wilding. This season of plenty, however, is not spent in idle enjoyment; the provident little animal gathers at that time its provisions for the winter; and cautiously foresees the season when the forest shall be stripped of its leaves and fruitage.

Its nest is generally formed among the large branches of a great tree, where they begin to fork off into small ones. After chusing the place where the timber begins to decay, and an hollow may the more easily be formed, the squirrel begins by making a kind of level between the forks; and then bringing moss, twigs, and dry leaves, it binds them together with great art, so as to resist the most violent storm. This is covered up on all sides; and has but a single opening at top, which is just large enough to admit the little animal; and this opening is itself defended from the weather by a kind of canopy, made in the fashion of a cone, so that it throws off the rain, though never so heavy. The nest thus formed, with a very little opening above, is, nevertheless, very commodious and roomy below; soft, well knit together, and every way convenient and warm. In this retreat the little animal brings forth its young, shelters itself from the scorching heat of the sun, which it seems to fear, and from the storms



storms and the inclemency of winter, which it is still less capable of supporting. Its provision of nuts and acorns is seldom in its nest, but in the hollows of the tree, laid up carefully together, and never touched but in cases of necessity. Thus one single tree serves for a retreat and a store-house; and without leaving it during the winter, the squirrel possesses all those enjoyments that its nature is capable of receiving. But it sometimes happens that its little mansion is attacked by a deadly and powerful foe. The martin goes often in quest of a retreat for its young, which it is incapable of making for itself; for this reason it fixes upon the nest of a squirrel, and, with double injustice, destroys the tenant, and then takes possession of the mansion.

However, this is a calamity that but seldom happens: and, of all other animals, the squirrel leads the most frolicsome playful life; being surrounded with abundance, and having few enemies to fear. They are in heat early in the spring; when, as a modern naturalist says\*, it is very diverting to see the female feigning an escape from the pursuit of two or three males, and to observe the various proofs which they give of their agility, which is then exerted in full force. Nature seems to have been

\* British Zoology.

particular in her formation of these animals for propagation; however, they seldom bring forth above four or five young at a time; and that but once a year. The time of their gestation seems to be about six weeks; they are pregnant in the beginning of April, and bring forth about the middle of May.

The squirrel is never found in the open fields, nor yet in copses or underwoods; it always keeps in the midst of the tallest trees, and, as much as possible, shuns the habitations of men. It is extremely watchful; if the tree in which it resides be but touched at the bottom, the squirrel instantly takes the alarm, quits its nest, at once flies off to another tree; and thus travels, with great ease, along the tops of the forest, until it finds itself perfectly out of danger. In this manner it continues for some hours at a distance from home, until the alarm be past away; and then it returns, by paths that to all quadrupedes but itself are utterly impassable. Its usual way of moving is by bounds; these it takes from one tree to another, at forty feet distance; and if at any time it is obliged to descend, it runs up the side of the next tree with amazing facility. It has an extremely sharp piercing note, which most usually expresses pain; it has another, more like the purring of a cat, which it employs when pleased; at least it appeared

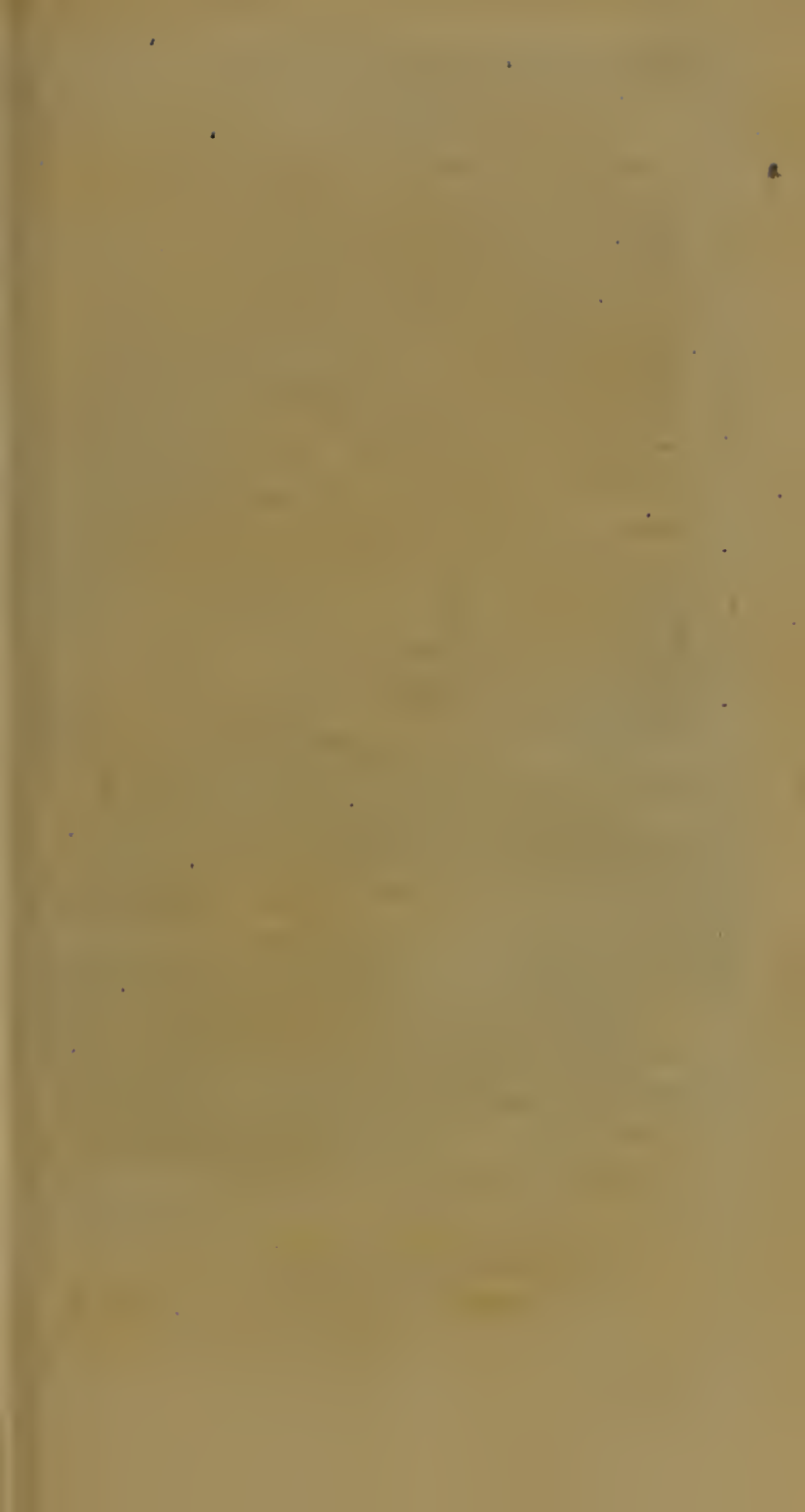
peared so in that from whence I have taken a part of this description.

In Lapland, and the extensive forests to the north, the squirrels are observed to change their habitation, and to remove in vast numbers from one country to another. In these migrations, they are generally seen by thousands, travelling directly forward; while neither rocks, forests, nor even the broadest waters can stop their progress. What I am going to relate, appears so extraordinary, that were it not attested by numbers of the most credible historians, among whom are Klein and Linnæus, it might be rejected, with that scorn with which we treat imposture or credulity; however, nothing can be more true than that when these animals, in their progress, meet with broad rivers, or extensive lakes, which abound in Lapland, they take a very extraordinary method of crossing them. Upon approaching the banks, and perceiving the breadth of the water, they return, as if by common consent, into the neighbouring forest, each in quest of a piece of bark, which answers all the purposes of boats for wafting them over. When the whole company are fitted in this manner, they boldly commit their little fleet to the waves; every squirrel sitting on its own piece of bark, and fanning the air with its tail, to drive the vessel to its desired port. In this orderly manner they set forward, and often cross

lakes several miles broad. But it too often happens that the poor mariners are not aware of the dangers of their navigation; for although at the edge of the water it is generally calm, in the midst it is always more turbulent. There the slightest additional gust of wind oversets the little sailor and his vessel together. The whole navy, that but a few minutes before rode proudly and securely along, is now overturned, and a shipwreck of two or three thousand sail ensues. This, which is so unfortunate for the little animal, is generally the most lucky accident in the world for the Laplander on the shore; who gathers up the dead bodies as they are thrown in by the waves, eats the flesh, and sells the skins for about a shilling the dozen\*.

The squirrel is easily tamed, and it is then a very familiar animal. It loves to lie warm, and will often creep into a man's pocket or his bosom. It is usually kept in a box, and fed with hazle nuts. Some find amusement in observing with what ease it bites the nut open, and eats the kernel. In short, it is a pleasing pretty little domestic; and its tricks and habitudes may serve to entertain a mind unequal to stronger operations.

\* *Oeuvres de Regnard.*





*See Serv del*

*J. Taylor sculp*

The Flying Squirrel.

## THE FLYING SQUIRREL.

Mr. Ray was justly of opinion, that the Flying Squirrel might more properly be said to be of the rat kind, because its fur is shorter than in other squirrels, and its colours also more nearly approach the former. However, as mankind have been content to class it among the squirrels, it is scarcely worth making a new distinction in its favour. This little animal, which is frequently brought over to England, is less than a common squirrel, and bigger than a field mouse. Its skin is very soft, and elegantly adorned with a dark fur in some places, and light grey in others. It has large prominent black and very sparkling eyes, small ears, and very sharp teeth, with which it gnaws any thing quickly. When it does not leap, its tail, which is pretty enough, lies close to its back; but when it takes its spring, the tail is moved backwards and forwards from side to side. It is said to partake somewhat of the nature of the squirrel, of the rat, and of the dormouse; but that in which it is distinguished from all other animals, is its peculiar conformation for taking those leaps that almost look like flying. It is, indeed, amazing to see it at one bound dart above an hundred yards, from one tree to another. They are assisted in this spring by a

very peculiar formation of the skin, that extends from the fore-feet to the hinder; so that when the animal stretches its fore-legs forward, and its hind-legs backward, this skin is spread out between them, somewhat like that between the legs of a bat. The surface of the body being thus encreased, the little animal keeps buoyant in the air until the force of its first impulsion is expired, and then it descends. This skin, when the creature is at rest, or walking, continues wrinkled up on its sides; but when its limbs are extended, it forms a kind of web between them of above an inch broad on either side, and gives the whole body the appearance of a skin floating in the air. In this manner the flying squirrel changes place, not like a bird, by repeated strokes of its wings, but rather like a paper kite, supported by the expansion of the surface of its body; but with this difference, however, that, being naturally heavier than the air, instead of mounting it descends; and that jump, which upon the ground would not be above forty yards, when from an higher tree to a lower may be above an hundred.

This little animal is more common in America than in Europe, but not very commonly to be seen in either. It is usually found, like the squirrel, on the tops of trees; but, though better fitted for leaping, it is of a more torpid disposition,





*Sciurus*

*Sciurus*

The Squirrel in the act of Flying.







De Jere del.

J. Taylor sculp.

The Marmout..

disposition, and is seldom seen to exert its powers; so that it is often seized by the polecat and the martin. It is easily tamed, but apt to break away whenever it finds an opportunity. It does not seem fond of nuts or almonds, like other squirrels, but is chiefly pleased with the sprouts of the birch, and the cones of the pine. It is fed in its tame state with bread and fruits; it generally sleeps by day, and is always most active by night. Some naturalists gravely caution us not to let it get among our corn-fields, where they tell us it will do a great deal of damage, by cropping the corn as soon as it begins to ear\*!

## T H E M A R M O U T .

From the description of the squirrel and its varieties, we proceed to a different tribe of animals, no way indeed resembling the squirrel, but still something like the rabbit and the hare. We are to keep these two animals still in view, as the center of our comparison; as objects to which many others may bear some similitude, though they but little approach each other.

\* He may easily be made tame; but he is apt to do a great deal of damage in the corn-fields, because he will crop the corn as soon as it begins to ear.

BROOKE'S NAT. HIST.

Among the hare kind is the Marmout, which naturalists have placed either among the hare kind or the rat kind, as it suited their respective systems. In fact, it bears no great resemblance to either; but of the two it approaches much nearer the hare, as well in the make of its head, as in its size, in its bushy tail, and particularly in its chewing the cud, which alone is sufficient to determine our choice in giving it its present situation. How it ever came to be degraded into the rat or the mouse I cannot conceive, for it no way resembles them in size, being near as big as an hare; or in its disposition, since no animal is more tractable, nor more easily tamed.

The marmout is, as was said, almost as big as an hare, but it is more corpulent than a cat, and has shorter legs. Its head pretty nearly resembles that of an hare, except that its ears are much shorter. It is cloathed all over with very long hair, and a shorter fur below. These are of different colours, black and grey. The length of the hair gives the body the appearance of greater corpulence than it really has, and at the same time shortens the feet so that its belly seems touching the ground. Its tail is tufted and well furnished with hair, and it is carried in a straight direction with its body. It has five claws behind, and only four before. These it uses as the squirrel does, to carry its  
food

food to its mouth ; and it usually sits upon its hinder parts to feed, in the manner of that little animal.

The marmout is chiefly a native of the Alps ; and when taken young is tamed more easily than any other wild animal, and almost as perfectly as any of those that are domestic\*. It is readily taught to dance, to wield a cudgel, and to obey the voice of its master. Like the cat, it has an antipathy to the dog ; and when it becomes familiar to the family, and is sure of being supported by its master, it attacks and bites even the largest mastiff. From its squat muscular make, it has great strength joined to great agility. It has four large cutting teeth, like all those of the hare kind ; but it uses them to much more advantage, since in this animal they are very formidable weapons of defence. However, it is in general a very inoffensive animal ; and, except its enmity to dogs, seems to live in friendship with every creature, unless when provoked. If not prevented, it is very apt to gnaw the furniture of an house, and even to make holes through wooden partitions ; from whence, perhaps, it has been compared to the rat. As its legs are very short, and made somewhat like those of a bear, it is often seen

\* Buffon, from whence the remainder of this description is taken. *N. B.* He takes it from Gesner, vol. xvii.

sitting up, and even walking on its hind-legs in like manner; but with the fore-paws, as was said, it uses to feed itself in the manner of a squirrel. Like all of the hare kind, it runs much swifter up hill than down; it climbs trees with great ease, and runs up the clefts of rocks, or the contiguous walls of houses, with great facility. It is ludicrously said that the Savoyards, who are the only chimney-sweepers of Paris, have learned this art from the marmout, which is bred in the same country.

These animals eat indiscriminately of whatever is presented to them; flesh, bread, fruits, herbs, roots, pulse, and insects. But they are particularly fond of milk and butter. Although less inclined to petty thefts than the cat, yet they always try to steal into the dairy, where they lap up the milk like a cat, purring all the while like that animal, as an expression of their being pleased. As to the rest, milk is the only liquor they like. They seldom drink water, and refuse wine. When pleased or caressed, they often yelp like puppies; but when irritated or frightened, they have a piercing note that hurts the ear. They are very cleanly animals, and, like the cat, retire upon necessary occasions; but their bodies have a disagreeable scent, particularly in the heat of summer. This tinctures their flesh, which, being very fat and firm, would  
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be very good, were not this flavour always found to predominate.

We have hitherto been describing affections in this animal which it has in common with many others; but we now come to one which particularly distinguishes it from all others of this kind, and, indeed, from every other quadrupede, except the bat and the dormouse. This is its sleeping during the winter. The marmout, though a native of the highest mountains, and where the snow is never wholly melted, nevertheless seems to feel the influence of the cold more than any other, and in a manner has all its faculties chilled up in winter. This extraordinary suspension of life and motion for more than half the year, deserves our wonder, and excites our attention to consider the manner of such a temporary death, and the subsequent revival. But first to describe, before we attempt to discuss.

The marmout, usually, at the end of September, or the beginning of October, prepares to fit up its habitation for the winter, from which it is never seen to issue till about the beginning or the middle of April. This animal's little retreat is made with great precaution, and fitted up with art. It is an hole on the side of a mountain, extremely deep, with a spacious apartment at the bottom, which is rather longer than it is broad. In this several marmouts can reside

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at the same time, without crowding each other, or injuring the air they breathe. The feet and claws of this animal seem made for digging; and, in fact, they burrow into the ground with amazing facility, scraping up the earth like a rabbit, and throwing back what they have thus loosened behind them. But the form of their hole is still more wonderful; it resembles the letter Y; the two branches being two openings, which conduct into one channel, which terminates in their general apartment that lies at the bottom. As the hole is made on the declivity of a mountain, there is no part of it on a level, but the apartment at the end. One of the branches or openings issues out, sloping downwards; and this serves as a kind of sink or drain to the whole family, where they make their excrements, and where the moisture of the place is drawn away. The other branch, on the contrary, slopes upwards, and this serves as their door upon which to go out and in. The apartment at the end is very warmly stuccoed round with moss and hay, of both which they make an ample provision during the summer. As this is a work of great labour, so it is undertaken in common; some cut the finest grass, others gather it, and others take their turns to drag it into their hole. Upon this occasion, as we are told, one of them lies on its back, permits the hay to be heaped upon its belly, keeps  
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its paws upright to make greater room; and in this manner, lying still upon its back, it is dragged by the tail, hay and all, to their common retreat. This also some give as a reason for the hair being generally worn away on their backs, as is usually the case; however, a better reason for this may be assigned, from their continually rooting up holes, and passing through narrow openings. But, be this as it will, certain it is that they all live together, and work in common to make their habitation as snug and convenient as possible. In it they pass three parts of their lives; into it they retire when the storm is high; in it they continue while it rains; there they remain when apprehensive of danger, and never stir out except in fine weather, never going far from home even then. Whenever they venture abroad, one is placed as a centinel, sitting upon a lofty rock, while the rest amuse themselves in playing along the green fields, or are employed in cutting grass and making hay for their winter's convenience. Their trusty centinel, when an enemy, a man, a dog, or a bird of prey approaches, apprizes its companions with a whistle, upon which they all make home, the centinel himself bringing up the rear.

But it must not be supposed that this hay is designed for provision; on the contrary, it is always found in as great plenty in their holes

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at the end as at the beginning of winter; it is only sought for the convenience of their lodging, and the advantages of their young. As to provision, they seem kindly apprized by Nature that during the winter they shall not want any, so that they make no preparations for food, though so diligently employed in fitting up their abode. As soon as they perceive the first approaches of the winter, during which their vital motions are to continue in some measure suspended, they labour very diligently to close up the two entrances of their habitation, which they effect with such solidity, that it is easier to dig up the earth any where else than where they have closed it. At that time they are very fat, and some of them are found to weigh above twenty pounds; they continue so for even three months more; but by degrees their flesh begins to waste, and they are usually very lean by the end of winter. When their retreat is opened, the whole family is then discovered, each rolled into a ball, and covered up under the hay. In this state they seem entirely lifeless; they may be taken away, and even killed, without their testifying any great pain; and those who find them in this manner carry them home, in order to breed up the young, and eat the old ones. A gradual and gentle warmth revives them; but they would die if too suddenly brought near  
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the fire, or if their juices were too quickly liquefied.

Strictly speaking, says Mr. Buffon, these animals cannot be said to sleep during the winter; it may be called rather a torpor, a stagnation of all the faculties\*. This torpor is produced by the congelation of their blood, which is naturally much colder than that of all other quadrupedes. The usual heat of man, and other animals, is about thirty degrees above congelation; the heat of these is not above ten degrees. Their internal heat is seldom greater than that of the temperature of the air. This has been often tried by plunging the ball of the thermometer into the body of a living dormouse, and it never rose beyond its usual pitch in air, and sometimes it sunk above a degree. It is not surprising, therefore, that these animals, whose blood is so cold naturally, should become torpid, when the external cold is too powerful for the small quantity of heat in their bodies, yet remaining; and this always happens when the thermometer is not more than ten degrees above congelation. This coldness Mr. Buffon has experienced in the blood of the bat, the dormouse, and the hedge-hog, and with great justice he extends the analogy to the marmout, which like the rest is seen to sleep all the winter. This

\* Buffon, vol. xvi. Loirs.

torpid state continues as long as the cause which produces it continues; and it is very probable that it might be lengthened out beyond its usual term, by artificially prolonging the cold; if, for instance, the animal were rolled up in wool, and placed in a cold cellar, nearly approaching to, but not quite so cold as an ice-house, for that would kill them outright, it would remain perhaps a whole year in its state of insensibility. However this be, if the heat of the air be above ten degrees, these animals are seen to revive; and if it be continued in that degree of temperature, they do not become torpid, but eat and sleep at proper intervals, like all other quadrupeds whatever.

From the above account, we may form some conception of the state in which these animals continue during the winter. As in some disorders, where the circulation is extremely languid, the appetite is diminished in proportion, so in these the blood scarcely moving, or only moving in the greater vessels, they want no nourishment to repair what is worn away by its motions. They are seen, indeed, by slow degrees, to become leaner in proportion to the slow attrition of their fluids; but this is not perceptible except at the end of some months. Man is often known to gather nourishment from the ambient air; and these also may in some measure be supplied in the same manner; and, having

ing sufficient motion in their fluids to keep them from putrefaction, and just sufficient nourishment to supply the waste of their languid circulation, they continue rather feebly alive than sleeping.

These animals produce but once a year, and usually bring forth but three or four at a time. They grow very fast, and the extent of their lives is not above nine or ten years; so that the species is neither numerous nor very much diffused. They are chiefly found in the Alps, where they seem to prefer the brow of the highest mountains to the lowest ranges, and the sunny side to that in the shade. The inhabitants of the country where they chiefly reside, when they observe the hole, generally stay till winter before they think proper to open it; for if they begin too soon, the animal wakes, and, as it has a surprising faculty of digging, makes its hole deeper in proportion as they follow. Such as kill it for food, use every art to improve the flesh, which is said to have a wild taste, and to cause vomitings\*. They, therefore, take away the fat, which is in great abundance, and salt the remainder, drying it somewhat in the manner of bacon. Still, however, it is said to be very indifferent eating. This animal is found in Poland under the denomination of the

\* Dictionnaire Raisonné, vol. iii. p. 29.

Bobak, entirely resembling that of the Alps, except that the latter has a toe more upon its fore-foot than the former. It is found also in Siberia under the name of the Jevraika, being rather smaller than either of the other two. Lastly, it is found in Canada by the appellation of the Monax, differing only from the rest in having a blueish snout, and a longer tail.

## THE AGOUTI.

FROM the marmout, which differs from the hare so much in the length of its fur, we go to the Agouti, another species equally differing in the shortness of its hair. These bear some rude resemblance to the hare and the rabbit in their form and manner of living, but sufficiently differing to require a particular description. The first of these, and that the largest, as was hinted above, is called the Agouti. This animal is found in great abundance in the southern parts of America, and has by some been called the rabbit of that continent. But, though in many respects it resembles the rabbit, yet still in many more it differs, and is, without all doubt, an animal peculiar to the new world only. The agouti is about the size of a rabbit, and has a head very much resembling it, except that the ears are very short in comparison. It resembles the rabbit also in the arched form of its back,  
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in the hind legs being longer than the fore, and in having four great cutting teeth, two above and two below; but then it differs in the nature of its hair, which is not soft and downy as in the rabbit, but hard and bristly like that of a sucking pig, and of a reddish brown colour. It differs also in the tail, which is even shorter than in the rabbit, and entirely destitute of hair. Lastly, it differs in the number of its toes, having but three on the hinder feet, whereas the rabbit has five. All these distinctions, however, do not countervail against its general form, which resembles that of a rabbit, and most travellers have called it by that name.

As this animal differs in form, it differs still more in habitudes and disposition. As it has the hair of an hog, so also it has its voraciousness\*. It eats indiscriminately of all things; and, when satiated, hides the remainder, like the dog or the fox, for a future occasion. It takes a pleasure in gnawing and spoiling every thing it comes near. When irritated, its hair stands erect along the back, and like the rabbit, it strikes the ground violently with its hind feet. It does not dig a hole in the ground, but burrows in the hollows of trees. Its ordinary food consists of the roots of the country, pota-

\* Buffon,

toes, and yams, and such fruits as fall from the trees in autumn. It uses its fore-paws like the squirrel, to carry its food to its mouth; and as its hind feet are longer than the fore, it runs very swiftly upon plain ground or up a hill, but upon a descent it is in danger of falling. Its sight is excellent, and its hearing equals that of any other animal; whenever it is whistled to it stops to hearken. The flesh of such as are fat and well fed is tolerable food, although it has a peculiar taste, and is a little tough. The French dress it like a sucking pig, as we learn from Mr. Buffon's account; but the English dress it with a pudding in its belly, like a hare. It is hunted by dogs; and whenever it is got into a sugar-ground, where the canes cover the place, it is easily overtaken, for it is embarrassed every step it takes, so that a man may easily come up with it without any other assistance. When in the open country, it usually runs with great swiftness before the dogs until it gains its retreat, within which it continues to hide, and nothing but filling the hole with smoke can force it out. For this purpose the hunter burns faggots or straw at the entrance, and conducts the smoke in such a manner that it fills the whole cavity. While this is doing, the poor little animal seems sensible of its danger, and begs for quarter with a most plaintive cry, seldom quitting its hole till the utmost extremity.

nity. At last, when half suffocated, it issues out, and trusts once more to its speed for protection. When still forced by the dogs, and incapable of making good a retreat, it turns upon the hunters, and with its hair bristling like a hog, and standing upon its hind feet, it defends itself very obstinately. Sometimes it bites the legs of those that attempt to take it, and will take out the piece wherever it fixes its teeth\*.

Its cry when disturbed or provoked resembles that of a sucking pig. If taken young, it is easily tamed, continues to play harmlessly about the house, and goes out and returns of its own accord. In a savage state it usually continues in the woods, and the female generally chuses the most obscure parts to bring forth her young. She there prepares a bed of leaves and dry grass, and generally brings forth two at a time. She breeds twice or thrice a year, and carries her young from one place to another, as convenience requires, in the manner of a cat. She generally lodges them when three days old in the hollow of a tree, suckling them but for a very short time, for they soon come to perfection, and it should consequently follow that they soon grow old.

\* Ray's Synop.

## THE PACA.

THE Paca is an animal also of South America, very much resembling the former, and like it has received the name of the American rabbit, but with as little propriety. It is about the size of an hare, or rather larger, and in figure somewhat like a sucking pig, which it also resembles in its grunting and its manner of eating. It is, however, most like the agouti, although it differs in several particulars. Like the agouti, it is covered rather with coarse hair than a downy fur. But then it is beautifully marked along the sides with small ash-coloured spots, upon an amber-coloured ground; whereas the agouti is pretty much of one reddish colour. The paca is rather more thick and corpulent than the agouti; its nose is shorter, and its hind feet have five toes; whereas the agouti has but three. As to the rest, this animal bears some distant resemblance to a rabbit, the ears are naked of hair, and somewhat sharp, the lower jaw is somewhat longer than the upper, the teeth, the shape of the head, and the size of it, are like to those of a rabbit. It has a short tail likewise, though not tufted, and its hinder legs are longer than the fore. It also burrows in the ground like that animal, and from this similitude



*del.*

*J. Taylor sculp*

The Paca.



similitude alone travellers might have given it the name.

The paca does not make use of its fore-paws, like the squirrel or the agouti, to carry its food to the mouth, but hunts for it on the ground, and roots like an hog. It is generally seen along the banks of rivers, and is only to be found in the moist and warm countries of South America. It is a very fat animal, and in this respect much preferable to the agouti, that is most commonly found lean. It is eaten, skin and all, like a young pig, and is considered as a great delicacy. Like the former little animal, it defends itself to the last extremity, and is very seldom taken alive. It is persecuted not only by man, but by every beast and bird of prey, who all watch its motions, and, if it ventures at any distance from its hole, are sure to seize it. But although the race of these little animals is thus continually destroyed, it finds some refuge in its hole; from the general combination; and breeds in such numbers; that the diminution is not perceptible.

To these animals may be added others, very similar both in form and disposition; each known by its particular name in its native country, but which travellers have been contented to call rabbits or hares; of which we have but indistinct notice. The Tapeti, or the Brazilian rabbit, is in shape like our English ones, but is much less,

being said to be not above twice the size of a dormouse. It is reddish on the forehead, and a little whitish under the throat. It is remarkable for having no tail; but it has long ears, with whiskers, like our rabbits, and black eyes. It does not burrow, like ours; but lives at large, like the hare.

The *Aperea* is also called by some the Brazilian rabbit, being an animal that seems to partake of the nature of a rabbit and a rat. The ears are like those of a rat, being short and round; but the other parts are like those of a rabbit, except that it has but three toes on the hinder legs, like the agouti.

To these imperfect sketches of animals little known, others less known might be added; for as Nature becomes more diminutive, her operations are less attentively regarded. I shall only, therefore, add one animal more to this class, and that very well known; I mean the Guinea-pig; which Brisson places among those of the rabbit kind; and as I do not know any other set of animals with which it can be so well compared, I will take leave to follow his example.

## THE GUINEA-PIG.

THE Guinea-Pig is a native of the warmer climates; but has been so long rendered domestic,







*G. S. del.*

*J. C. sculp.*

The Guinea Pig.

domestic, and so widely diffused, that it is now become common in every part of the world. There are few unacquainted with the figure of this little animal; in some places it is considered as the principal favourite; and is often found even to displace the lap-dog. It is less than a rabbit, and its legs are shorter; they are scarce seen, except when it moves; and the neck, also, is so short, that the head seems stuck upon the shoulders. The ears are short, thin, and transparent; the hair is like that of a sucking pig, from whence it has taken the name; and it wants even the vestiges of a tail. In other respects, it has some similitude to the rabbit. When it moves, its body lengthens like that animal; and when it is at rest, it gathers up in the same manner. Its nose is formed with the rabbit lip, except that its nostrils are much farther asunder. Like all other animals in a domestic state, its colours are different; some are white, some are red, and others both red and white. It differs from the rabbit in the number of its toes, having four toes on the feet before, and but three on those behind. It strokes its head with the fore feet like the rabbit; and, like it, sits upon the hind feet; for which purpose there is a naked callous skin on the back part of the legs and feet.

These animals are of all others the most

helpless and inoffensive\*. They are scarce possessed of courage sufficient to defend themselves against the meanest of all quadrupedes, a mouse. Their only animosity is exerted against each other; for they will often fight very obstinately; and the stronger is often known to destroy the weaker. But against all other aggressors, their only remedy is patience and non-resistance. How, therefore, these animals, in a savage state, could contrive to protect themselves, I have not been able to learn; as they want strength, swiftness, and even the natural instinct so common to almost every other creature.

As to their manner of living among us, they owe their lives entirely to our unceasing protection. They must be constantly attended, shielded from the excessive colds of the winter, and secured against all other domestic animals, which are apt to attack them, from every motive, either of appetite, jealousy, or experience of their pusillanimous nature. Such indeed is their stupidity, that they suffer themselves to be devoured by the cats, without resistance; and, different from all other creatures, the female sees her young destroyed without once attempting to protect them. Their usual food is bran,

\* This history is partly taken from the *Amœnitates Academicæ*, vol. iv. p. 202.

parsley, or cabbage-leaves; but there is scarce a vegetable cultivated in our gardens that they will not gladly devour. The carrot-top is a peculiar dainty; as also fallad; and those who would preserve their healths, would do right to vary their food; for if they be continued on a kind too succulent or too dry, the effects are quickly perceived upon their constitution. When fed upon recent vegetables, they seldom drink. But it often happens that, conducted by nature, they seek drier food, when the former disagrees with them. They then gnaw cloaths, paper, or whatever of this kind they meet with; and, on these occasions, they are seen to drink like most other animals, which they do by lapping. They are chiefly fond of new milk; but, in case of necessity, are contented with water.

They move pretty much in the manner of rabbits, though not near so swiftly; and when confined in a room, seldom cross the floor, but generally keep along the wall. The male usually drives the female on before him, for they never move a-breast together; but constantly the one seems to tread in the footsteps of the preceding. They chiefly seek for the darkest recesses, and the most intricate retreats; where, if hay be spread as a bed for them, they continue to sleep together, and seldom venture out but when they suppose all interruption removed.

On those occasions they act as rabbits; they swiftly move forward from their bed, stop at the entrance, listen, look round, and, if they perceive the slightest approach of danger, they run back with precipitation. In very cold weather, however, they are more active, and run about in order to keep themselves warm.

They are a very cleanly animal, and very different from that whose name they go by. If the young ones happen to fall into the dirt, or be any other way discomposed, the female takes such an aversion to them that she never permits them to visit her more. Indeed, her whole employment, as well as that of the male, seems to consist in smoothing their skins, in disposing their hair, and improving its gloss. The male and female take this office by turns; and when they have thus brushed up each other, they then bestow all their concern upon their young, taking particular care to make their hair lie smooth, and biting them if they appear refractory. As they are so solicitous for elegance themselves, the place where they are kept must be regularly cleaned, and a new bed of hay provided for them at least every week. Being natives of a warm climate, they are naturally chilly in ours: cleanliness, therefore, assists warmth, and expels moisture. They may be thus reared, without the aid of any artificial heat; but, in general, there is no keeping them from the  
fire

fire in winter, if they be once permitted to approach it.

When they go to sleep, they lie flat on their bellies, pretty much in their usual posture; except that they love to have their fore feet higher than their hinder. For this purpose, they turn themselves several times round before they lie down, to find the most convenient situation. They sleep, like the hare, with their eyes half open; and continue extremely watchful, if they suspect danger. The male and female are never seen both asleep at the same time; but while he enjoys his repose, she remains upon the watch, silently continuing to guard him, and her head turned towards the place where he lies. When she supposes that he has had his turn, she then awakes him with a kind of murmuring noise, goes to him, forces him from his bed, and lies down in his place. He then performs the same good turn for her; and continues watchful till she also has done sleeping.

These animals are exceedingly falacious, and generally are capable of coupling at six weeks old. The female never goes with young above five weeks; and usually brings forth from three to five at a time; and this not without pain. But what is very extraordinary, the female admits the male the very day she has brought forth, and becomes again pregnant; so that

their multiplication is astonishing. She suckles her young but about twelve or fifteen days; and during that time does not seem to know her own; for if the young of any other be brought, though much older, she never drives them away, but suffers them even to drain her, to the disadvantage of her own immediate offspring. They are produced with the eyes open, like all others of the hare kind; and in about twelve hours, equal even to the dam in agility. Although the dam has but two teats, yet she abundantly supplies them with milk: and they are also capable of feeding upon vegetables, almost from the very beginning. If the young ones are permitted to continue together, the stronger, as in all other societies, soon begins to govern the weak. Their contentions are often long and obstinate; and their jealousies very apparent. Their disputes are usually for the warmest place, or the most agreeable food. If one of them happens to be more fortunate in this respect than the rest, the strongest generally comes to dispossess it of its advantageous situation. Their manner of fighting, though terrible to them, is ridiculous enough to a spectator. One of them seizes the hair on the nape of the other's neck with its fore teeth, and attempts to tear it away; the other, to retaliate, turns its hinder parts to the enemy, and kicks up behind like an horse, and  
with



with its hinder claws scratches the sides of its adversary; so that sometimes they cover each other with blood. When they contend in this manner, they gnash their teeth pretty loudly; and this is often a denunciation of mutual resentment.

These, though so formidable to each other, yet are the most timorous creatures upon earth, with respect to the rest of animated nature: a falling leaf disturbs them, and every animal overcomes them. From hence they are difficultly tamed; and will suffer none to approach them, except the person by whom they are fed. Their manner of eating is something like that of the rabbit; and, like it, they appear also to chew the cud. Although they seldom drink, they make water every minute. They grunt somewhat like a young pig; and have a more piercing note to express pain. In a word, they do no injury; but then, except the pleasure they afford the spectator, they are of very little benefit to mankind. Some, indeed, dress and eat them; but their flesh is indifferent food, and by no means a reward for the trouble of rearing them. This, perhaps, might be improved, by keeping them in a proper warren, and not suffering them to become domestic: however, the advantages that would result from this, would be few, and the trouble great; so that it is likely they will continue an useless, inoffensive de-

pendant, rather propagated to satisfy caprice than supply necessity.

## CHAP. II.

### *Of Animals of the Rat Kind.*

**W**ERE it necessary to distinguish animals of the rat kind from all others, we might describe them as having two large cutting teeth, like the hare kind, in each jaw; as covered with hair; and as not ruminating. These distinctions might serve to guide us, had we not too near an acquaintance with this noxious race to be mistaken in their kind. Their numbers, their minuteness, their vicinity, their vast multiplication, all sufficiently contribute to press them upon our observation, and remind us of their existence. Indeed, if we look through the different ranks of animals, from the largest to the smallest, from the great elephant to the diminutive mouse, we shall find that we suffer greater injuries from the contemptible meanness of the one, than the formidable invasions of the other. Against the elephant, the rhinoceros, or the lion, we can oppose united strength; and by art make up the deficiencies of natural power: these we have driven into their native solitudes, and obliged to continue

at a distance, in the most inconvenient regions and unhealthful climates. But it is otherwise with the little teasing race I am now describing: no force can be exerted against their unresisting timidity; no arts can diminish their amazing propagation: millions may be at once destroyed, and yet the breach be repaired in the space of a very few weeks; and, in proportion as Nature has denied them force, it has supplied the defect by their fecundity.

Of these, the animal best known at present, and in every respect the most mischievous, is the Great Rat; which, though but a new comer into this country, has taken too secure a possession to be ever removed. This hateful and rapacious creature, though sometimes called the Rat of Norway, is utterly unknown in all the northern countries, and, by the best accounts I can learn, comes originally from the Levant. Its first arrival, as I am assured, was upon the coasts of Ireland, in those ships that traded in provisions to Gibraltar; and perhaps we owe to a single pair of these animals, the numerous progeny that now infests the whole extent of the British empire.

This animal, which is called by Mr. Buffon the Surmalot, is in length about nine inches; its eyes are large and black; the colour of the head, and the whole upper part of the body, is of a light brown, mixed with tawny and ash colour.

colour. The end of the nose, the throat, and belly, are of a dirty white, inclining to a grey; the feet and legs are almost bare, and of a dirty pale flesh colour; the tail is as long as the body, covered with minute dusky scales, mixed with a few hairs, and adds to the general deformity of its detestable figure. It is chiefly in the colour that this animal differs from the Black Rat, or the Common Rat, as it was once called; but now common no longer. This new invader, in a very few years after its arrival, found means to destroy almost the whole species, and to possess itself of their retreats.

But it was not against the Black Rat alone that its rapacity was directed; all other animals of inferior strength shared the same misfortunes. The contest with the black rat was of short continuance. As it was unable to contend, and had no holes to fly to for retreat, but where its voracious enemy could pursue, the whole race was soon extinguished. The frog also was an animal equally incapable of combat or defence. It had been designedly introduced into the kingdom of Ireland some years before the Norway rat; and it was seen to multiply amazingly. The inhabitants were pleased with the propagation of an harmless animal, that served to rid their fields of insects; and even the prejudices of the people were in its favour, as they supposed that the frog contributed to  
render

render their waters more wholesome. But the Norway rat soon put a stop to their encrease; as these animals were of an amphibious nature, they pursued the frog to its lakes, and took it even in its own natural element. I am, therefore, assured, that the frog is once more almost extinct in that kingdom; and that the Norway rat, having no more enemies left there to destroy, is grown less numerous also.

We are not likely, therefore, to gain by the destruction of our old domestics, since they are replaced by such mischievous successors. The Norway rat has the same disposition to injure us, with much greater power of mischief. It burrows in the bank of rivers, ponds, and ditches; and is every year known to do incredible damage to those mounds that are raised to conduct streams, or to prevent rivers from overflowing. In these holes, which it forms pretty near the edge of the water, it chiefly resides during the summer, where it lives upon small animals, fish, and corn. At the approach of winter, it comes nearer the farm houses; burrows in their corn, eats much, and damages still more than it consumes. But nothing that can be eaten, seems to escape its voracity. It destroys rabbits, poultry, and all kinds of game; and, like the polecat, kills much more than it can carry away. It swims with great ease, dives with great celerity, and easily thins the fish

fish pond. In short, scarce any of the feeblier animals escape its rapacity, except the mouse, which shelters itself in its little hole, where the Norway rat is too big to follow.

These animals frequently produce from fifteen to thirty at a time\*; and usually bring forth three times a year. This great increase would quickly be found to over-run the whole country, and render our assiduity to destroy them fruitless, were it not, happily for us, that they eat and destroy each other. The same insatiable appetite that impels them to indiscriminate carnage, also incites the strongest to devour the weakest, even of their own kind. The large male rat generally keeps in an hole by itself, and is as dreaded by its own species, as the most formidable enemies. In this manner the number of these vermin is kept within due bounds; and when their increase becomes injurious to us, it is repressed by their own rapacity.

But beside their own enmities among each other, all the stronger carnivorous quadrupedes have natural antipathies against them. The dog, though he detests their flesh, yet openly declares his alacrity to pursue them; and attacks them with great animosity. Such as are trained up to killing these vermin, dispatch

\* Buffon, vol. xvii. p. 2.

them often with a single squeeze: but those dogs that shew any hesitation, are sure to come off but indifferently; for the rat always takes the advantage of a moment's delay, and, instead of waiting for the attack, becomes the aggressor, seizing its pursuer by the lip, and inflicting a very painful and dangerous wound. From the inflammation, and other angry symptoms that attend this animal's bite, some have been led to think that it was in some measure venomous; but it is likely that the difficulty of the wound's healing arises merely from its being deep and lacerated by the teeth, and is rather a consequence of the figure of the instruments that inflict it, than any venom they may be supposed to possess.

The cat is another formidable enemy of this kind; and yet the generality of our cats neither care to attack it, nor to feed upon it when killed. The cat is a more prudent hunter than the dog, and will not be at the pains to take or combat with an enemy that is not likely to repay her time and danger. Some cats, however, will pursue and take the rat; though often not without an obstinate resistance. If hungry also, the cat will sometimes eat the head; but in general, she is merely content with her victory.

A foe much more dangerous to these vermin is the weasel. This animal pursues them with avidity;

avidity; and being pretty nearly of their own size, follows them into their holes, where a desperate combat ensues. The strength of each is pretty near equal; but the arms are very different. The rat, furnished with four long tusks at the extremity of its jaw, rather snaps than bites; but the weasel, where it once fastens, holds, and continuing also to suck the blood at the same time, weakens its antagonist, and always obtains the victory. Mankind have contrived several other methods of destroying these noxious intruders; ferrets, traps, and particularly poison: but of all other poisons, I am told that the *nux vomica*, ground and mixed with meal, is the most certain, as it is the least dangerous.

To this species I will subjoin as a variety, the Black Rat, mentioned above, greatly resembling the former in figure, but very distinct in nature, as appears from their mutual antipathy. This animal was formerly as mischievous as it was common; but at present it is almost utterly extirpated by the great rat, one malady often expelling another. It is become so scarce, that I do not remember ever to have seen one. It is said to be possessed of all the voracious and unnatural appetites of the former; though, as it is less, they may probably be less noxious. Its length is about seven inches; and the tail is near eight inches long. The colour of the  
body



body is of a deep iron grey, bordering upon black, except the belly, which is of a dirty cinereous hue. They have propagated in America in great numbers, being originally introduced from Europe; and as they seem to keep their ground wherever they get footing, they are now become the most noxious animals in that part of the world.

To this also we may subjoin the Black Water Rat, about the same size with the latter, with a larger head, a blunter nose, less eyes, and shorter ears, and the tip of its tail a little white. It was supposed by Ray to be web-footed; but this has been found to be a mistake, its toes pretty much resembling those of its kind: It never frequents houses; but is usually found on the banks of rivers, ditches, and ponds, where it burrows and breeds. It feeds on fish, frogs, and insects; and in some countries it is eat on fasting days.

## T H E M O U S E.

AN animal equally mischievous, and equally well known with the former, is the Mouse. Timid, cautious, and active, all its dispositions are similar to those of the rat, except with fewer powers of doing mischief\*. Fearful by

\* Buffon, vol. xv. p. 145.

nature, but familiar from necessity, it attends upon mankind, and comes an unbidden guest to his most delicate entertainments. Fear and necessity seem to regulate all its motions; it never leaves its hole but to seek provision, and seldom ventures above a few paces from home. Different from the rat, it does not go from one house to another, unless it be forced; and, as it is more easily satisfied, it does much less mischief.

Almost all animals are tamed more difficultly in proportion to the cowardice of their natures. The truly bold and courageous easily become familiar, but those that are always fearful are ever suspicious. The mouse being the most feeble, and consequently the most timid of all quadrupedes, except the guinea-pig, is never rendered thoroughly familiar; and, even though fed in a cage, retains its natural apprehensions. In fact, it is to these alone that it owes its security\*. No animal has more enemies, and few so incapable of resistance. The owl, the cat, the snake, the hawk, the weasel, and the rat itself, destroy this species by millions, and it only subsists by its amazing fecundity.

The mouse brings forth at all seasons, and

\* *E volucris hircundines sunt indociles, e terrestibus mures.* PLIN.

several times in the year. Its usual number is from six to ten. These in less than a fortnight are strong enough to run about and shift for themselves. They are chiefly found in farmers yards, and among their corn, but are seldom in those ricks that are much infested with rats. They generally chuse the south-west side of the rick, from whence most rain is expected; and from thence they often, of an evening, venture forth to drink the little drops either of rain or dew that hang at the extremities of the straw\*. Aristotle gives us an idea of their prodigious fecundity, by assuring us that, having put a mouse with young into a vessel of corn, in some time after he found an hundred and twenty mice, all sprung from one original. The early growth of this animal implies also the short duration of its life, which seldom lasts above two or three years. This species is very much diffused, being found in almost all parts of the ancient continent, and having been exported to the new †. They are animals that, while they fear human society, closely attend it; and, although enemies to man, are never found but near those places where he has fixed his habitation. Numberless ways have been found for destroying them; and Gesner has minutely de-

\* Buffon, vol. xv. p. 147.  
vol. ii. p. 391.

† Lise's Husbandry,

scribed the variety of traps by which they are taken. Our Society for the Encouragement of Arts and Manufactures proposed a reward for the most ingenious contrivance for that purpose; and I observed almost every candidate passing off descriptions as inventions of his own. I thought it was cruel to detect the plagiarism, or frustrate the humble ambition of those who would be thought the inventors of a mouse-trap.

To this species, merely to avoid teasing the reader with a minute description of animals very inconsiderable and very nearly alike, I will add that of the *long-tailed field-mouse*, which is larger than the former, of a colour very nearly resembling the Norway rat, and chiefly found in fields and gardens. They are extremely voracious, and hurtful in gardens and young nurseries, where they are killed in great numbers. However, their fecundity quickly repairs the destruction.

Nearly resembling the former, but larger, (for it is six inches long) is the *short-tailed field-mouse*; which, as its name implies, has the tail much shorter than the former, it being not above an inch and an half long, and ending in a small tuft. Its colour is more inclining to that of the domestic mouse, the upper part being blackish, and the under of an ash colour. This, as well as the former, are remarkable for  
laying

laying up provision against winter; and Mr. Buffon assures us they sometimes have a store of above a bushel at a time.

We may add also the *shrew-mouse* to this species of minute animals, being about the size of the domestic mouse, but differing greatly from it in the form of its nose, which is very long and slender. The teeth also are of a very singular form, and twenty-eight in number; whereas the common number in the rat kind is usually not above sixteen. The two upper fore-teeth are very sharp, and on each side of them there is a kind of wing or beard, like that of an arrow, scarce visible but on a close inspection. The other teeth are placed close together, being very small, and seeming scarce separated; so that with respect to this part of its formation, the animal has some resemblance to the viper. However, it is a very harmless little creature, doing scarce any injury. On the contrary, as it lives chiefly in the fields, and feeds more upon insects than corn, it may be considered rather as a friend than an enemy. It has a strong disagreeable smell, so that the cat, when it is killed, will refuse to eat it. It is said to bring four or five young at a time.

## THE DORMOUSE.

THESE animals may be distinguished into three kinds; the *greater dormouse*, which Mr. Buffon calls the Loir; the *middle*, which he calls the Lerot; the *less*, which he denominates the Muscardin. They differ from each other in size, the largest being equal to a rat, the least being no bigger than a mouse. They all differ from the rat in having the tail tufted with hair, in the manner of a squirrel, except that the squirrel's tail is flat, resembling a fan; and theirs round, resembling a brush. The lerot differs from the loir, by having two black spots near the eyes; the muscardin differs from both in the whitish colour of its hair on the back. They all three agree in having black sparkling eyes, and the whiskers partly white and partly black. They agree in their being stupefied like the marmout during the winter, and in their hoarding up provisions to serve them in case of a temporary revival.

They inhabit woods or very thick hedges, forming their nests in the hollow of some tree, or near the bottom of a close shrub, humbly content with continuing at the bottom, and never aspiring to sport among the branches. Towards the approach of the cold season, they form a little magazine of nuts, beans, or acorns; and,

and, having laid in their hoard, shut themselves up with it for the winter. As soon as they feel the first advances of the cold, they prepare to lessen its effect, by rolling themselves up in a ball, and thus exposing the smallest surface to the weather. But it often happens that the warmth of a sunny day, or an accidental change from cold to heat, thaws their nearly stagnant fluids, and they revive. On such occasions they have their provisions laid in, and they have not far to seek for their support. In this manner they continue usually asleep, but sometimes waking, for above five months in the year, seldom venturing from their retreats, and consequently but rarely seen. Their nests are lined with moss, grass, and dead leaves; they usually bring forth three or four young at a time, and that but once a year, in the spring.

### THE MUSK RAT.

OF these animals of the rat kind, but with a musky smell, there are also three distinctions, as of the former; the Ondatra, the Desman, and the Pileri. The Ondatra is a native of Canada, the Desman of Lapland, and the Pileri of the West-India islands. The ondatra differs from all others of its kind, in having the tail flattened and carried edge-ways. The desman has a long extended snout like the shrew-mouse;

and the pilori a short tail, as thick at one end as the other. They all resemble each other in being fond of the water, but particularly in that musky odour from whence they have taken their name.

Of these, the ondatra is the most remarkable, and has been the most minutely described\*. This animal is about the size of a small rabbit, but has the hair, the colour, and the tail of a rat, except that it is flattened on the sides, as mentioned above. But it is still more extraordinary upon other accounts, and different from all other animals whatever. It is so formed that it can contract and enlarge its body at pleasure. It has a muscle like that of horses, by which they move their hides, lying immediately under the skin, and that furnished with such a power of contraction, together with such an elasticity in the false ribs, that this animal can creep into an hole where others, seemingly much less, cannot follow. The female is remarkable also for two distinct apertures, one for urine, the other for propagation. The male is equally observable for a peculiarity of conformation; the musky smell is much stronger at one particular season of the year than any other; and the marks of the sex seem to appear and disappear in the same manner.

\* Buffon, vol. xx. p. 4.



The ondatra in some measure resembles the beaver in its nature and disposition. They both live in society during winter; they both form houses of two feet and an half wide, in which they reside several families together. In these they do not assemble to sleep as the marmout, but purely to shelter themselves from the rigour of the season. However, they do not lay up magazines of provision like the beaver; they only form a kind of covert way to and round their dwelling, from whence they issue to procure water and roots, upon which they subsist. During winter their houses are covered under a depth of eight or ten feet of snow; so that they must lead but a cold, gloomy, and a necessitous life, during its continuance. During summer they separate two by two, and feed upon the variety of roots and vegetables that the season offers. They then become extremely fat, and are much sought after, as well for their flesh as their skins, which are very valuable. They then also acquire a very strong scent of musk, so pleasing to an European, but which the savages of Canada cannot abide. What we admire as a perfume they consider as a most abominable stench, and call one of their rivers, on the banks of which this animal is seen to burrow in numbers, by the name of the stinking river, as well as the rat itself, which is denominated by them the stinkard. This is a strange

diversity among mankind; and, perhaps, may be ascribed to the different kinds of food among different nations. Such as chiefly feed upon rancid oils and putrid flesh will often mistake the nature of scents; and, having been long used to ill smells, will by habit consider them as perfumes. Be this as it will, although these nations of northern savages consider the musk rat as intolerably fœtid, they nevertheless regard it as very good eating; and, indeed, in this they imitate the epicures of Europe very exactly, whose taste seldom relishes a dish till the nose gives the strongest marks of disapprobation. As to the rest, this animal a good deal resembles the beaver in its habits and disposition; but, as its instincts are less powerful, and its œconomy less exact, I will reserve for the description of that animal a part of what may be applicable to this.

### THE CRICETUS.

THE Cricetus, or German Rat, which Mr. Buffon calls the Hamster, greatly resembles the water-rat in its size, small eyes, and the shortness of its tail. It differs in colour, being rather browner, like the Norway rat, with the belly and legs of a dirty yellow. But the marks by which it may be distinguished from all others are two pouches, like those of a baboon, on  
each

each side of its jaw, under the skin, into which it can cram a large quantity of provision. These bags are oblong, and of the size, when filled, of a large walnut. They open into the mouth, and fall back along the neck to the shoulder. Into these the animal can thrust the surplus of those fruits or grains it gathers in the fields, such as wheat, peas, or acorns. When the immediate calls of hunger are satisfied, it then falls to filling these; and thus, loaded with two great bunches on each side of the jaw, it returns home to its hole to deposit the spoil as a store for the winter. The size, the fecundity, and the voraciousness of this animal render it one of the greatest pests in the countries where it is found, and every method is made use of to destroy it.

But, although this animal is very noxious with respect to man, yet, considered with regard to those instincts which conduce to its own support and convenience, it deserves our admiration\*. Its hole offers a very curious object for contemplation, and shews a degree of skill superior to the rest of the rat kind. It consists of a variety of apartments fitted up for the different occasions of the little inhabitant. It is generally made on an inclining ground, and always has two entrances, one perpendicular, and

\* Buffon, vol. xxvi. p. 159.

the other oblique; though, if there be more than one in a family, there are as many perpendicular holes as there are individuals below. The perpendicular hole is usually that through which they go in and out: the oblique serves to give a thorough air to keep the retreat clean, and, in case one hole is stopped, to give an exit at this. Within about a foot of the perpendicular hole the animal makes two more, where are deposited the family's provisions. These are much more spacious than the former, and are large in proportion to the quantity of the store. Beside these, there is still another apartment warmly lined with grass and straw, where the female brings forth her young; all these communicate with each other, and all together take up a space of ten or twelve feet in diameter. These animals furnish their storehouses with dry corn well cleaned; they also lay in corn in the ear, and beans and peas in the pod. These, when occasion requires, they afterwards separate, carrying out the pods and empty ears by their oblique passage. They usually begin to lay in at the latter end of August; and, as each magazine is filled, they carefully cover up the mouth with earth, and that so neatly that it is no easy matter to discover where the earth has been removed. The only means of finding out their retreats are, therefore, to observe the oblique entrance, which generally has a small quantity

tity of earth before it; and this, though often several yards from their perpendicular retreat, leads those who are skilled in the search to make the discovery. Many German peasants are known to make a livelihood by finding out and bringing off their hoards, which, in a fruitful season, often furnish two bushels of good grain in each apartment.

Like most others of the rat kind, they produce twice or thrice a year, and bring five or six at a time. Some years they appear in alarming numbers, at other times they are not so plenty. The moist seasons assist their propagation; and it often happens on such years that their devastations produce a famine all over the country. Happily, however, for mankind, these, like the rest of their kind, destroy each other; and of two that Mr. Buffon kept in a cage, male and female, the latter killed and devoured the former. As to the rest, their fur is considered as very valuable; the natives are invited by rewards to destroy them; and the weasel kind second the wishes of government with great success. Although they are usually found brown on the back and white on the belly, yet many of them are observed to be grey, which may probably arise from the difference of age.

## THE LEMING.

HAVING considered various kinds of these noxious little animals that elude the indignation of mankind, and subsist by their number, not their strength, we come to a species more bold, more dangerous, and more numerous than any of the former. The Leming, which is a native of Scandinavia, is often seen to pour down in myriads from the northern mountains, and, like a pestilence, destroy all the productions of the earth. It is described as being larger than a dormouse, with a bushy tail, though shorter. It is covered with thin hair of various colours. The extremity of the upper part of the head is black, as are likewise the neck and shoulders, but the rest of the body is reddish, intermixed with small black spots of various figures, as far as the tail, which is not above half an inch long. The eyes are little and black, the ears round and inclining towards the back, the legs before are short, and those behind longer, which gives it a great degree of swiftness. But what it is much more remarkable for than its figure are, its amazing fecundity and extraordinary migrations.

In wet seasons, all of the rat kind are known to propagate more than in dry; but this species  
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in particular is so assisted in multiplying by the moisture of the weather, that the inhabitants of Lapland sincerely believe that they drop from the clouds, and that the same magazines that furnish hail and snow pour the leming also upon them. In fact, after long rain, these animals set forward from their native mountains, and several millions in a troop deluge the whole plain with their numbers\*. They move, for the most part, in a square, marching forward by night, and lying still by day. Thus, like an animated torrent, they are often seen more than a mile broad covering the ground, and that so thick that the hindmost touches its leader. It is in vain that the poor inhabitant resists or attempts to stop their progress, they still keep moving forward; and, though thousands are destroyed, myriads are seen to succeed, and make their destruction impracticable. They generally move in lines, which are about three feet from each other, and exactly parallel. Their march is always directed from the north-west to the south-east, and regularly conducted from the beginning. Wherever their motions are turned nothing can stop them; they go directly forward, impelled by some strange power; and, from the time they first set out, they never once think of retreating. If a lake or a river happens.

\* Phil. Transf. vol. ii. p. 872.

to interrupt their progress, they all together take the water and swim over it; a fire, a deep well, or a torrent, does not turn them out of their straight-lined direction; they boldly plunge into the flames, or leap down the well, and are sometimes seen climbing up on the other side. If they are interrupted by a boat across a river while they are swimming, they never attempt to swim round it, but mount directly up its sides; and the boat-men, who know how vain resistance in such a case would be, calmly suffer the living torrent to pass over, which it does without further damage. If they meet with a stack of hay or corn that interrupts their passage, instead of going over it they gnaw their way through; if they are stopped by a house in their course, if they cannot get through it, they continue there till they die. It is happy, however, for mankind that they eat nothing that is prepared for human subsistence; they never enter an house to destroy the provisions, but are contented with eating every root and vegetable that they meet. If they happen to pass through a meadow, they destroy it in a very short time, and give it an appearance of being burnt up and strewed with ashes. If they are interrupted in their course, and a man should imprudently venture to attack one of them, the little animal is no way intimidated by the disparity of strength, but furiously flies up at its opponent, and, bark-

ing



ing somewhat like a puppy, wherever it fastens does not easily quit the hold. If at last the leader be forced out of its line, which it defends as long as it can, and be separated from the rest of its kind, it sets up a plaintive cry different from that of anger, and, as some pretend to say, gives itself a voluntary death, by hanging itself on the fork of a tree.

An enemy so numerous and destructive would quickly render the countries where they appear utterly uninhabitable, did it not fortunately happen that the same rapacity that animates them to destroy the labours of mankind, at last impels them to destroy and devour each other\*. After committing incredible devastations, they are at last seen to separate into two armies, opposed with deadly hatred, along the coasts of the larger lakes and rivers. The Laplanders, who observe them thus drawn up to fight, instead of considering their mutual animosities as an happy riddance of the most dreadful pest, form ominous prognostics from the manner of their arrangement. They consider their combats as a presage of war, and expect an invasion from the Russians or the Swedes, as the sides next those kingdoms happen to conquer. The two divisions, however, continue their engagements and animosity until one party overcomes

\* Dictionnaire Raisonné, vol. ii. p. 610.

the other. From that time they utterly disappear, nor is it well known what becomes of either the conquerors or the conquered. Some suppose that they rush headlong into the sea; others that they kill themselves, as some are found hanging on the forked branches of a tree; and others still that they are destroyed by the young spring herbage. But the most probable opinion is, that, having devoured the vegetable productions of the country, and having nothing more to subsist on, they then fall to devouring each other; and, having habituated themselves to that kind of food, continue it. However this be, they are often found dead by thousands, and their carcases have been known to infect the air for several miles round, so as to produce very malignant disorders. They seem also to infect the plants they have gnawed, for the cattle often die that afterward feed in the places where they passed.

As to the rest, the male is larger and more beautifully spotted than the female. They are extremely prolific; and, what is extraordinary, their breeding does not hinder their march; for some of them have been observed to carry one young one in their mouth and another on their back. They are greatly preyed upon by the ermine, and, as we are told, even by the reindeer. The Swedes and Norwegians, who live by husbandry, consider an invasion from these  
—vermin

vermin as a terrible visitation; but it is very different with respect to the Laplanders, who lead a vagrant life, and who, like the leminggs themselves, if their provisions be destroyed in one part of the country, can easily retire to another. These are never so happy as when an army of leminggs come down amongst them; for then they feast upon their flesh; which though horrid food, and which, though even dogs and cats are known to detest, these little savages esteem very good eating, and devour greedily. They are glad of their arrival also upon another account, for they always expect a great plenty of game the year following, among those fields which the leminggs have destroyed.

### T H E M O L E.

T O these minute animals of the rat kind, a great part of whose lives is past in holes under ground, I will subjoin one little animal more, no way resembling the rat, except that its whole life is spent there. As we have seen some quadrupedes formed to crop the surface of the fields, and others to live upon the tops of trees, so the Mole is formed to live wholly under the earth, as if Nature meant that no place should be left wholly untenanted. Were we from our own sensations to pronounce upon the life of a quadrupede that was never to appear above ground,  
but

but always condemned to hunt for its prey underneath, obliged, whenever it removed from one place to another, to bore its way through a resisting body, we should be apt to assert that such an existence must be the most frightful and solitary in nature. However, in the present animal, though we find it condemned to all those seeming inconveniencies, we shall discover no signs of wretchedness or distress. No quadrupede is fatter, none has a more sleek or glossy skin; and, though denied many advantages that most animals enjoy, it is more liberally possessed of others, which they have in a more scanty proportion.

This animal, so well known in England, is, however, utterly a stranger in other places, and particularly in Ireland. For such, therefore, as have never seen it, a short description will be necessary. And, in the first place, though somewhat of a size between the rat and the mouse, it no way resembles either, being an animal entirely of a singular kind, and perfectly unlike any other quadrupede whatever. It is bigger than a mouse, with a coat of fine, short, glossy, black hair. Its nose is long and pointed, resembling that of an hog, but much longer. Its eyes are so small that it is scarce possible to discern them. Instead of ears it has only holes in the place. Its neck is so short that the head seems stuck upon the shoulders. The body is  
thick

thick and round, terminating by a very small short tail, and its legs also are so very short that the animal seems to lie flat on its belly. From under its belly, as it rests in this position, the four feet appear just as if they immediately grew out of the body. Thus the animal appears to us at first view as a mass of flesh covered with a fine shining black skin, with a little head, and scarce any legs, eyes, or tail. On a closer inspection, however, two little black points may be discerned, that are its eyes. The ancients, and some of the moderns, were of opinion that the animal was utterly blind; but Derham, by the help of a microscope, plainly discovered all the parts of the eye that are known in other animals, such as the pupil, the vitreous and the crystalline humours. The fore legs appear very short and strong, and furnished with five claws to each. These are turned outwards and backwards, as the hands of a man when swimming. The hind legs are longer and weaker than the fore, being only used to assist its motions; whereas the others are continually employed in digging. The teeth are like those of a shrew-mouse, and there are five on both sides of the upper jaw, which stand out; but those behind are divided into points. The tongue is as large as the mouth will hold.

Such is the extraordinary figure and formation of this animal; which, if we compare with

its manner of living, we shall find a manifest attention in Nature to adapt the one to the other\*. As it is allotted a subterraneous abode, the seeming defects of its formation vanish, or rather are turned to its advantage. The breadth, strength, and shortness of the fore feet, which are inclined outwards, answer the purposes of digging, serving to throw back the earth with greater ease, and to pursue the worms and insects which are its prey: had they been longer, the falling in of the earth would have prevented the quick repetition of its strokes in working; or have obliged it to make a larger hole, in order to give room for their exertion. The form of the body is not less admirably contrived for its way of life. The fore part is thick, and very muscular, giving great strength to the action of the fore feet, enabling it to dig its way with amazing force and rapidity, either to pursue its prey, or elude the search of the most active enemy. By its power of boring the earth, it quickly gets below the surface; and I have seen it, when let loose in the midst of a field, like the ghost on a theatre, instantly sink into the earth; and the most active labourer, with a spade, in vain attempted to pursue.

The smallness of its eyes, which induced the

\* British Zoology.

ancients to think it was blind, is, to this animal, a peculiar advantage. A small degree of vision is sufficient for a creature that is ever destined to live in darkness. A more extensive sight would only have served to shew the horrors of its prison, while Nature had denied it the means of an escape. Had this organ been larger, it would have been perpetually liable to injuries, by the falling of the earth into it; but Nature, to prevent that inconvenience, has not only made them very small, but very closely covered them with hair. Anatomists mention, beside these advantages, another that contributes to their security; namely, a certain muscle; by which the animal can draw back the eye whenever it is necessary or in danger.

As the eye is thus perfectly fitted to the animal's situation, so also are the senses of hearing and smelling. The first gives it notice of the most distant appearance of danger; the other directs it, in the midst of darkness, to its food. The wants of a subterraneous animal can be but few; and these are sufficient to supply them: to eat, and to produce its kind, are the whole employment of such a life; and for both these purposes it is wonderfully adapted by Nature\*.

Thus

\* Testes habet maximos, parastatas amplissimas, novum corpus feminale ab his diversum ac separatum. Penem etiam facile omnium, ni fallor, animalium longissimum,

Thus admirably is this animal fitted for a life of darkness and solitude; with no appetites but what it can easily indulge, with no enemies but what it can easily evade or conquer. As soon as it has once buried itself in the earth, it seldom stirs out, unless forced by violent rains in summer, or when, in pursuit of its prey, it happens to come too near the surface, and thus gets into the open air; which may be considered as its unnatural element. In general, it chuses the looser softer grounds, beneath which it can travel with greater ease; in such also it generally finds the greatest number of worms and insects, upon which it chiefly preys. It is observed to be most active, and to cast up most earth, immediately before rain; and, in winter, before a thaw: at those times the worms and insects begin to be in motion; and approach the surface, whither this industrious animal pursues them. On the contrary, in very dry weather, the mole seldom or never forms any hillocks; for then it is obliged to penetrate deeper

ex quibus colligere est maximam præ reliquis omnibus animalibus voluptatem in coitu, hoc abjectum et vile animalculum percipere, ut habeant quod ipsi invident qui in hoc supremas vitæ suæ delicias collocant: Rây's Synops. Quadrup. p. 239. Huic opinioni assentitur D. Buffon, attamen non mihi apparet magnitudinem partium talem voluptatem augere. Maribus enim salacissimis contrarium obtinet.

after



after its prey, which at such seasons retire far into the ground.

As the moles very seldom come above ground\*, they have but few enemies; and very readily evade the pursuit of animals stronger and swifter than themselves. Their greatest calamity is an inundation; which, wherever it happens, they are seen, in numbers, attempting to save themselves by swimming, and using every effort to reach the higher grounds. The greatest part, however, perish, as well as their young, which remain in the holes behind. Were it not for such accidents, from their great fecundity, they would become extremely troublesome; and as it is, in some places, they are considered by the farmer as his greatest pest. They couple towards the approach of spring; and their young are found about the beginning of May. They generally have four or five at a time; and it is easy to distinguish among other mole-hills, that in which the female has brought forth her young. These are made with much greater art than the rest, and are usually larger. The female, in order to form this retreat, begins by erecting the earth into a tolerably spacious apartment, which is supported within by partitions, at proper distances, that prevent the roof from falling. All round this she works,

\* Buffon.

and beats the earth very firm, so as to make it capable of keeping out the rain let it be never so violent. As the hillock in which this apartment is thus formed, is raised above ground, the apartment itself is consequently above the level of the plain, and therefore less subject to accidental slight inundations. The place being thus fitted, she then procures grass and dry leaves, as a bed for her young. There they lie secure from wet, and she continues to make their retreat equally so from danger; for all round this hill of her own raising, are holes running into the earth, that part from the middle apartment, like rays from a center, and extend about fifteen feet in every direction: these resemble so many walks or chaces, into which the animal makes her subterraneous excursions, and supplies her young with such roots or insects as she can provide: but they contribute still more to the general safety; for as the mole is very quick of hearing, the instant she perceives her little habitation attacked, she takes to her burrow, and unless the earth be dug away by several men at once, she and her young always make a good retreat.

The mole is scarcely found, except in cultivated countries: the varieties are but few. That which is found in Virginia, resembles the common mole, except in colour, which is black, mixed with a deep purple. There are sometimes

times white moles, seen particularly in Poland, rather larger than the former. As their skin is so very soft and beautiful, it is odd that it has not been turned to any advantage. Agricola tells us, that he saw hats made from it, the finest and the most beautiful that could be imagined.

## C H A P. III.

*Of Animals of the Hedge-hog, or prickly Kind.*

**A**NIMALS of the Hedge-hog kind require but very little accuracy to distinguish them from all others. That hair which serves the generality of quadrupedes for warmth and ornament, is partly wanting in these; while its place is supplied by sharp spines or prickles, that serve for their defence. This general characteristic, therefore, makes a much more obvious distinction than any that can be taken from their teeth or their claws. Nature, by this extraordinary peculiarity, seems to have separated them in a very distinguished manner; so that instead of classing the hedge-hog among the moles, or the porcupine with the hare, as some have done, it is much more natural and obvious to place them, and others approaching them in this strange peculiarity, in a class by themselves; nor let it be supposed, that while I  
thus

thus alter their arrangement, and separate them from animals with which they have been formerly combined, that I am destroying any secret affinities that exist in nature. It is natural, indeed, for readers to suppose, when they see two such opposite animals as the hare and the porcupine assembled together in the same group, that there must be some material reason, some secret connexion, for thus joining animals so little resembling each other in appearance. But the reasons for this union were very slight, and merely arose from a similitude in the fore-teeth: no likeness in the internal conformation; no similitude in nature, in habitudes, or disposition; in short, nothing to fasten the link that combines them, but the similitude in the teeth: this, therefore, may be easily dispensed with; and, as was said, it will be most proper to class them according to their most striking similitudes.

The Hedge-hog, with an appearance the most formidable, is yet one of the most harmless animals in the world: unable or unwilling to offend, all its precautions are only directed to its own security; and it is armed with a thousand points, to keep off the enemy, but not to invade him. While other creatures trust to their force, their cunning, or their swiftness, this animal, destitute of all, has but one expedient for safety; and from this alone it often finds protection.

protection. As soon as it perceives itself attacked, it withdraws all its vulnerable parts, rolls itself into a ball, and presents nothing but its defensive thorns to the enemy; thus, while it attempts to injure no other quadrupede, they are equally incapable of injuring it: like those knights, we have somewhere read of, who were armed in such a manner, that they could neither conquer others, nor be themselves overcome.

This animal is of two kinds; one with a nose like the snout of an hog; the other, more short and blunt, like that of a dog. That with the muzzle of a dog is the most common, being about six inches in length, from the tip of the nose to the insertion of the tail. The tail is little more than an inch long; and so concealed by the spines, as to be scarce visible: the head, back, and sides, are covered with prickles; the nose, breast, and belly, are covered with fine soft hair\*; the legs are short, of a dusky colour, and almost bare; the toes on each foot are five in number, long and separated; the prickles are about an inch in length, and very sharp-pointed; their lower part is white, the middle black, and the points white: the eyes are small, and placed high in the head; the ears are

\* *Præputium propendens*. Linnæi Syst. 75. And of the female he might have said, *resupina copulatur*.

round,

round, pretty large, and naked; the mouth is small, but well furnished with teeth; these, however, it only uses in chewing its food, but neither in attacking or defending itself against other animals. Its only reliance in cases of danger, is on its spines; the instant it perceives an enemy, it puts itself into a posture of defence, and keeps upon its guard until it supposes the danger over. On such occasions, it immediately alters its whole appearance: from its usual form, somewhat resembling a small animal, with a bunch on its back, the animal begins to bend its back, to lay its head upon its breast, to shut its eyes, to roll down the skin of its sides towards the legs, to draw these up, and, lastly, to tuck them in on every side, by drawing the skin still closer. In this form, which the hedge-hog always puts on when disturbed, it no way resembles an animal, but rather a roundish mass of prickles, impervious on every side. The shape of the animal thus rolled up, somewhat resembles a chestnut in the husk; there being, on one side, a kind of flat space, which is that on which the head and legs have been tucked in.

Such is the usual appearance of the hedge-hog, upon the approach of any danger. Thus rolled up in a lump, it patiently waits till its enemy passes by, or is fatigued with fruitless attempts to annoy it. The cat, the weasel, the

ferret, and the martin, quickly decline the combat; and the dog himself generally spends his time in empty menaces, rather than in effectual efforts. Every encrease of danger only encreases the animal's precautions to keep on its guard; its assailant vainly attempts to bite, since he thus more frequently feels than inflicts a wound; he stands enraged and barking, and rolls it along with his paws; still, however, the hedge-hog patiently submits to every indignity, but continues secure; and still more to disgust its enemy with the contest, sheds its urine, the smell of which is alone sufficient to send him away. In this manner the dog, after barking for some time, leaves the hedge-hog where he found him; who perceiving the danger past, at length peeps out from its ball, and, if not interrupted, creeps slowly to its retreat.

The hedge-hog, like most other wild animals, sleeps by day, and ventures out by night. It generally resides in small thickets, in hedges, or in ditches covered with bushes; there it makes an hole of about six or eight inches deep, and lies well wrapped up, in moss, grass, or leaves. Its food is roots, fruits, worms, and insects. It is also said to suck cattle, and hurt their udders; but the smallness of its mouth will serve to clear it from this reproach. It is said also to be very hurtful in gardens and orchards, where it will roll itself in an heap of

fruit, and so carry a large quantity away upon its prickles; but this imputation is as ill grounded as the former, since the spines are so disposed, that no fruit will stick upon them, even if we should try to fix them on. It rather appears to be a very serviceable animal, in ridding our fields of insects and worms, which are so prejudicial to vegetation.

Mr. Buffon, who kept these animals tame about his house, acquits them of the reproach of being mischievous in the garden; but then he accuses them of tricks, of which from the form and habits of this animal, one would be never led to suspect them. "I have often," says he, "had the female and her young brought me about the beginning of June: they are generally from three to five in number: they are white in the beginning, and only the marks of their spines appear: I was willing to rear some of them, and accordingly put the dam and her young into a tub, with abundant provision beside them; but the old animal, instead of suckling her young, devoured them all, one after another. On another occasion, an hedge-hog that had made its way into the kitchen, discovered a little pot, in which there was meat prepared for boiling; the mischievous animal drew out the meat, and left its excrements in the stead. I kept males and females in the same apartment, where they lived together, but never coupled.



coupled. I permitted several of them to go about my garden; they did very little damage, and it was scarcely perceivable that they were there: they lived upon the fruits that fell from the trees; they dug the earth into shallow holes; they eat caterpillars, beetles, and worms; they were also very fond of flesh, which they devoured boiled or raw."

They couple in spring, and bring forth about the beginning of summer. They sleep during the winter, and what is said of their laying up provisions for that season, is consequently false. They at no time eat much, and can remain very long without any food whatsoever. Their blood is cold, like all other animals that sleep during the winter. Their flesh is not good for food; and their skins are converted to scarce any use, except to muzzle calves, to keep them from sucking.

## THE TANREC AND TENDRAC.

THE Tanrec and Tendrac, are two little animals, described by Mr. Buffon, of the hedge-hog kind; but yet sufficiently different from it to constitute a different species. Like the hedge-hog, they are covered with prickles, though mixed in a greater proportion with hair; but, unlike that animal, they do not defend themselves by rolling up in a ball. Their

wanting this last property is alone sufficient to distinguish them from an animal in which it makes the most striking peculiarity: as also, that in the East Indies, where only they are found, the hedge-hog exists separately also: a manifest proof that this animal is not a variety caused by the climate.

The Tanrec is much less than the hedge-hog\*, being about the size of a mole, and covered with prickles, like that animal, except that they are shorter and smaller. The Tendrac is still less than the former, and is defended only with prickles upon the head, the neck and the shoulders, the rest being covered with a coarse hair, resembling an hog's bristles. These little animals, whose legs are very short, move but slowly. They grunt like an hog; and wallow, like it, in the mire. They love to be near water; and spend more of their time there than upon land. They are chiefly in creeks and harbours of salt water. They multiply in great numbers, make themselves holes in the ground, and sleep for several months. During this torpid state, their hairs (and I should also suppose their prickles) fall; and they are renewed upon their revival. They are usually very fat; and although their flesh be insipid,

\* Buffon, vol. xxv. p. 254.

soft, and stringy, yet the Indians find it to their taste, and consider it as a very great delicacy.

## THE PORCUPINE.

THOSE arms which the hedge-hog possesses in miniature, the Porcupine has in a more enlarged degree. The short prickles of the hedge-hog are in this animal converted into shafts. In the one the spines are about an inch long; in the other, a foot. The porcupine is about two feet long, and fifteen inches high. Like the hedge-hog, it appears a mass of misshapen flesh, covered with quills, from ten to fourteen inches long, resembling the barrel of a goose-quill in thickness; but tapering and sharp at both ends. These, whether considered separately or together, afford sufficient subject to detain curiosity. Each quill is thickest in the middle; and inserted into the animal's skin, in the same manner as feathers are found to grow upon birds. It is within side spongy, like the top of a goose-quill; and of different colours, being white and black alternately, from one end to the other. The biggest are often found fifteen inches long, and a quarter of an inch in diameter; extremely sharp, and capable of inflicting a mortal wound. They seem harder than common quills, being difficult to be cut, and solid at that end which

is not fixed in the skin. If we examine them in common, as they grow upon the animal, they appear of two kinds; the one such as I have already described; the other, long, flexible and slender, growing here and there among the former. There is still another sort of quills, that grow near the tail, white and transparent, like writing quills, and that seem to be cut short at the end. All these quills, of whatsoever kind, incline backwards, like the bristles of an hog; but when the animal is irritated, they rise, and stand upright, as bristles are seen to do.

Such is the formation of this quadrupede, in those parts in which it differs from most others: as to the rest of its figure, the muzzle bears some resemblance to that of an hare, but black; the legs are very short, and the feet have five toes, both before and behind; and these, as well as the belly, the head, and all other parts of the body, are covered with a sort of short hair, like prickles, there being no part, except the ears and the sole of the foot, that is free from them: the ears are thinly covered with very fine hair; and are in shape like those of mankind: the eyes are small, like those of an hog, being only one-third of an inch from one corner to the other. After the skin is taken off, there appear a kind of paps on those parts of the body from whence the large quills proceed; these are  
about

about the size of a small pea, each answering to as many holes which appear on the outward surface of the skin, and which are about half an inch deep, like as many hollow pipes, wherein the quills are fixed, as in so many sheaths.

This animal seems to partake very much of the nature of the hedge-hog; having this formidable apparatus of arms rather to defend itself, than annoy the enemy. There have been, indeed, many naturalists who supposed that it was capable of discharging them at its foes, and killing at a great distance off. But this opinion has been entirely discredited of late; and it is now universally believed that its quills remain firmly fixed in the skin, and are then only shed when the animal moults them, as birds do their feathers. It is true, we are told by Ellis, that a wolf at Hudson's Bay was found dead, with the quills of a porcupine fixed within its mouth; which might have very well happened, from the voraciousness of the former, and not the resentment of the latter. That rapacious creature, in the rage of appetite, might have attempted to devour the porcupine, quills and all, and very probably paid the forfeit, by its life. However this be, of all the porcupines that have been brought into Europe, not one was ever seen to launch their quills; and yet the irritations they received were sufficient to have provoked their utmost indignation.

tion. Of all the porcupines that Doctor Shaw observed in Africa, and he saw numbers, not one ever attempted to dart its quills; their usual manner of defence being, to lie on one side, and when the enemy approaches very near, by suddenly rising, to wound him with the points on the other.

It is probable, therefore, that the porcupine is seldom the aggressor; and when attacked by the bolder animals, it only directs its quills so as to keep always pointing towards the enemy. These are an ample protection; and, as we are assured by Kolben, at such times even the lion himself will not venture to make an attack. From such, therefore, the porcupine can defend itself; and chiefly hunts for serpents, and all other reptiles; for subsistence. Travellers universally assure us that, between the serpent and the porcupine, there exist an irreconcilable enmity, and that they never meet without a mortal engagement\*. The porcupine, on these occasions, is said to roll itself upon the serpent, and thus destroy and devour it. This may be true; while what we are informed by Monsieur Sarrafin, of the porcupine of Canada chiefly subsisting on vegetables, may be equally so. Those which are brought to this country to be shewn, are usually fed on bread, milk, and

\* Bosman. Smith. L. P. Vincent Marie, &c.

fruits;

fruits; but they will not refuse meat when it is offered them; and it is probable, they prefer it in a wild state, when it is to be had\*. The porcupine is also known to be extremely hurtful to gardens; and, where it enters, does incredible damage.

The Americans, who hunt this animal, assure us, that the porcupine lives from twelve to fifteen years. During the time of coupling, which is in the month of September, the males become very fierce and dangerous, and often are seen to destroy each other with their teeth. The female goes with young seven months, and brings forth but one at a time; this she suckles but about a month, and accustoms it betimes to live, like herself, upon vegetables and the bark of trees; she is very fierce in its defence; but, at other seasons, she is fearful, timid, and harmless. The porcupine never attempts to bite, nor any way to injure its pursuers: if hunted by a dog or a wolf, it instantly climbs up a tree, and continues there until it has wearied out the patience of its adversary; the wolf knows by experience how fruitless it would be to wait, he therefore leaves the porcupine above, and seeks out for a new adventure.

The porcupine does not escape so well from

\* Buffon.

the Indian hunter, who eagerly pursues it, in order to make embroidery of its quills, and to eat its flesh. This, as we are commonly told, is very tolerable eating; however, we may expect wretched provisions when the savages are to be our caterers, for they eat every thing that has life. But they are very ingenious with regard to their embroidery: if I understand the accounts rightly, they dye the quills of various colours, and then splitting them into slips, as we see in the making of a cane-chair, they embroider, with these, their belts, baskets, and several other necessary pieces of furniture.

As to the rest, there are many things related concerning this animal that are fabulous; but there are still many circumstances more, that yet remain to be known. It were curious to enquire whether this animal molts its quills when wild, for it is never seen to shed them in a domestic state; whether it sleeps all the winter, as we are told by some naturalists, which we are sure it does not when brought into our country; and, lastly, whether its quills can be sent off with a shake; for no less a naturalist than Reaumur was of that opinion.

All that we can learn of an animal exposed as a shew, or even by its dissection, is but merely its conformation; and that makes one of the least interesting parts of its history. We are naturally led, when presented with an  
extraordinary



extraordinary creature, to expect something extraordinary in its way of living, something uncommon, and corresponding with its figure; but of this animal we know little with any precision, except what it offers in a state of captivity. In such a situation, that which I saw appeared to very little advantage: it was extremely dull and torpid, though very wakeful; and extremely voracious, though very capable of sustaining hunger; as averse to any attachment, as to being tamed: it was kept in an iron cage, and the touching one of the bars was sufficient to excite its resentment, for its quills were instantly erected; and the poet was right in his epithet of fretful, for it appeared to me the most irascible creature upon earth.

The porcupines of America differ very much from that of the ancient continent, which we have been describing; and, strictly speaking, may be considered as animals of a different species: however, from their being covered with quills, we will only add them as varieties of the former, since we know very little concerning them, except their difference of figure. They are of two kinds; the one called the Couando; and the other, first named by Mr. Buffon, the Urson: the one a native of the northern parts of America, the other of the south; and both differing from the former, in having long tails, whereas that has a very short one.

The Couando is much less than the porcupine; its quills are four times shorter, its snout more unlike that of an hare; its tail is long enough to catch by the branches of trees, and hold by them. It may be easily tamed, and is to be found chiefly in the southern parts of America; yet is not wanting also in the northern.

The Urson, which Mr. Buffon calls after our countryman Hudson, is a native of Hudson's Bay. The make of the body of this animal is not so round as that of the two former, but somewhat resembling the shape of a pig. It is covered with long bristly hair, with a shorter hair underneath; and under this the quills lie concealed very thick; they are white, with a brown point, and bearded, and the longest do not exceed four inches; they stick to the hand when the animal is stroked on the back; and, likewise, when the hand is taken away, they stick so fast as to follow it. They make their nest under the roots of great trees, sleep very much, and chiefly feed upon the bark of the juniper. In winter the snow serves them for drink; and in summer they lap water, like a dog. They are very common in the country lying to the east of Hudson's Bay; and several of the trading Americans depend on them for food, at some seasons of the year.

## C H A P. IV.

*Of Quadrupedes covered with Scales or Shells  
instead of Hair\*.*

WHEN we talk of a quadrupede, the name seems to imply an animal covered with hair; when we mention a bird, it is natural to conceive a creature covered with feathers; when we hear of a fish, its scales are generally the first part that strikes our imagination. Nature, however, owns none of our distinctions; various in all her operations, she mixes her plans, groupes her pictures, and excites our wonder as well by her general laws as by her deviations. Quadrupedes, which we have considered as making the first general class in animated nature, and next to man the most dignified tenants of the earth, are yet in many respects related to the classes beneath them, and do not in every respect preserve their usual distinctions. Their first character, which consists in having four feet, is common to the lizard kind as well as to them. The second prerogative, which is that of bringing forth

\* This chapter is chiefly extracted from Mr. Buffon, which I mention at once, to save the trouble of repeated quotation.

living young, is found in the cetaceous tribe of fishes, and also in insects without number. Their third and last attribute, which seems more general and constant than the former, that of being covered with hair, is yet found in various other animals, and is deficient in quadrupedes themselves. Thus we must be cautious of judging of the nature of animals from one single character, which is always found incomplete; for it often happens that three or four of the most general characters will not suffice. It must be by a general enumeration of the parts that we can determine precisely of the works of the creation; and, instead of definitions, learn to describe. Had this method been followed, much of the disgust and the intricacy of history might have been avoided, and that time, which is now employed in combating error, laid out in the promoting of science.

Were we to judge of Nature from definitions only, we should never be induced to suppose that there existed races of viviparous quadrupedes destitute of hair, and furnished with scales and shells in their stead. However, Nature, every way various, supplies us with many instances of these extraordinary creatures; the old world has its quadrupedes covered with scales, and the new with a shell. In both they resemble each other, as well in the strangeness of their appetites, as in their aukward conformation.

mation. Like animals but partially made up, and partaking of different natures, they want those instincts which animals formed but for one element alone are found to possess. They seem to be a kind of strangers in nature, creatures taken from some other element, and capriciously thrown to find a precarious subsistence upon land.

The Pangolin, which has been usually called the Scaly Lizard, Mr. Buffon very judiciously restores to that denomination by which it is known in the countries where it is found. The calling it a lizard, he justly observes, might be apt to produce error, and occasion its being confounded with an animal which it resembles only in its general form, and in its being covered with scales. The lizard may be considered as a reptile, produced from an egg; the pangolin is a quadrupede, and brought forth alive, and perfectly formed. The lizard is all over covered with the marks of scales; the pangolin has scales neither on the throat, the breast, or the belly. The scales of the lizard seem stuck upon the body even closer than those of fishes; the scales of the pangolin are only fixed at one end, and capable of being erected, like those of the porcupine, at the will of the animal. The lizard is a defenceless creature; the pangolin can roll itself into a ball, like the hedgehog,

hog, and present the points of its scales to the enemy, which effectually defend it.

The pangolin, which is a native of the torrid climates of the ancient continent, is of all other animals the best protected from external injury by Nature. It is about three or four feet long, or, taking in the tail, from six to eight. Like the lizard, it has a small head, a very long nose, a short thick neck, a long body, legs very short, and a tail extremely long, thick at the insertion, and terminating in a point. It has no teeth, but is armed with five toes on each foot, with long white claws. But what it is chiefly distinguished by is its scaly covering, which in some measure hides all the proportions of its body. These scales defend the animal on all parts, except the under part of the head and neck, under the shoulders, the breast, the belly, and the inner side of the legs; all which parts are covered with a smooth soft skin, without hair. Between the shells of this animal, at all the interstices, are seen hairs like bristles, brown at the extremity, and yellow towards the root. The scales of this extraordinary creature are of different sizes and different forms, and stuck upon the body somewhat like the leaves of an artichok. The largest are found near the tail, which is covered with them like the rest of the body. These are above three inches broad, and about two inches long,  
thick.



*Leve del.*

*J. Taylor sculp.*

The Pangolin.





thick in the middle, and sharp at the edges, and terminated in a roundish point. They are extremely hard, and their substance resembles that of horn. They are convex on the outside, and a little concave on the inner; one edge sticks in the skin, while the other laps over that immediately behind it. Those that cover the tail conform to the shape of that part, being of a dusky brown colour, and so hard, when the animal has acquired its full growth, as to turn a musquet-ball.

Thus armed, this animal fears nothing from the efforts of all other creatures, except man. The instant it perceives the approach of an enemy, it rolls itself up like the hedge-hog, and presents no part but the cutting edges of its scales to the assailant. Its long tail, which, at first view, might be thought easily separable, serves still more to encrease the animal's security. This is lapped round the rest of the body, and, being defended with shells even more cutting than any other part, the creature continues in perfect security. Its shells are so large, so thick, and so pointed, that they repel every animal of prey; they make a coat of armour that wounds while it resists, and at once protects and threatens. The most cruel, the most famished quadrupede of the forest, the tiger, the panther, and the hyæna, make vain attempts to force it. They tread upon, they roll it about,  
but

but all to no purpose; the pangolin remains safe within, while its invader almost always feels the reward of its rashness. The fox often destroys the hedge-hog by pressing it with his weight, and thus obliges it to put forth its nose, which he instantly seizes, and soon after the whole body; but the scales of the pangolin effectually support it under any such weight, while nothing that the strongest animals are capable of doing can compel it to surrender. Man alone seems furnished with arms to conquer its obstinacy. The Negroes of Africa, when they find it, beat it to death with clubs, and consider its flesh as a very great delicacy.

But although this animal be so formidable in its appearance, there cannot be a more harmless inoffensive creature when unmolested. It is even unqualified by Nature to injure larger animals, if it had the disposition, for it has no teeth. It should seem that the bony matter, which goes in other animals to supply the teeth, is exhausted in this in supplying the scales that go to the covering of its body. However this be, its life seems correspondent to its peculiar conformation. Incapable of being carnivorous, since it has no teeth, nor of subsisting on vegetables, which require much chewing, it lives entirely upon insects, for which Nature has fitted it in a very extraordinary manner. As it has a long nose, so it may naturally be supposed

to

to have a long tongue; but, to encrease its length still more, it is doubled in the mouth, so that when extended it is shot out to above a quarter of a yard beyond the tip of the nose. This tongue is round, extremely red, and covered with an unctuous and slimy liquor, which gives it a shining hue. When the pangolin, therefore, approaches an ant-hill, for these are the insects on which it chiefly feeds, it lies down near it, concealing as much as possible the place of its retreat, and stretching out its long tongue among the ants, keeps it for some time quite immoveable. These little animals, allured by its appearance, and the unctuous substance with which it is smeared, instantly gather upon it in great numbers; and when the pangolin supposes a sufficiency, it quickly withdraws the tongue, and swallows them at once. This peculiar manner of hunting for its prey is repeated either till it be satisfied, or till the ants, grown more cautious, will be allured to their destruction no longer. It is against these noxious insects, therefore, that its only force or cunning is exerted; and were the Negroes but sufficiently sensible of its utility in destroying one of the greatest pests to their country, they would not be so eager to kill it. But it is the nature of savage men to pursue the immediate good, without being solicitous about the more distant benefit they remove. They,  
therefore,

therefore, hunt this animal, with the utmost avidity, for its flesh; and, as it is slow and unable to escape in an open place, they seldom fail of destroying it. However, it chiefly keeps in the most obscure parts of the forest, and digs itself a retreat in the clefts of rocks, where it brings forth its young, so that it is but rarely met with, and continues a solitary species, and an extraordinary instance of the varying of Nature.

Of this animal, there is a variety which is called the Phatagin, much less than the former, being not above a foot long from the head to the tail, with shells differently formed, with its belly, breast, and throat covered with hair, instead of a smooth skin as in the former; but that by which it is peculiarly distinguished is the extent of its tail, which is above twice the length of its body. Both are found in the warm latitudes of the East, as well as in Africa; and, as their numbers are but few, it is to be supposed their fecundity is not great.

## THE ARMADILLO OR TATOU.

HAVING mentioned quadrupedes of the ancient continent covered with scales, we come next to quadrupedes of the new continent covered with shells. It would seem that Nature had reserved all the wonders of her power for these





*De Sève del.*

*J. Taylor sculp.*

The Armadillo.

these remote and thinly inhabited countries, where the men are savage, and the quadrupedes various. It would seem that she becomes more extraordinary in proportion as she retires from human inspection. But the real fact is, that wherever mankind are polished, or thickly planted, they soon rid the earth of these odd and half-formed productions, that in some measure encumber the soil. They soon disappear in a cultivated country, and continue to exist only in those remote deserts where they have no enemies but such as they are enabled to oppose.

The Armadillo is chiefly an inhabitant of South America; a peaceful harmless creature, incapable of offending any other quadrupede, and furnished with a peculiar covering for its own defence. The pangolin, described above, seems an inactive helpless being, indebted for safety more to its patience than its power; but the armadillo is still more exposed and helpless. The pangolin is furnished with an armour that wounds while it resists, and that is never attacked with impunity; but the armadillo is obliged to submit to every insult, without any power of repelling its enemy; it is attacked without danger, and is consequently liable to more various persecutions.

This animal being covered, like a tortoise, with a shell, or rather a number of shells, its  
other

other proportions are not easily discerned. It appears, at first view, a round misshapen mass, with a long head, and a very large tail sticking out at either end, as if not of a piece with the rest of the body. It is of different sizes, from a foot to three feet long, and covered with a shell divided into several pieces, that lap over each other like the plates in a coat of armour; or in the tail of a lobster. The difference in the size of this animal, and also the different disposition and number of its plates, have been considered as constituting so many species, each marked with its own particular name. In all, however, the animal is partially covered with this natural coat of mail; the conformation of which affords one of the most striking curiosities in natural history. This shell, which in every respect resembles a bony substance, covers the head, the neck, the back, the sides, the rump, and the tail to the very point. The only parts to which it does not extend are, the throat, the breast, and the belly, which are covered with a white soft skin, somewhat resembling that of a fowl stripped of its feathers. If these naked parts be observed with attention, they will be found covered with the rudiments of shells, of the same substance with those which cover the back. The skin, even in the parts that are softest, seems to have a tendency to ossify; but a complete ossification takes place  
only



only on those parts which have the least friction, and are the most exposed to the weather. The shell, which covers the upper part of the body, differs from that of the tortoise, in being composed of more pieces than one, which lie in bands over the body, and, as in the tail of the lobster, slide over each other, and are connected by a yellow membrane in the same manner. By this means the animal has a motion in its back, and the armour gives way to its necessary inflexions. These bands are of various numbers and sizes, and from them these animals have been distinguished into various kinds. In general, however, there are two large pieces that cover, one the shoulders, and the other the rump. In the back, between these, the bands are placed in different numbers, that lap over each other, and give play to the whole. Besides their opening cross-ways, they also open down along the back, so that the animal can move in every direction. In some there are but three of these bands between the large pieces; in others there are six; in a third kind there are eight; in a fourth kind, nine; in a fifth kind, twelve; and, lastly, in the sixth kind there is but one large piece, which covers the shoulders, and the rest of the body is covered with bands all down to the tail. These shells are differently coloured in different kinds, but most usually they are of a dirty

dirty grey. This colour in all arises from another peculiar circumstance in their conformation, for the shell itself is covered with a softish skin, which is smooth and transparent.

But, although these shells might easily defend this animal from a feeble enemy, yet they could make but a slight resistance against a more powerful antagonist; Nature, therefore, has given the armadillo the same method of protecting itself with the hedge-hog or the pangolin. The instant it perceives itself attacked, it withdraws the head under its shells, and lets nothing be seen but the tip of the nose; if the danger encreases, the animal's precautions encrease in proportion; it then tucks up its feet under its belly, unites its two extremities together, while the tail seems as a band to strengthen the connection; and it thus becomes like a ball, a little flattish on each side. In this position it continues obstinately fixed, while the danger is near, and often long after it is over. In this situation it is tossed about at the pleasure of every other quadrupede, and very little resembling a creature endowed with life and motion. Whenever the Indians take it, which is in this form, by laying it close to the fire, they soon oblige the poor animal to unfold itself, and to face a milder death to escape a more severe.

This

This animal is a native only of America, for they were utterly unknown before the discovery of that continent. It is an inoffensive harmless creature, unless it finds the way into a garden, where it does a great deal of mischief, by eating the melons, the potatoes, and other vegetables. Although a native of the warmest parts of America, yet it bears the cold of our climate without any inconvenience. We have often seen them shewn among other wild beasts; which is a proof they are not difficult to be brought over. Their motion seems to be a swift walk, but they can neither run, leap, nor climb trees; so that, if found in an open place, they have no method of escaping from their pursuers. Their only resource in such an extremity is to make towards their hole as fast as they can; or, if this be impracticable, to make a new hole before the enemy arrives. For this they require but a very few moments advantage; the mole itself does not burrow swifter than they can. For this purpose, they are furnished with claws extremely large, strong, and crooked, and usually four upon each foot. They are sometimes caught by the tail as they are making their way into the earth; but such is their resistance, and so difficult it is to draw them backward, that they leave their tail in the hand of their pursuer, and are very well contented to save their lives with its loss. The

pursuers, sensible of this, never drag the tail with all their force, but hold it while another digs the ground about them; and thus these animals are taken alive. The instant the armadillo perceives itself in the power of its enemies, it has but one last resource, to roll itself up, and thus patiently wait whatever tortures they think proper to inflict. The flesh of the smaller kinds is said to be delicate eating; so that we may suppose they receive no mercy. For this reason, they are pursued with unceasing industry; and, although they burrow very deep in the earth, there have been many expedients used to force them out. The hunters sometimes contrive to fill the hole with smoke, which is often successful; they at other times force it by pouring in water. They also bring up a small kind of dogs to the chace that quickly overtake them, if at any distance from their burrow, and oblige them to roll themselves up in a ball, in which figure the hunters carry them home. If, however, the armadillo be near a precipice, it often escapes by rolling itself up, and then tumbling down from rock to rock, without the least danger or inconvenience. They are sometimes taken in snares laid for them by the sides of rivers and low moist places, which they particularly frequent; and this method, in general, succeeds better than any of the former, as their burrows are very deep, and they seldom stir out

except

except in the night. At no time are they found at any great distance from their retreats, so that it requires some patience and skill to intercept their retreat.

There are scarce any of these that do not root the ground, like an hog, in search of such roots as make a principal part of their food. They live also upon melons and other succulent vegetables, and all will eat flesh when they can get it. They frequent water and watery places, where they feed upon worms, small fish, and water insects. It is pretended that there is a kind of friendship between them and the rattlesnake, that they live peaceably and commodiously together, and are frequently found in the same hole. This, however, may be a friendship of necessity to the armadillo; the rattlesnake takes possession of its retreats, which neither are willing to quit while each is incapable of injuring the other.

As to the rest, these animals, though they all resemble each other in the general character of being cloathed with a shell, yet differ a good deal in their size, and in the parts into which their shell is divided. The first of this kind, which has but three bands between the two large pieces that cover the back, is called the Tatu Apará. I will not enter into an exact description of its figure, which, how well written soever, no imagination could exactly conceive;

and the reader would be more fatigued to understand than I to write it. The tail is shorter in this than any other kind, being not more than two inches long, while the shell, taking all the pieces together, is a foot long, and eight inches broad. The second is the Tatou of Ray, or the Encoubert of Buffon; this is distinguished from the rest by six bands across the back; it is about the size of a pig of a month old, with a small long head and a very long tail. The third is the Tatuette, furnished with eight bands, and not by a great deal so big as the former. Its tail is longer also, and its legs shorter in proportion. Its body, from the nose to the insertion of the tail, is about ten inches long, and the tail seven. The fourth is the Pig-headed Armadillo, with nine bands. This is much larger than the former, being about two foot long from the nose to the tail. The fifth is the Kabassou, or Cataphractus, with twelve bands, and still bigger than the former, or any other of its kind. This is often found above three feet long, but is never eaten as the rest are. The sixth is the Weasel-headed Armadillo, with eighteen bands, with a large piece before, and nothing but bands backward. This is above a foot long, and the tail five inches. Of all these, the Kabassou and the Encoubert are the largest; the rest are of a much smaller kind. In the larger kinds, the shell is much  
more





Fig. 1.

W. Wood del.

J. Sauter sculp.

Bats.

Fig. 1. the Great Madagascar Bat.



more solid than in the others, and the flesh is much harder, and unfit for the table. These are generally seen to reside in dry upland grounds, while the small species are always found in moist places, and in the neighbourhood of brooks and rivers. They all roll themselves into a ball; but those whose bands are fewest in number are least capable of covering themselves up completely. The Tatu Apara, for instance, when rolled up, presents two great interstices between its bands, by which it is very easily vulnerable, even by the feeblest of quadrupedes.

## C H A P. V.

### *Of Animals of the Bat Kind.*

**H**AVING in the last chapter described a race of animals that unite the boundaries between quadrupedes and insects, I come in this to a very different class, that serve to fill up the chasm between quadrupedes and birds. Some naturalists, indeed, have found animals of the bat kind so much partaking of the nature of both, that they have been at a loss in which rank to place them, and have doubted, in giving the history of the Bat, whether it was a beast or a bird they were describing. These doubts, however, no longer exist; they are now universally made to take their place among quadrupedes, to

which their bringing forth their young alive, their hair, their teeth, as well as the rest of their habitudes and conformation, evidently entitle them. Pliny, Gesner, and Aldrovandus, who placed them among birds, did not consider that they wanted every character of that order of animals, except the power of flying. Indeed, when this animal is seen with an aukward and struggling motion, supporting itself in the air at the dusk of the evening, it presents in some measure the appearance of a bird; but naturalists, whose business it is to examine it more closely, to watch its habitudes, and inspect into its formation, are inexcusable for concurring in the mistake.

The bat in scarce any particular resembles the bird, except in its power of sustaining itself in the air. It brings forth its young alive; it suckles them; its mouth is furnished with teeth; its lungs are formed like those of quadrupedes; its intestines, and its skeleton, have a complete resemblance, and even are, in some measure, seen to resemble those of mankind\*.

The bat most common in England, is about the size of a mouse; or nearly two inches and an half long. The membranes that are usually called wings, are, properly speaking, an extension of the skin all round the body, except

\* Penis propendens.

the head, which, when the animal flies, is kept stretched on every side, by the four interior toes of the fore feet, which are enormously long, and serve like masts that keep the canvass of a sail spread, and regulate its motions\*. The first toe is quite loose, and serves as a heel when the bat walks, or as an hook, when it would adhere to any thing. The hind feet are disengaged from the surrounding skin, and divided into five toes, somewhat resembling those of a mouse. The skin by which it flies is of a dusky colour. The body is covered with a short fur, of a mouse colour, tinged with red. The eyes are very small; the ears like those of a mouse.

This species of the bat is very common in England. It makes its first appearance early in summer, and begins its flight in the dusk of the evening. It principally frequents the sides of woods, glades, and shady walks; and is frequently observed to skim along the surface of pieces of water. It pursues gnats, moths, and nocturnal insects of every kind. It feeds upon these; but will not refuse meat, wherever it can find it. Its flight is a laborious, irregular movement; and if it happens to be interrupted in its course, it cannot readily prepare for a second elevation; so that if it strikes against

\* British Zoology.

any object, and falls to the ground, it is usually taken. It appears only in the most pleasant evenings, when its prey is generally abroad, and flies in pursuit with its mouth open. At other times it continues in its retreat, the chink of a ruined building, or the hollow of a tree. Thus this little animal, even in summer, sleeps the greatest part of its time, never venturing out by day-light, nor in rainy weather; never hunting in quest of prey, but for a small part of the night, and then returning to its hole. But its short life is still more abridged, by continuing in a torpid state during the winter. At the approach of the cold season, the bat prepares for its state of lifeless inactivity, and seems rather to chuse a place where it may continue safe from interruption, than where it may be warmly or conveniently lodged. For this reason it is usually seen hanging by its hooked claws to the roofs of caves, regardless of the eternal damps that surround it. The bat seems the only animal that will venture to remain in these frightful subterranean abodes, where it continues in a torpid state, unaffected by every change of the weather. Such of this kind as are not provident enough to procure themselves a deep retreat, where the cold and heat seldom vary, are sometimes exposed to great inconveniences, for the weather often becomes so mild in the midst of winter as to warm them  
prema-

prematurely into life, and to allure them from their holes in quest of food, when Nature has not provided a supply. These, therefore, have seldom strength to return; but, having exhausted themselves in a vain pursuit, after insects which are not to be found, are destroyed by the owl, or any other animal that follows such petty prey.

The bat couples and brings forth in summer, generally from two to five at a time: of this I am certain, that I have found five young ones in a hole together; but whether they were the issue of one parent, I cannot tell. The female has but two nipples, and those forward on the breast, as in the human kind. This was a sufficient motive for Linnæus to give it the title of a Primas, to rank it in the same order with mankind; and to push this contemptible animal among the chiefs of the creation. Such arbitrary associations produce rather ridicule than instruction, and render even method contemptible: however, we are to forgive too strong an attachment to system in this able naturalist, since his application to the particular history of the animal, counterbalances the defect\*.

From Linnæus we learn, that the female makes no nest for her young, as most birds and quadrupedes are known to do. She is barely

\* Fauna Suecica, p. 3.

content with the first hole she meets, where sticking herself by her hooks against the sides of her apartment, she permits her young to hang at the nipple, and in this manner to continue for the first or second day. When, after some time, the dam begins to grow hungry, and finds a necessity of stirring abroad, she takes her little ones and sticks them to the wall, in the manner she before hung herself; there they immoveably cling, and patiently wait till her return.

Thus far this animal seems closely allied to the quadrupede race. Its similitude to that of birds is less striking. As Nature has furnished birds with extremely strong pectoral muscles, to move the wings, and direct their flight, so has it also furnished this animal. As birds also have their legs weak, and unfit for the purposes of motion, the bat has its legs fashioned in the same manner, and is never seen to walk, or, more properly speaking, to push itself forward with its hind legs, but in cases of extreme necessity. The toes of the fore legs, or, if we may use the expression, its extremely long fingers, extend the web like a membrane that lies between them; and this, which is extremely thin, serves to lift the little body into the air: in this manner, by an unceasing percussion, much swifter than that of birds, the animal continues, and directs its flight; however, the great labour required in flying, soon fatigues it; for, unlike birds,

birds, which continue for days together upon the wing, the bat is tired in less than an hour, and then returns to its hole, satisfied with its supply, to enjoy the darkness of its retreat.

If we consider the bat as it is seen in our own country, we shall find it an harmless, inoffensive creature. It is true that it now and then steals into a larder, and, like a mouse, commits its petty thefts upon the fattest parts of the bacon. But this happens seldom; the general tenor of its industry is employed in pursuing insects that are much more noxious to us than itself can possibly be; while its evening flight, and its unsteady wabbling motion, amuse the imagination, and add one figure more to the pleasing groupe of animated nature.

The varieties of this animal, especially in our country, are but few; and the differences scarce worth enumeration. Naturalists mention the Long-eared Bat, much less than that generally seen, and with much longer ears; the Horseshoe Bat, with an odd protuberance round its upper lip, somewhat in the form of an horseshoe; the Rhinoceros Bat, with a horn growing from the nose, somewhat similar to that animal from whence it has the name. These, with several others, whose varieties are too numerous, and differences too minute for a detail, are all inoffensive, minute, and contemptible; incapable, from their size, of injuring mankind, and

not sufficiently numerous much to incommode him. But there is a larger race of bats, found in the East and West-Indies, that are truly formidable; each of these is singly a dangerous enemy; but when they unite in flocks, they then become dreadful. Were the inhabitants of the African coasts\*, says Des Marchais, to eat animals of the bat kind, as they do in the East-Indies, they would never want a supply of provisions. They are there in such numbers, that, when they fly, they obscure the setting sun. In the morning, at peep of day, they are seen sticking upon the tops of the trees, and clinging to each other, like bees when they swarm, or like large clusters of cocoa. The Europeans often amuse themselves with shooting among this huge mass of living creatures, and observing their embarrassment when wounded. They sometimes enter the houses, and the Negroes are expert at killing them; but although these people seem for ever hungry, yet they regard the bat with horror, and will not eat it, though ready to starve.

Of foreign bats, the largest we have any certain accounts of, is the Roufette, or the Great Bat of Madagascar. This formidable creature is near four feet broad, when the wings are extended; and a foot long, from the tip of the

\* Des Marchais, vol. ii. p. 203.



nose to the insertion of the tail. It resembles our bat in the form of its wings, in its manner of flying, and in its internal conformation. It differs from it in its enormous size; in its colour, which is red, like that of a fox; in its head and nose also, which resemble those of that animal, and which have induced some to call it the flying fox: it differs also in the number of its teeth; and in having a claw on the fore foot, which is wanting in ours. This formidable creature is found only in the ancient continent; particularly in Madagascar, along the coasts of Africa and Malabar, where it is usually seen about the size of a large hen. When they repose, they stick themselves to the tops of the tallest trees, and hang with their heads downward. But when they are in motion, nothing can be more formidable: they are seen in clouds, darkening the air, as well by day as by night, destroying the ripe fruits of the country, and sometimes settling upon animals, and man himself: they devour, indiscriminately, fruits, flesh, and insects, and drink the juice of the palm-tree: they are heard at night in the forests at more than two miles distance, with an horrible din; but at the approach of day, they usually begin to retire: nothing is safe from their depredations; they destroy fowls and domestic animals, unless preserved with the utmost care, and often fasten upon the inhabitants themselves, at-  
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tack them in the face, and inflict very terrible wounds. In short, as some have already observed, the ancients seem to have taken their ideas of harpies from these fierce and voracious creatures, as they both concur in many parts of the description, being equally deformed, greedy, uncleanly, and cruel.

An animal not so formidable, but still more mischievous than these, is the American Vampire. This is less than the former; but more deformed, and still more numerous. It is furnished with an horn like the rhinoceros bat; and its ears are extremely long. The other kinds generally resort to the forest, and the most deserted places; but these come into towns and cities, and, after sun-set, when they begin to fly, cover the streets like a canopy\*. They are the common pest both of men and animals; they effectually destroy the one, and often distress the other. "They are," says Ulloa, "the most expert blood-letters in the world. The inhabitants of those warm latitudes being obliged, by the excessive heats, to leave open the doors and windows of the chambers where they sleep, the vampyres enter, and if they find any part of the body exposed, they never fail to fasten upon it. There they continue to suck the blood; and it often happens that the person dies under the

\* Ulloa, vol. i. p. 58.

operation. They insinuate their tooth into a vein, with all the art of the most experienced surgeon, continuing to exhaust the body, until they are satiated. I have been assured," continues he, "by persons of the strictest veracity, that such an accident has happened to them; and that, had they not providentially awaked, their sleep would have been their passage into eternity; having lost so large a quantity of blood as hardly to find strength to bind up the orifice. The reason why the puncture is not felt is, besides the great precaution with which it is made, the gentle refreshing agitation of the bat's wings, which contribute to encrease sleep, and soften the pain."

The purport of this account has been confirmed by various other travellers; who all agree that this bat is possessed of a faculty of drawing the blood from persons sleeping; and thus often destroying them before they awake. But still a very strong difficulty remains to be accounted for; the manner in which they inflict the wound. Ulloa, as has been seen, supposes that it is done by a single tooth; but this we know to be impossible, since the animal cannot infix one tooth without all the rest accompanying its motions; the teeth of the bat kind being pretty even, and the mouth but small. Mr. Buffon therefore supposes the wound to be inflicted by the tongue; which, however, appears to me

too large to inflict an unpainful wound; and even less qualified for that purpose than the teeth. Nor can the tongue, as Mr. Buffon seems to suppose, serve for the purposes of suction, since for this it must be hollow, like a syringe, which it is not found to be. I should therefore suppose, that the animal is endowed with a strong power of suction; and that, without inflicting any wound whatsoever, by continuing to draw, it enlarges the pores of the skin in such a manner that the blood at length passes, and that more freely the longer the operation is continued; so that, at last, when the bat goes off, the blood continues to flow. In confirmation of this opinion we are told, that where beasts have a thick skin, this animal cannot injure them; whereas, in horses, mules, and asses, they are very liable to be thus destroyed. As to the rest, these animals are considered as one of the great pests of South America; and often prevent the peopling of many parts of that continent: having destroyed at Barja, and several other places, such cattle as were brought there by the missionaries, in order to form a settlement.

## C H A P. VI.

*Of Amphibious Quadrupedes.*

**T**H E gradations of Nature from one class of beings, to another are made by imperceptible deviations. As we saw in the foregoing chapters quadrupedes almost degraded into the insect tribe, or mounted among the inhabitants of the air, we are at present to observe their approach to fishes, to trace the degrees by which they become more unlike terrestrial animals, till the similitude of the fish prevails over that of the quadrupede.

As in opposite armies the two bodies are distinct and separated from each other, while yet between them are various troops that plunder on both sides, and are friends to neither, so between terrestrial and aquatic animals there are tribes that can scarce be referred to any rank, but lead an amphibious life between them. Sometimes in water, sometimes on land, they seem fitted for each element, and yet completely adapted to neither. Wanting the agility of quadrupedes upon land, and the perseverance of fishes in the deep, the variety of their powers only seems to diminish their force; and, though possessed of two different methods of living, they  
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are more inconveniently provided than such as have but one.

All quadrupedes of this kind, though covered with hair in the usual manner, are furnished with membranes between the toes, which assist their motion in the water. Their paws are broad, and their legs short, by which they are more completely fitted for swimming, for, taking short strokes at a time, they make them oftener and with greater rapidity. Some, however, of these animals are more adapted to live in the water than others; but, as their power encreases to live in the deep, their unfitness for living upon land encreases in the same proportion. Some, like the otter, resemble quadrupedes in every thing except in being in some measure web-footed; others depart still further, in being, like the beaver, not only web-footed, but having the tail covered with scales, like those of a fish. Others depart yet farther, as the seal and the morse, by having the hind feet stuck to the body like fins; and others, as the lamentin, almost entirely resemble fishes, by having no hind feet whatsoever. Such are the gradations of the amphibious tribe. They all, however, get their living in the water, either by habit or conformation; they all continue a long time under water; they all consider that element as their proper abode; whenever pressed by danger, they fly to the water for security; and, when  
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upon land, appear watchful, timorous, and unwieldy.

In the first step of the progression from land to amphibious animals, we find the Otter, resembling those of the terrestrial kind in shape, hair, and internal conformation; resembling the aquatic tribes in its manner of living, and in having membranes between the toes to assist it in swimming. From this peculiar make of its feet, which are very short, it swims even faster than it runs, and can overtake fishes in their own element. The colour of this animal is brown; and it is somewhat of the shape of an overgrown weasel, being long, slender, and soft skinned. However, if we examine its figure in detail, we shall find it unlike any other animal hitherto described, and of such a shape as words can but weakly convey. Its usual length is about two feet, from the tip of the nose to the insertion of the tail; the head and nose are broad and flat; the mouth bears some similitude to that of a fish; the neck is short, and equal in thickness to the head; the body long; the tail broad at the insertion, but tapering off to a point at the end; the eyes are very small, and placed nearer the nose than usual in quadrupedes. The legs are very short, but remarkably strong, broad, and muscular. The joints are articulated so loosely, that the animal is capable of turning them quite back, and bringing them

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on a line with the body, so as to perform the office of fins. Each foot is furnished with five toes, connected by strong broad webs like those of water-fowl. Thus Nature, in every part, has had attention to the life of an animal whose food is fish, and whose haunts must necessarily be about water.

This voracious animal is never found but at the sides of lakes and rivers, but particularly the former, for it is seldom fond of fishing in a running stream, for the current of the water having more power upon it than the fishes it pursues, if it hunts against the stream it swims too slow; and if with the stream, it overshoots its prey. However, when in rivers, it is always observed to swim against the stream, and to meet the fishes it preys upon, rather than to pursue them. In lakes it destroys much more than it devours, and is often seen to spoil a pond in the space of a few nights. But the damage they do by destroying fish is not so great as their tearing in pieces the nets of the fishers, which they infallibly do whenever they happen to be entangled. The instant they find themselves caught, they go to work with their teeth, and in a few minutes destroy nets of a very considerable value.

The otter has two different methods of fishing; the one by catching its prey from the bottom upward, the other by pursuing it into some  
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little creek, and seizing it there. In the former case, as this animal has longer lungs than most other quadrupedes, upon taking in a quantity of air, it can remain for some minutes at the bottom; and whatever fish passes over at that time is certainly taken; for, as the eyes of fish are placed so as not to see under them, the otter attacks them off their guard from below; and, seizing them at once by the belly, drags them on shore, where it often leaves them untouched, to continue the pursuit for hours together. The other method is chiefly practised in lakes and ponds, where there is no current; the fish thus taken are rather of the smaller kind, for the great ones will never be driven out of deep water.

In this manner the otter usually lives during the summer, being furnished with a supply much greater than its consumption; killing for its amusement, and infecting the edges of the lake with quantities of dead fish, which it leaves there as trophies rather of its victory than its necessities. But in winter, when the lakes are frozen over, and the rivers pour with a rapid torrent, the otter is often greatly distressed for provisions; and is then obliged to live upon grass, weeds, and even the bark of trees. It then comes upon land, and, grown courageous from necessity, feeds upon terrestrial animals, rats, insects, and even sheep themselves. Na-  
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ture, however, has given it the power of continuing a long time without food; and, although during that season it is not rendered quite torpid, like the marmout or the dormouse, yet it keeps much more within its retreat, which is usually the hollow of a bank worn under by the water. There it often forms a kind of gallery, running for several yards along the edge of the water; so that when attacked at one end, it flies to the other, and often evades the fowler by plunging into the water at forty or fifty paces distance, while he expects to find it just before him.

We learn from Mr. Buffon that this animal, in France, couples in winter, and brings forth in the beginning of spring. But it is certainly different with us, for its young are never found till the latter end of summer; and I have frequently, when a boy, discovered their retreats, and pursued them at that season. I am, therefore, more inclined to follow the account given us of this animal by Mr. Lots, of the Academy of Stockholm, who assures us that it couples about the middle of summer, and brings forth, at the end of nine weeks, generally three or four at a time. This, as well as the generality of his other remarks on this subject, agrees so exactly with what I remember concerning it, that I will beg leave to take him for my guide; assuring the reader that, however extraordinary

the account may seem, I know it to be certainly true.

In the rivers and the lakes frequented by the otter, the bottom is generally stony and uneven, with many trunks of trees, and long roots stretching underneath the water\*. The shore also is hollow and scooped inward by the waves. These are the places the otter chiefly chuses for its retreat; and there is scarce a stone which does not bear the mark of its residence, as upon them its excrements are always made. It is chiefly by this mark that its lurking places are known, as well as by the quantity of dead fish that are found lying here and there upon the banks of the water. To take the old ones alive is no easy task, as they are extremely strong, and there are few dogs that will dare to encounter them. They bite with great fierceness, and never let go their hold when they have once fastened. The best way, therefore, is to shoot them at once, as they never will be thoroughly tamed; and, if kept for the purposes of fishing, are always apt to take the first opportunity of escaping. But the young ones may be more easily taken, and converted to very useful purposes. The otter brings forth its young generally under the hollow banks, upon a bed of rushes, flags, or such

\* Journal Etranger, Juin 1755, p. 14.

weeds as the place affords it in greatest quantities. I see in the British Zoology a description of its habitation, where that naturalist observes, "that it burrows under ground, on the banks of some river or lake, and always makes the entrance of its hole under water, then works up to the surface of the earth, and there makes a minute orifice for the admission of air; and this little air-hole is often found in the middle of some thicket." In some places this may be true, but I have never observed any such contrivance; the retreat, indeed, was always at the edge of the water, but it was only sheltered by the impending bank, and the otter itself seemed to have but a small share in its formation. But, be this as it may, the young ones are always found at the edge of the water; and, if under the protection of the dam, she teaches them instantly to plunge, like herself, into the deep, and escape among the rushes or weeds that fringe the stream. At such times, therefore, it is very difficult to take them; for, though never so young, they swim with great rapidity, and in such a manner that no part of them is seen above water, except the tip of the nose. It is only when the dam is absent that they can be taken; and in some places there are dogs purposely trained for discovering their retreats. Whenever the dog comes to the place, he soon, by his barking, shews that the  
otter

otter is there ; which, if there be an old one, instantly plunges into the water, and the young all follow. But if the old one be absent, they continue terrified, and will not venture forth but under her guidance and protection. In this manner they are secured and taken home alive, where they are carefully fed with small fish and water. In proportion, however, as they gather strength, they have milk mixed among their food, the quantity of their fish provision is retrenched, and that of vegetables is increased, until at length they are fed wholly upon bread, which perfectly agrees with their constitution. The manner of training them up to hunt for fish requires not only assiduity but patience ; however, their activity and use, when taught, greatly repays the trouble of teaching ; and, perhaps, no other animal is more beneficial to its master. The usual way is, first to learn them to fetch as dogs are instructed ; but, as they have not the same docility, so it requires more art and experience to teach them. It is usually performed by accustoming them to take a truss stuffed with wool, of the shape of a fish, and made of leather, in their mouths, and to drop it at the word of command ; to run after it when thrown forward, and to bring it to their master. From this they proceed to real fish, which are thrown dead into the water, and which they are taught to fetch from thence.

From the dead they proceed to the live, until at last the animal is perfectly instructed in the whole art of fishing. An otter thus taught is a very valuable animal, and will catch fish enough to sustain not only itself but a whole family. I have seen one of these go to a gentleman's pond at the word of command, drive up the fish into a corner, and, seizing upon the largest of the whole, bring it off, in its mouth, to its master.

Otters are to be met with in most parts of the world, and rather differ in size and colour from each other, than in habitudes or conformation\*. In North America and Carolina they are usually found white, inclining to yellow. The Brasilian otter is much larger than ours, with a roundish head, almost like a cat. The tail is shorter, being but five inches long; and the hair is soft, short, and black, except on the head, where it is of a dark brown, with a yellowish spot under the throat.

## T H E B E A V E R.

IN all countries, as man is civilized and improved; the lower ranks of animals are repressed and degraded †. Either reduced to servitude, or treated as rebels, all their societies

\* Ray.

† Buffon.





*De Sme del.*

*J. Taylor sculp.*

The Beaver.



are dissolved, and all their united talents rendered ineffectual. Their feeble arts quickly disappear, and nothing remains but their solitary instincts, or those foreign habitudes which they receive from human education. For this reason there remain no traces of their ancient talents and industry, except in those countries where man himself is a stranger; where, unvisited by his controlling power, for a long succession of ages, their little talents have had time to come to their limited perfection, and their common designs have been capable of being united.

The Beaver seems to be now the only remaining monument of brutal society. From the result of its labours, which are still to be seen in the remote parts of America, we learn how far instinct can be aided by imitation. We from thence perceive to what a degree animals, without language or reason, can concur for their mutual advantage, and attain by numbers those advantages which each, in a state of solitude, seems unfitted to possess.

If we examine the beaver merely as an individual, and unconnected with others of its kind, we shall find many other quadrupedes to exceed it in cunning, and almost all in the powers of annoyance and defence. The beaver, when taken from its fellows, and kept in a state of solitude or domestic tameness, appears to be a

mild gentle creature, familiar enough, but somewhat dull, and even melancholy; without any violent passions or vehement appetites, moving but seldom, making no efforts to attain any good, except in gnawing the wall of its prison, in order to regain its freedom; yet this, however, without anger or precipitation, but calm and indifferent to all about, without attachment or antipathies, neither seeking to offend nor desiring to please. It appears inferior to the dog in those qualities which render animals of service to man; it seems made neither to serve, to command, or to have connections with any other set of beings, and is only adapted for living among its kind. Its talents are entirely repressed in solitude, and are only brought out by society. When alone, it has but little industry, few tricks, and without cunning sufficient to guard it against the most obvious and bungling snares laid for it by the hunter. Far from attacking any other animal, it is scarce possessed of the arts of defence. Preferring flight to combat, like all wild animals, it only resists when driven to an extremity, and fights only then when its speed can no longer avail.

But this animal is rather more remarkable for the singularity of its conformation than any intellectual superiorities it may be supposed, in a state of solitude, to possess. The beaver is the only creature among quadrupedes that has a  
flat

flat broad tail, covered with scales, which serves as a rudder to direct its motions in the water. It is the sole quadrupede that has membranes between the toes on the hind feet only, and none on the fore feet, which supply the place of hands, as in the squirrel. In short, it is the only animal that in its fore parts entirely resembles a quadrupede, and in its hinder parts seems to approach the nature of fishes, by having a scaly tail. In other respects, it is about two feet long, and near one foot high; it is somewhat shaped like a rat, except the tail, which, as has been observed, is flat and scaly, somewhat resembling a neat's tongue at the point. Its colour is of a light brown; the hair of two sorts; the one longer and coarser; the other soft, fine, short, and silky. The teeth are like those of a rat or a squirrel, but longer and stronger, and admirably adapted to cutting timber or stripping bark, to which purposes they are constantly applied. One singularity more may be mentioned in its conformation; which is, that, like birds, it has but one and the same vent for the emission of its excrements and its urine; a strange peculiarity, but which anatomists leave us no room to doubt of.

The beavers begin to assemble about the months of June and July, to form a society that is to continue for the greatest part of the year:

They arrive in numbers from every side, and generally form a company of above two hundred. The place of meeting is commonly the place where they fix their abode, and this is always by the side of some lake or river. If it be a lake in which the waters are always upon a level, they dispense with building a dam; but if it be a running stream, which is subject to floods and falls, they then set about building a dam, or pier, that crosses the river, so that it forms a dead water in that part which lies above and below. This dam, or pier, is often four-score or an hundred feet long, and ten or twelve feet thick at the base. If we compare the greatness of the work with the powers of the architect, it will appear enormous; but the solidity with which it is built is still more astonishing than its size. The part of the river over which this dam is usually built, is where it is most shallow, and where some great tree is found growing by the side of the stream. This they pitch upon as proper for making the principal part in their building; and, although it is often thicker than a man's body, they instantly set about cutting it down. For this operation they have no other instrument but their teeth, which soon lay it level, and that also on the side they wish it to fall, which is always across the stream. They then fall about cutting off the top branches, to make it lie close and even, and

and serve as the principal beam of their fabric\*.

This dike, or causey, is sometimes ten, and sometimes twelve feet thick at the foundation. It descends in a declivity or slope, on that side next the water, which gravitates upon the work in proportion to the height, and presses it with a prodigious force towards the earth. The opposite side is erected perpendicular, like our walls; and that declivity, which, at the bottom, or basis, is about twelve feet broad, diminishes towards the top, where it is no more than two feet broad, or thereabouts. The materials whereof this mole consists, are wood and clay. The beavers cut, with surprising ease, large pieces of wood, some as thick as one's arm or one's thigh, and about four, five, or six feet in length, or sometimes more, according as the slope ascends. They drive one end of these stakes into the ground, at a small distance one from the other, intermingling a few with them that are smaller and more pliant. As the water, however, would find a passage through the intervals or spaces between them, and leave the reservoir dry, they have recourse to a clay, which they know where to find, and with which they stop up all the cavities both within and without, so that the water is duly confined.

\* Spectacle de la Nature.

They continue to raise the dike in proportion to the elevation of the water, and the plenty which they have of it. They are conscious likewise that the conveyance of their materials by land would not be so easily accomplished as by water; and therefore they take the advantage of its increase, and swim with their mortar on their tails, and their stakes between their teeth, to the places where there is most occasion for them. If their works are, either by the force of the water, or the feet of the huntsmen, who run over them, in the least damaged, the breach is instantly made up; every nook and corner of the habitation is reviewed, and, with the utmost diligence and application, perfectly repaired. But when they find the huntsmen visit them too often, they work only in the night-time, or else abandon their works entirely, and seek out for some safer situation.

The dike, or mole, being thus completed, their next care is to erect their several apartments, which are either round or oval, and divided into three stories, one raised above the other: the first below the level of the caufey, which is for the most part full of water; the other two above it. This little fabrick is built in a very firm and substantial manner, on the edge of their reservoir, and always in such divisions or apartments as above mentioned; that in case of the water's increase, they may move

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up a story higher, and be no ways incommoded. If they find any little island contiguous to their reservoir, they fix their mansion there, which is then more solid, and not so frequently exposed to the overflowing of the water, in which they are not able to continue for any length of time. In case they cannot pitch upon so commodious a situation, they drive piles into the earth, in order to fence and fortify their habitation against the wind as well as the water. They make two apertures, at the bottom, to the stream; one is a passage to their bagnio, which they always keep neat and clean; the other leads to that part of the building where every thing is conveyed, that will either soil or damage their upper apartments. They have a third opening or door-way, much higher, contrived for the prevention of their being shut up and confined, when the frost and snow has closed the apertures of the lower floors. Sometimes they build their houses altogether upon dry land; but then they sink trenches five or six feet deep, in order to descend into the water when they see convenient. They make use of the same materials; and are equally industrious in the erection of their lodges, as their dikes. Their walls are perpendicular, and about two feet thick. As their teeth are more serviceable than saws, they cut off all the wood that projects beyond the wall. After this, when they

have mixed up some clay and dry grafs together, they work it into a kind of mortar, with which, by the help of their tails, they plaister all their works, both within and without.

The inside is vaulted, and is large enough for the reception of eight or ten beavers. In case it rises in an oval figure, it is for the generality above twelve feet long, and eight or ten feet broad. If the number of inhabitants increase to fifteen, twenty, or thirty, the edifice is enlarged in proportion. I have been credibly informed, that four hundred beavers have been discovered to reside in one large mansion-house, divided into a vast number of apartments, that had a free communication one with another.

All these works, more especially in the northern parts, are finished in August, or September at farthest; at which time they begin to lay in their stores. During the summer, they are perfect epicures; and regale themselves every day on the choicest fruits and plants the country affords. Their provisions, indeed, in the winter season, principally consist of the wood of the birch, the plane, and some few other trees, which they steep in water, from time to time, in such quantities as are proportioned to the number of inhabitants. They cut down branches from three to ten feet



feet in length. Those of the largest dimensions are conveyed to their magazines by a whole body of beavers; but the smallest by one only: each of them, however, takes a different way, and has his proper walk assigned him, in order that no one labourer should interrupt another in the prosecution of his work. Their wood-yards are larger or smaller, in proportion to the number in family: and, according to the observation of some curious naturalists, the usual stock of timber, for the accommodation of ten beavers, consists of about thirty feet in a square surface, and ten in depth. These logs are not thrown up in one continual pile, but laid one across the other, with intervals or small spaces between them, in order to take out, with the greater facility, but just such a quantity as they shall want for their immediate consumption, and those parcels only which lie at the bottom in the water, and have been duly steeped. This timber is cut again into small particles, and conveyed to one of their largest lodges, where the whole family meet, to consume their respective dividends, which are made impartially, in even and equal portions. Sometimes they traverse the woods, and regale their young with a more novel and elegant entertainment.

Such as are used to hunt these animals, know perfectly well, that green wood is much

more acceptable to them, than that which is old and dry; for which reason they plant a considerable quantity of it round their lodgments; and as they come out to partake of it, they either catch them in snares, or take them by surprize. In the winter, when the frosts are very severe, they sometimes break a large hole in the ice; and when the beavers resort thither for the benefit of a little fresh air, they either kill them with their hatchets, or cover the opening with a large substantial net. After this, they undermine and subvert the whole fabrick: whereupon the beavers, in hopes to make their escape in the usual way, fly with the utmost precipitation to the water; and plunging into the aperture, fall directly into the net, and are inevitably taken.

## T H E   S E A L.

EVERY step we proceed in the description of amphibious quadrupedes, we make nearer advances to the tribe of fishes. We first observed the otter with its feet webbed, and formed for an aquatic life; we next saw the beaver with the hinder parts covered with scales, resembling those of fishes; and we now come to a class of animals in which the shape and habitude of fishes still more apparently prevail, and whose internal conformation attaches

taches them very closely to the water. The Seal, in general, resembles a quadrupede in some respects, and a fish in others. The head is round, like that of a man; the nose broad, like that of the otter; the teeth like those of a dog; the eyes large and sparkling; no external ears, but holes that serve for that purpose; the neck is well proportioned, and of a moderate length; but the body thickest where the neck is joined to it. From thence the animal tapers down to the tail, growing all the way smaller, like a fish. The whole body is covered with a thick bristly shining hair, which looks as if it were entirely rubbed over with oil; and thus far the quadrupede prevails over the aquatic. But it is in the feet that this animal greatly differs from all the rest of the quadrupede kind; for, though furnished with the same number of bones with other quadrupedes, yet they are so stuck on the body, and so covered with a membrane, that they more resemble fins than feet; and might be taken for such, did not the claws with which they are pointed shew their proper analogy. In the fore-feet, or rather hands, all the arm and the cubit are hid under the skin, and nothing appears but the hand from the wrist downwards; so that if we imagine a child with its arms swathed down, and nothing appearing but its hands at each side of the body, towards the breast, we may have

have some idea of the formation of this animal in that part. These hands are covered in a thick skin, which serves, like a fin, for swimming; and are distinguished by five claws, which are long, black, and piercing. As to the hind-feet, they are stretched out on each side of the short tail, covered with an hairy skin like the former, and both together almost joining at the tail; the whole looks like the broad flat tail of a fish; and, were it not for five claws which appear, might be considered as such. The dimensions of this animal are various, being found from four feet long to nine. They differ also in their colours; some being black, others spotted, some white, and many more yellow. It would, therefore, be almost endless to mention the varieties of this animal. Buffon describes three; and Krantz mentions five, all different from those described by the other. I might, were I fond of such honours, claim the merit of being a first describer myself; but, in fact, the varieties in this animal are so many, that, were they all described, the catalogue would be as extensive as it would be useless and unentertaining. It is sufficient to observe, that they agree in the general external characters already mentioned, and internally in two or three more, which are so remarkable as to deserve peculiar attention.

It has been often remarked, that all animals  
are

are sagacious in proportion to the size of their brain. It has, in support of this opinion, been alledged, that man, with respect to his bulk, has of all others the largest. In pursuance of this assumption, some erroneous speculations have been formed. But, were the size of the brain to determine the quantity of the understanding, the seal would of all other animals be the most sagacious; for it has, in proportion, the largest brain of any, even man himself not excepted. However, this animal is possessed of but very few advantages over other quadrupedes; and the size of its brain furnishes it with few powers that contribute to its wisdom or its preservation.

This animal differs also in the formation of its tongue from all other quadrupedes. It is forked or slit at the end like that of serpents; but for what purpose it is thus singularly contrived we are at a loss to know. We are much better informed with respect to a third singularity in its conformation, which is, that the *foramen ovale* in the heart is open. Those who are in the least acquainted with anatomy know, that the veins uniting bring their blood to the heart, which sends it into the lungs, and from thence it returns to the heart again, to be distributed through the whole body. Animals, however, before they are born, make no use of their lungs; and therefore their blood, without entering

entering their lungs, takes a shorter passage through the very partition of the heart, from one of its chambers to the other, thus passing from the veins directly into those vessels that drive it through the whole frame. But the moment the animal is brought forth, the passage through the partition (which passage is called the *foramen ovale*) closes up, and continues closed for ever; for the blood then takes its longest course through the lungs to return to the other chamber of the heart again. Now the seal's heart resembles that of an infant in the womb, for the *foramen ovale* never closes; and, although the blood of this animal commonly circulates through the lungs, yet it can circulate without their assistance, as was observed above, by a shorter way \*. From hence, therefore, we see the manner in which this animal is adapted for continuing under water; for, being under no immediate necessity of breathing, the vital motions are still carried on while it continues at the bottom; so that it can pursue its prey in that element, and yet enjoy all the delights and advantages of ours.

\* I have followed the usual observations of naturalists with respect to the *foramen ovale* in this animal: I have many reasons, however, to incline me to think that the *foramen* is not entirely open. But this is not the place for a critical enquiry of this kind.

The water is the seal's usual habitation, and whatever fish it can catch its food. Though not equal in instinct and cunning to some terrestrial animals, it is greatly superior to the mute tenants of that element in which it chiefly resides. Although it can continue for several minutes under water, yet it is not able, like fishes, to remain there for any length of time; and a seal may be drowned like any other terrestrial animal. Thus it seems superior in some respects to the inhabitants of both elements, and inferior in many more. Although furnished with legs, it is in some measure deprived of all the advantages of them\*. They are shut up within its body, while nothing appear but the extremities of them, and these furnished with very little motion, but to serve them as fins in the water. The hind-feet, indeed, being turned backwards, are entirely useless upon land; so that when the animal is obliged to move, it drags itself forward like a reptile, and with an effort more painful. For this purpose it is obliged to use its fore-feet, which, though very short, serve to give it such a degree of swiftness, that a man cannot readily overtake it; and it runs towards the sea. As it is thus awkwardly formed for going upon land, it is seldom found at any distance from the sea-shore, but

\* Buffon.

continues to bask upon the rocks; and, when disturbed, always plunges down at once to the bottom.

The seal is a social animal, and, wherever it frequents, numbers are generally seen together. They are found in every climate, but in the north and icy seas they are particularly numerous. It is on those shores, which are less inhabited than ours, and where the fish resort in greater abundance, that they are seen by thousands, like flocks of sheep, basking on the rocks, and suckling their young. There they keep watch like other gregarious animals; and, if an enemy appear, instantly plunge altogether into the water. In fine weather they more usually employ their time in fishing; and generally come on shore in tempests and storms. The seal seems the only animal that takes delight in these tremendous conflicts of Nature. In the midst of thunders and torrents, when every other creature takes refuge from the fury of the elements, the seals are seen by thousands sporting along the shore, and delighted with the universal disorder. This, however, may arise from the sea being at that time too turbulent for them to reside in; and they may then particularly come upon land, when unable to resist the shock of their more usual element.

As seals are gregarious, so are they also animals of passage, and perhaps the only quadrupedes



pedes that migrate from one part of the world to another. The generality of quadrupedes are contented with their native plains and forests, and seldom stray, except when necessity or fear impels them. But seals change their habitation; and are seen in vast multitudes directing their course from one continent to another\*. On the northern coasts of Greenland they are seen to retire in July, and to return again in September. This time it is supposed they go in pursuit of food. But they make a second departure in March to cast their young, and return in the beginning of June, young and all, in a great body together, observing in their route a certain fixed time and track, like birds of passage. When they go upon this expedition, they are seen in great droves, for many days together, making towards the North, taking that part of the sea most free from ice, and going still forward into those seas where man cannot follow. In what manner they return, or by what passage, is utterly unknown; it is only observed, that when they leave the coasts to go upon this expedition, they are all extremely fat, but on their return they come home excessively lean.

The females in our climate bring forth in winter, and rear their young upon some sand-

\* Krantz, vol. i. p. 129.

bank, rock, or desolate island, at some distance from the continent. When they suckle their young, they sit up on their hinder legs, while these, which are at first white with woolly hair, cling to the teats, of which there are four in number, near the navel \*. In this manner the young continue in the place where they are brought forth, for twelve or fifteen days; after which the dam brings them down to the water, and accustoms them to swim and get their food by their own industry. As each litter never exceeds above three or four, so the animal's cares are not much divided, and the education of her little ones is soon completed. In fact, the young are particularly docile; they understand the mother's voice among the numerous bleatings of the rest of the old ones; they mutually assist each other in danger, and are perfectly obedient to her call. Thus early accustomed to subjection, they continue to live in society, hunt and herd together, and have a variety of tones, by which they encourage to pursue, or warn each other of danger. Some compare their voices to the bleating of a flock of sheep, interrupted now and then by the barking of angry dogs, and sometimes the shriller notes of a cat †. All along the shore, each

\* *Coeunt in littore resupinata femina.* LIN. SYST.

† *Linnaei Syst.*

has its own peculiar rock, of which it takes possession, and where it sleeps when fatigued with fishing, uninterrupted by any of the rest. The only season when their social spirit seems to forsake them, is that when they feel the influences of natural desire. They then fight most desperately; and the male that is victorious keeps all the females to himself. Their combats on these occasions are managed with great obstinacy, and yet great justice: two are never seen to fall upon one together; but each has its antagonist, and all fight an equal battle, till one alone becomes victorious.

We are not certainly informed how long the females continue pregnant; but if we may judge from the time which intervenes between their departure from the Greenland coasts and their return, they cannot go above seven or eight months at the farthest. How long this animal lives is also unknown: a gentleman whom I knew in Ireland kept two of them, which he had taken very young, in his house for ten years; and they appeared to have the marks of age at the time I saw them, for they were grown grey about the muzzle; and it is very probable they did not live many years longer. In their natural state the old ones are seen very fat and torpid, separated from the rest, and, as it should seem, incapable of procreation.

As their chief food is fish, so they are very  
expert

expert at pursuing and catching it. In those places where the herrings are seen in shoals, the seals frequent and destroy them by thousands. When the herring retires, the seal is then obliged to hunt after fish that are stronger, and more capable of evading the pursuit\*: however, they are very swift in deep waters, dive with great rapidity, and, while the spectator eyes the spot at which they disappear, they are seen to emerge at above an hundred yards distance. The weaker fishes, therefore, have no other means to escape their tyranny, but by darting into the shallows. The seal has been seen to pursue a mullet, which is a swift swimmer, and to turn it to and fro, in deep water, as an hound does an hare on land. The mullet has been seen trying every art of evasion; and at last swimming into shallow water, in hopes of escaping. There, however, the seal followed; so that the little animal had no other way left to escape, but to throw itself on one side, by which means it darted into shoaler water than it could have swam in with the belly undermost; and thus at last it got free.

As they are thus the tyrants of the element in which they chiefly reside, so they are not very fearful even upon land, except on those shores which are thickly inhabited, and from whence

\* British Zoology, vol. i. p. 75.

they have been frequently pursued. Along the desert coasts where they are seldom interrupted by man, they seem to be very bold and courageous; if attacked with stones, like dogs, they bite such as are thrown against them; if encountered more closely, they make a desperate resistance, and, while they have any life, attempt to annoy their enemy. Some have been known, even while they were skinning, to turn round and seize their butchers; but they are generally dispatched by a stunning blow on the nose. They usually sleep soundly where not frequently disturbed; and that is the time when the hunters surprise them. The Europeans who go into the Greenland seas upon the whale-fishery, surround them with nets, and knock them on the head; but the Greenlanders, who are unprovided with so expensive an apparatus, destroy them in a different manner. One of these little men paddles away in his boat, and when he sees a seal asleep on the side of a rock, darts his lance, and that with such unerring aim, that it never fails to bury its point in the animal's side. The seal, feeling itself wounded, instantly plunges from the top of the rock, lance and all, into the sea, and dives to the bottom; but the lance has a bladder tied to one end, which keeps buoyant, and resists the animal's descent; so that every time the seal rises to the top of the water, the Greenlander strikes it

it with his oar, until he at last dispatches it. But, in our climate, the seals are much more wary, and seldom suffer the hunter to come near them. They are often seen upon the rocks of the Cornish coast, basking in the sun, or upon the inaccessible cliffs, left dry by the tide. There they continue, extremely watchful, and never sleep long without moving, seldom longer than a minute; for then they raise their heads, and if they see no danger, they lie down again, raising and reclining their heads alternately, at intervals of about a minute each. The only method, therefore, that can be taken, is to shoot them: if they chance to escape, they hasten towards the deep, flinging stones and dirt behind them as they scramble along, and at the same time expressing their pain or their fears, by the most distressful cry; if they happen to be overtaken, they make a vigorous resistance with their feet and teeth, till they are killed.

The seal is taken for the sake of its skin, and for the oil its fat yields. The former sells for about four shillings; and, when dressed, is very useful in covering trunks, making waistcoats, shot-pouches, and several other conveniences. The flesh of this animal formerly found place at the tables of the great. At a feast provided by Archbishop Nevill, for Edward the Fourth, there were twelve seals and

porpoises provided, among other extraordinary rarities.

As a variety of this animal, we may mention the Sea Lion, described in Anson's Voyages. This is much larger than any of the former; being from eleven to eighteen feet long. It is so fat that, when the skin is taken off, the blubber lies a foot thick all round the body. It seems to differ from the ordinary seal, not only in its size, but also in its food; for it is often seen to graze along the shore, and to feed upon the long grass that grows up along the edges of brooks. Its cry is very various, sometimes resembling the neighing of an horse, and sometimes the grunting of the hog. It may be regarded as the largest of the seal family.

## THE MORSE.

THE Morse is an animal of the seal kind; but differing from the rest, in a very particular formation of the teeth, having two large tusks growing from the upper jaw, shaped like those of an elephant, but directed downwards; whereas, in the elephant, they grow upright, like horns; it also wants the cutting-teeth, both above and below: as to the rest, it pretty much resembles a seal, except that it is much larger, being from twelve to sixteen feet long. The morses are also generally seen to frequent the

same places that seals are known to reside in; they have the same habitudes, the same advantages, and the same imperfections. There are, however, fewer varieties of the morse than the seal; and they are rarely found, except in the frozen regions near the pole. They were formerly more numerous than at present; and the savage natives of the coasts of Greenland destroyed them in much greater quantities before those seas were visited by European ships upon the whale-fishery, than now. Whether these animals have been since actually thinned by the fishers, or have removed to some more distant and unfrequented shores, is not known; but certain it is, that the Greenlanders, who once had plenty, are now obliged to toil more assiduously for subsistence; and as the quantity of their provisions decrease, for they live mostly upon seals, the numbers of that poor people are every day diminishing. As to the teeth, they are generally from two to three feet long; and the ivory is much more esteemed than that of the elephant, being whiter and harder. The fishers have been known formerly to kill three or four hundred at once; and along those shores where they chiefly frequented, their bones are still seen lying in prodigious quantities. In this manner a supply of provisions, which would have supported the Greenland nation for ages, has been, in a few years, sacrificed to those who did not use



use them, but who sought them for the purposes of avarice and luxury!

## THE MANATI.

WE come, in the last place, to an animal that terminates the boundary between quadrupeds and fishes. Instead of a creature preying among the deeps, and retiring upon land for repose or refreshment, we have here an animal that never leaves the water, and is enabled to live only there. It cannot be called a quadrupede, as it has but two legs only; nor can it be called a fish, as it is covered with hair. In short, it forms the link that unites those two great tribes to each other; and may be indiscriminately called the last of beasts, or the first of fishes.

We have seen the seal approaching nearly to the aquatic tribes, by having its hind legs thrown back on each side of the tail, and forming something that resembled the tail of a fish; but upon examining the skeleton of that animal, its title to the rank of a quadrupede was observed plainly to appear, having all the bones of the hinder legs and feet as complete as any other animal whatsoever.

But we are now come to a creature that not only wants the external appearance of hinder

legs, but, when examined internally, will be found to want them altogether. The Manati is somewhat shaped in the head and the body like the seal; it has also the fore legs or hands pretty much in the same manner, short and webbed, but with four claws only: these also are shorter in proportion than in the former animal, and placed nearer the head; so that they can scarcely assist its motions upon land. But it is in the hinder parts that it chiefly differs from all others of the seal kind; for the tail is perfectly that of a fish, being spread out broad like a fan, and wanting even the vestiges of those bones which make the legs and feet in others of its kind. The largest of these are about twenty-six feet in length; the skin is blackish, very tough and hard; when cut, as black as ebony; and there are a few hairs scattered, like bristles, of about an inch long. The eyes are very small, in proportion to the animal's head; and the ear-holes, for it has no external ears, are so narrow as scarce to admit a pin's head. The tongue is so short, that some have pretended it has none at all; and the teeth are composed only of two solid white bones, running the whole length of both jaws, and formed merely for chewing, and not tearing its vegetable food. The female has breasts placed forward, like those of a woman; and she brings forth but one at a time:

time: this she holds with her paws to her bosom; there it sticks, and accompanies her wherever she goes.

This animal can scarcely be called amphibious, as it never entirely leaves the water, only advancing the head out of the stream, to reach the grass on the river sides. Its food is entirely upon vegetables; and, therefore, it is never found far in the open sea, but chiefly in the large rivers of South America; and often above two thousand miles from the ocean. It is also found in the seas near Kamtschatka, and feeds upon the weeds that grow near the shore. There are likewise level greens at the bottom of some of the Indian bays, and there the manatees are harmlessly seen grazing among turtles and other crustaceous fishes, neither giving nor fearing any disturbance. These animals, when unmolested, keep together in large companies, and surround their young ones\*. They bring forth most commonly in autumn; and it is supposed they go with young eighteen months, for the time of generation is in spring.

The manati has no voice nor cry, for the only noise it makes, is by fetching its breath. Its internal parts somewhat resemble those of an horse; its intestines being longer, in propor-

\* Acta Petropolitana.

tion, than those of any other creature, the horse only excepted.

The fat of the manati, which lies under the skin, when exposed to the sun has a fine smell and taste, and far exceeds the fat of any sea animal; it has this peculiar property, that the heat of the sun will not spoil it, nor make it grow rancid; its taste is like the oil of sweet almonds; and it will serve very well, in all cases, instead of butter: any quantity may be taken inwardly with safety, for it has no other effect than keeping the body open. The fat of the tail is of an harder consistence; and, when boiled, is more delicate than the former. The lean is like beef, but more red; and may be kept a long while, in the hottest days, without tainting. It takes up a long time in boiling; and, when done, eats like beef. The fat of the young one is like pork; the lean is like veal; and, upon the whole, it is very probable that this animal's flesh somewhat resembles that of turtle; since they are fed in the same element, and upon the very same food. The turtle is a delicacy well known among us: our luxuries are not as yet sufficiently heightened to introduce the manati; which, if it could be brought over, might singly suffice for a whole corporation.

## C H A P. VII.

*Of Animals of the Monkey Kind.*

**Q**UADRUPEDES may be considered as a numerous groupe, terminated on every side by some that but in part deserve the name. On one quarter we see a tribe covered with quills, or furnished with wings, that lift them among the inhabitants of air; on another, we behold a diversity cloathed with scales and shells, to rank with insects; and still, on a third, we see them descending into the waters, to live among the mute tenants of that element. We now come to a numerous tribe, that, leaving the brute creation, seem to make approaches even to humanity; that bear an awkward resemblance of the human form, and discover some faint efforts at intellectual sagacity.

Animals of the monkey class are furnished with hands instead of paws; their ears, eyes, eye-lids, lips, and breasts, are like those of mankind; their internal conformation also bears some distant likeness; and the whole offers a picture that may well mortify the pride of such as make their persons alone the principal object of their admiration.

These approaches, however, are gradual; and some bear the marks of this our boasted form more strongly than others.

In the Ape kind we see the whole external machine strongly impressed with the human likeness, and capable of the same exertions: these walk upright, want a tail, have fleshy posteriors, have calves to their legs, and feet nearly like ours.

In the Baboon kind we perceive a more distant approach to the human form; the quadrupede mixing in every part of the animal's figure: these generally go upon all-fours; but some, when upright, are as tall as a man; they have short tails, long snouts, and are possessed of brutal fierceness.

The Monkey kind are removed a step further: these are much less than the former, with tails as long, or longer, than their bodies, and flattish faces.

Lastly, the Maki and Opossum kind, seem to lose all resemblance of the human figure, except in having hands; their noses are lengthened out, like those of quadrupedes, and every part of their bodies totally different from the human; however, as they grasp their food, or other objects, with one hand, which quadrupedes cannot do, this single similitude gives them an air of sagacity, to which they have scarce any other pretensions.

From

From this slight survey it may be easily seen that one general description will not serve for animals so very different from each other: nevertheless, it would be fatiguing to the last degree, as their varieties are so numerous, and their differences so small, to go through a particular description of each. In this case it will be best to give an history of the foremost in each class; at the same time marking the distinctions in every species. By this we shall avoid a tedious repetition of similar characters, and consider the manners and the oddities of this fantastic tribe in general points of view; where we shall perceive how nearly they approach to the human figure, and how little they benefit by the approximation.

The foremost of the Ape kind is the Ourang Outang, or Wild Man of the Woods. This name seems to have been given to various animals, agreeing in one common character of walking upright, but coming from different countries, and of very different proportions and powers. The Troglodyte of Bontius, the Drill of Purchas, and the Pygmy of Tyson, have all received this general name; and have been ranked, by some naturalists, under one general description. If we read the accounts of many remote travellers, under this name we are presented with a formidable animal, from six to eight feet high; if we examine the books

of such as have described it nearer home, we find it a pigmy not above three. In this diversity we must be content to blend their various descriptions into one general account; observing, at the same time, that we have no reason to doubt any of their relations, although we are puzzled which to follow.

The Ourang Outang, which, of all other animals, most nearly approaches to the human race, is seen of different sizes, from three to seven feet high. In general, however, its stature is less than that of a man; but its strength and agility much greater. Travellers who have seen various kinds of these animals in their native solitudes, give us surprising relations of their force, their swiftness, their address, and their ferocity. Naturalists who have observed their form and manners at home, have been as much struck with their patient, pliant, imitative dispositions; with their appearance and conformation so nearly human. Of the smallest sort of these animals we have had several, at different times, brought into this country, all nearly alike; but that observed by Dr. Tyson, is the best known, having been described with the greatest exactness.

The animal which was described by that learned physician, was brought from Angola in Africa, where it had been taken in the internal parts of the country, in company with a female



of the same kind, that died by the way. The body was covered with hair, which was of a coal black colour, more resembling human hair than that of brutes. It bore a still stronger similitude in its different lengths; for in those places where it is longest on the human species, it was also longest in this; as on the head, the upper lip, the chin, and the pubes. The face was like that of a man, the forehead larger, and the head round. The upper and lower jaw were not so prominent as in monkies; but flat, like those of a man. The ears were like those of a man in most respects; and the teeth had more resemblance to the human, than those of any other creature. The bending of the arms and legs were just the same as in a man; and, in short, the animal, at first view, presented a figure entirely human.

In order to discover its differences, it was necessary to take a closer survey; and then the imperfections of its form began to appear. The first obvious difference was in the flatness of the nose; the next in the lowness of the forehead, and the wanting the prominence of the chin. The ears were proportionably too large; the eyes too close to each other; and the interval between the nose and mouth too great. The body and limbs differed, in the thighs being too short, and the arms too long; in the thumb being too little, and the palm of the hand too

narrow. The feet also were rather more like hands than feet; and the animal, if we may judge from the figure, bent too much upon its haunches.

When this creature was examined anatomically, a surprising similitude was seen to prevail in its internal conformation. It differed from man in the number of its ribs, having thirteen; whereas, in man, there are but twelve. The vertebræ of the neck also were shorter, the bones of the pelvis narrower, the orbits of the eyes were deeper, the kidneys were rounder, the urinary and gall bladders were longer and smaller, and the ureters of a different figure. Such were the principal distinctions between the internal parts of this animal and those of man; in almost every thing else they were entirely and exactly the same, and discovered an astonishing congruity. Indeed, many parts were so much alike in conformation, that it might have excited wonder how they were productive of such few advantages. The tongue, and all the organs of the voice, were the same, and yet the animal was dumb; the brain was formed in the same manner with that of man, and yet the creature wanted reason: an evident proof (as Mr. Buffon finely observes) that no disposition of matter will give mind; and that the body, how nicely soever formed, is formed in  
vain,

vain, when there is not infused a soul to direct its operations.

Having thus taken a comparative view of this creature with man, what follows may be necessary to complete the general description. This animal was very hairy all behind, from the head downwards; and the hair so thick, that it covered the skin almost from being seen: but in all parts before, the hair was much thinner, the skin every where appeared; and in some places it was almost bare. When it went on all fours, as it was sometimes seen to do, it appeared all hairy; when it went erect, it appeared before less hairy, and more like a man. Its hair, which in this particular animal was black, much more resembled that of men than the fur of brutes; for, in the latter, besides their long hair, there is usually a finer and shorter intermixed; but in the ourang outang it was all of a kind; only about the pubes the hair was greyish, seemed longer, and somewhat different; as also on the upper lip and chin, where it was greyish, like the hair of a beard. The face, hands, and soles of the feet, were without hair; and so was most part of the forehead: but down the sides of the face the hair was thick, it being there about an inch and an half long, which exceeded that on any other part of the body. In the palms of its hands were remarkable those lines which are usually taken  
notice

notice of in palmistry; and, at the tips of the fingers, those spiral lines observed in man. The palms of the hands were as long as the soles of the feet; and the toes upon these were as long as the fingers; the middle toe was the longest of all, and the whole foot differed from the human. The hinder feet being thus formed as hands, the animal often used them as such; and, on the contrary, now and then made use of its hands instead of feet. The breasts appeared small and shrivelled, but exactly like those of a man: the navel also appeared very fair, and in exact disposition, being neither harder nor more prominent than what is usually seen in children. Such is the description of this extraordinary creature; to which little has been added by succeeding observers, except that the colour of the hair is often found to vary: in that described by Edwards it was of a reddish brown.

From a picture so like that of the human species, we are naturally led to expect a corresponding mind; and it is certain, that such of these animals as have been shewn in Europe, have discovered a degree of imitation beyond what any quadrupede can arrive at.

That of Tyson was a gentle, fond, harmless creature. In its passage to England, those that it knew on ship-board it would embrace with the greatest tenderness, opening their bosoms, and clasping its hands about them. Monkeys

of a lower species it held in utter averſion; it would always avoid the place where they were kept in the ſame veſſel; and ſeemed to conſider itſelf as a creature of higher extraction. After it was taken, and a little uſed to wear cloaths, it grew very fond of them; a part it would put on without any help, and the reſt it would carry in its hands to ſome of the company, for their aſſiſtance. It would lie in a bed, place its head on the pillow, and pull the cloaths upwards, as a man would do.

That which was ſeen by Edwards, and deſcribed by Buffon, ſhewed even a ſuperior degree of ſagacity. It walked, like all of its kind, upon two legs, even though it carried burthens. Its air was melancholy, and its deportment grave. Unlike the baboon or monkey, whoſe motions are violent, and appetites capricious, who are fond of miſchief, and obedient only from fear, this animal was ſlow in its motions, and a look was ſufficient to keep it in awe. I have ſeen it, ſays Mr. Buffon, give its hand to ſhow the company to the door: I have ſeen it ſit at table, unfold its napkin, wipe its lips, make uſe of the ſpoon and the fork to carry the victuals to its mouth, pour out its drink into a glaſs, touch glaſſes when invited, take a cup and faucer and lay them on the table, put in ſugar, pour out its tea, leave it to cool before drinking; and all this without any other  
inſtigation

instigation than the signs or the command of its master, and often of its own accord. It was gentle and inoffensive; it even approached strangers with respect, and came rather to receive caresses than to offer injuries. It was particularly fond of sugared comfits, which every body was ready to give it; and, as it had a defluxion upon the breast, so much sugar contributed to encrease the disorder, and shorten its life. It continued at Paris but one summer, and died in London. It ate indiscriminately of all things, but it preferred dry and ripe fruits to all other aliments. It would drink wine, but in small quantities, and gladly left it for milk, tea, or any other sweet liquor.

Such these animals appeared when brought into Europe. However, many of their extraordinary habits were probably the result of education, and we are not told how long the instructions they received for this purpose were continued. But we learn from another account that they take but a very short time to come to a great degree of imitative perfection. Mr. L. Brosse bought two young ones, that were but a year old, from a Negroe; and these at that early age discovered an astonishing power of imitation\*. They even then sat at the table like men, ate of every thing without distinc-

\* As quoted by Buffon, vol. xxviii. p. 77.

tion, made use of their knife, spoon, and fork, both to eat their meat and help themselves. They drank wine and other liquors. When carried on shipboard, they had signs for the cabin boys expressive of their wants; and whenever these neglected attending upon them as they desired, they instantly flew into a passion, seized them by the arm, bit them, and kept them down. The male was sea-sick, and required attendance like an human-creature; he was even twice bled in the arm; and every time afterwards when he found himself out of order, he shewed his arm, as desirous of being relieved by bleeding.

Pyrard relates, that in the province of Sierra Leona, in Africa, there are a kind of apes, called Baris, which are strong and muscular, and which, if properly instructed when young, serve as very useful domestics. They usually walk upright; they pound at a mortar; they go to the river to fetch water, this they carry back in a little pitcher, on their heads; but if care be not taken to receive the pitcher at their return, they let it fall to the ground, and then, seeing it broken, they begin to lament and cry for their loss. Le Comte's account is much to the same purpose of an ape, which he saw in the Streights of Molucca. "It walked upon its two hind feet, which it bent a little, like a dog that had been taught to dance. It made use  
of

of its hands and arms as we do. Its visage was not much more disagreeable than that of an Hottentot; but the body was all over covered with a woolly hair of different colours. As to the rest, it cried like a child; all its outward actions were so like the human, and the passions so lively and significant, that dumb men could scarce better express their conceptions and desires. It had also that expression of 'passion or joy which we often seen in children, stamping with its feet, and striking them against the ground, to shew its spite, or when refused any thing it passionately longed for. Although these animals," continues he, "are very big, for that I saw was four feet high, their nimbleness is incredible. It is a pleasure beyond expression to see them run up the tackling of a ship, where they sometimes play as if they had a knack of vaulting peculiar to themselves, or as if they had been paid, like our rope-dancers, to divert the company. Sometimes, suspended by one arm, they poize themselves, and then turn all of a sudden round about a rope, with as much quickness as a wheel, or a sling put into motion. Sometimes holding the rope successively with their long fingers, and, letting their whole body fall into the air, they run full speed from one end to the other, and come back again with the same swiftness. There is no posture but they imitate, nor motion but they



they perform. Bending themselves like a bow, rolling like a bowl, hanging by the hands, feet, and teeth, according to the different fancies with which their capricious imagination supplies them. But what is still more amazing than all is, their agility to fling themselves from one rope to another, though at thirty, forty, and fifty feet distance.”

Such are the habitudes and the powers of the smaller class of these extraordinary creatures; but we are presented with a very different picture in those of a larger stature and more muscular form. The little animals we have been describing, which are seldom found above four feet high, seem to partake of the nature of dwarfs among the human species, being gentle, assiduous, and playful, rather fitted to amuse than terrify. But the gigantic races of the Oorang Outang, seen and described by travellers, are truly formidable; and in the gloomy forests, where they are only found, seem to hold undisputed dominion. Many of these are as tall or taller than a man; active, strong, and intrepid, cunning, lascivious, and cruel. This redoubtable rival of mankind is found in many parts of Africa, in the East Indies, in Madagascar, and in Borneo\*. In the last of these places, the people of quality course him as we do the stag;

\* Le Comte's History of China.

and this sort of hunting is one of the favourite amusements of the king himself. This creature is extremely swift of foot, endowed with extraordinary strength, and runs with prodigious celerity. His skin is all hairy, his eyes sunk in his head, his countenance stern, his face tanned, and all his lineaments, though exactly human, harsh and blackened by the sun. In Africa this creature is even still more formidable. Battel calls him the Pongo, and assures us that in all his proportions he resembles a man, except that he is much larger, even to a gigantic state. His face resembles that of a man, the eyes deep sunk in the head, the hair on each side extremely long, the visage naked and without hair, as also the ears and the hands. The body is lightly covered, and scarcely differing from that of a man, except that there are no calves to the legs. Still, however, the animal is seen to walk upon his hinder legs, and in an erect posture. He sleeps under trees, and builds himself an hut, which serves to protect him against the sun and the rains of the tropical climates, of which he is a native. He lives only upon fruits, and is no way carnivorous. He cannot speak, although furnished with a greater instinct than any other animal of the brute creation. When the Negroes make a fire in the woods, this animal comes near and warms himself by the blaze. However, he has  
not

not skill enough to keep the flame alive by feeding it with fuel. They go together in companies; and if they happen to meet one of the human species, remote from succour, they shew him no mercy. They even attack the elephant, which they beat with their clubs, and oblige to leave that part of the forest which they claim as their own. It is impossible to take any of these dreadful creatures alive, for they are so strong that ten men would not be a match for but one of them. None of this kind, therefore, are taken except when very young, and these but rarely, when the female happens to leave them behind, for in general they keep clung to the breast, and adhere both with legs and arms. From the same traveller we learn, that when one of these animals dies, the rest cover the body with a quantity of leaves and branches. They sometimes also shew mercy to the human kind. A Negroe boy, that was taken by one of these, and carried into the woods, continued there a whole year, without receiving any injury\*. From another traveller we learn, that these animals often attempt to surprize the female Negroes as they go into the woods, and frequently keep them against their wills for the pleasure of their company, feeding them very plentifully all the time. He

\* Le Brosse, as quoted by Buffon, vol. xxviii. p. 70.

assures us that he knew a woman of Loango that had lived among these animals for three years. They grow from six to seven feet high, and are of unequalled strength. They build sheds, and make use of clubs for their defence. Their faces are broad, their noses flat, their ears without a tip, their skins are more bright than that of a Mulattoe, and they are covered on many parts of the body with long and tawny-coloured hair. Their belly is large, their heels flat, and yet rising behind. They sometimes walk upright, and sometimes upon all-fours, when they are fantastically disposed.

From this description of the Ourang Outang, we perceive at what a distance the first animal of the brute creation is placed from the very lowest of the human species. Even in countries peopled with savages, this creature is considered as a beast; and in those very places where we might suppose the smallest difference between them and mankind, the inhabitants hold it in the greatest contempt and detestation. In Borneo, where this animal has been said to come to its greatest perfection, the natives hunt it in the same manner as they pursue the elephant or the lion, while its resemblance to the human form procures it neither pity nor protection. The gradations of Nature in the other parts of nature are minute  
and

and insensible; in the passage from quadrupedes to fishes we can scarce tell where the quadrupede ends, and the fish begins; in the descent from beasts to insects we can hardly distinguish the steps of the progression; but in the ascent from brutes to man, the line is strongly drawn, well marked, and unpassable. It is in vain that the Ourang Outang resembles man in form, or imitates many of his actions; he still continues a wretched, helpless creature, pent up in the most gloomy part of the forest, and, with regard to the provision for his own happiness, inferior even to the elephant or the beaver in sagacity. To us, indeed, this animal seems much wiser than it really is. As we have long been used to measure the sagacity of all actions by their similitude to our own, and not their fitness to the animal's way of living, we are pleased with the imitations of the ape, even though we know they are far from contributing to the convenience of its situation. An ape, or a quadrupede, when under the trammels of human education, may be an admirable object for human curiosity, but is very little advanced by all its learning in the road to its own felicity. On the contrary, I have never seen any of these long instructed animals that did not, by their melancholy air, appear sensible of the wretchedness of their situation. Its marks of seeming sagacity were merely relative to us, and not to  
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the animal ; and all its boasted wisdom was merely of our own making.

There is, in fact, another circumstance relative to this animal, which ought not to be concealed. I have many reasons to believe that the most perfect of the kind are prone, like the rest of the quadrupede creation, and only owe their erect attitude to human education. Almost all the travellers who speak of them mention their going sometimes upon all-fours, and sometimes erect. As their chief residence is among trees, they are without doubt usually seen erect while they are climbing ; but it is more than probable that their efforts to escape upon the ground are by running upon the hands and feet together. Schouten, who mentions their education, tells us that they are taken in traps, and taught in the beginning to walk upon their hind legs ; which certainly implies that in a state of nature they run upon all-fours. Add to this, that, when we examine the palms of their hands and the soles of their feet, we find both equally callous and beaten ; a certain proof that both have been equally used. In those hot countries, where the apes are known to reside, the soles of the Negroes feet, who go bare-foot, are covered with a skin above an inch thick ; while their hands are as soft as those of an European. Did the apes walk in the same manner, the same exercise would have furnished





*De Jove del.*

*J. C. Taylor sculp.*

The long arm'd Monkey.



furnished them with similar advantages, which is not the case. Besides all this, I have been assured by a very credible traveller, that these animals naturally run in the woods upon all-fours; and when they are taken, their hands are tied behind them, to teach them to walk upright. This attitude they learn after some time; and, thus instructed, they are sent into Europe to astonish the speculative with their near approaches to humanity, while it is never considered how much is natural, and how much has been acquired in the savage schools of Benin and Angola.

The animal next to these, and to be placed in the same class, is the Ape, properly so called, or the Pithekos of the ancients. This is much less than the former, being not above a foot and an half high, but walks erect, is without a tail, and is easily tamed.

Of this kind also is the Gibbon, so called by Buffon, or the Long Armed Ape, which is a very extraordinary and remarkable creature. It is of different sizes, being from four feet to two feet high. It walks erect, is without a tail, has a face resembling that of a man, with a circle of bushy hair all round the visage; its eyes are large, and sunk in its head; its face tanned, and its ears exactly proportioned. But that in which it chiefly differs from all others of the monkey tribe is the extraordinary length

of its arms, which, when the animal stands erect, are long enough to reach the ground; so that it can walk upon all-fours, and yet keep its erect posture at the same time. This animal, next to the Ouran Outang and the Ape, most nearly resembles mankind, not only in form, but in gentle manners and tractable disposition. It is a native of the East Indies, and particularly found along the coasts of Coromandel.

The last of the ape kind is the Cynocephalus, or the Magot of Buffon. This animal wants a tail, like the former, although there is a small protuberance at that part, which yet is rather formed by the skin than the bone. It differs also in having a large callous red rump. The face is prominent, and approaches more to that of quadrupedes than of man. The body is covered with a brownish hair, and yellow on the belly. It is about three feet and an half, or four feet high, and is a native of most parts of Africa and the East. As it recedes from man in its form, so also it appears different in its dispositions, being sullen, vicious, and untractable\*.

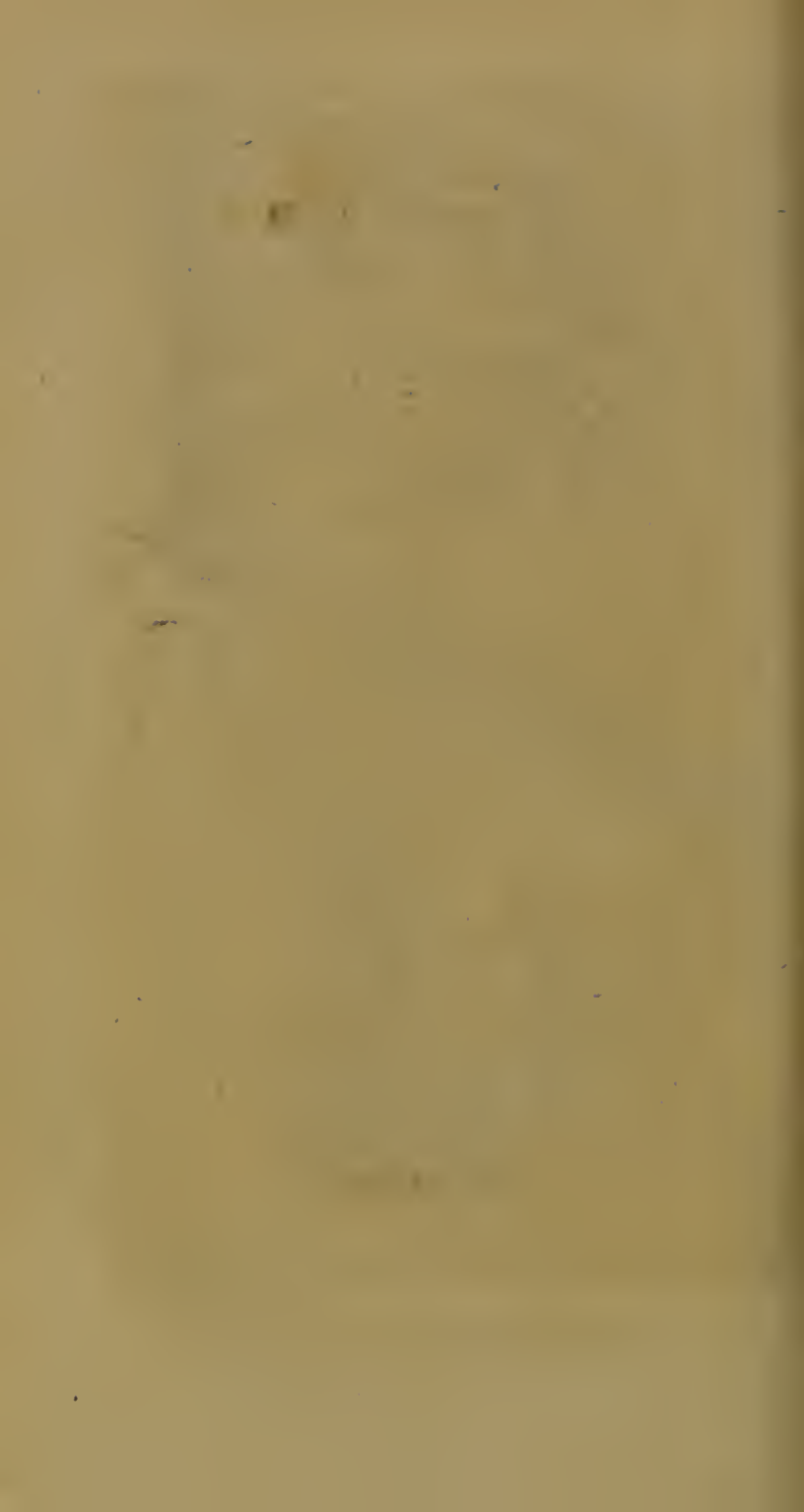
\* Omnes femellæ hujusce et precedentium, ut et fere sequentium specierum menstruali patiuntur fluxu sicut in feminis.



del.

J. S. Under sculp.

The Magot.



## THE BABOON.

DESCENDING from the more perfect of the monkey kinds, we come to the baboon and its varieties, a large, fierce, and formidable race, that, mixing the figure of the man and the quadrupede in their conformation, seem to possess only the defects of both; the petulance of the one, and the ferocity of the other. These animals have a short tail; a prominent face; with canine teeth, larger than those of men, and callosities on the rump\*. In man the physiognomy may deceive, and the figure of body does not always lead to the qualities of the mind; but in animals we may always judge of their dispositions by their looks, and form a just conjecture of their internal habits from their external form. If we compare the nature of the ape and baboon by this easy rule, we shall at once be led to pronounce that they greatly differ in their dispositions, and that the latter are infinitely more fierce, savage, and malicious than the former. The ouran outang, that so nearly resembles man in its figure, approaches also nearest in the gentleness of its manners and the pliancy of its temper. The cynocephalus, that of all other apes is most unlike man in

\* Buffon, vol. xxviii. p. 183.

form, and approaches nearer the dog in face, resembles also the brute in nature, being wild, restless, and impelled by a fretful impetuosity. But the baboon, who is still more remote, and resembles man only in having hands, who, from having a tail, a prominent face, and sharp claws, approaches more nearly to the savage tribe, is every way fierce, malicious, ignorant, and untractable.

The baboon, properly so called, is from three to four feet high, very strong built, with a thick body and limbs, and canine teeth, much longer than those of men. It has large callosities behind, which are quite naked and red. Its tail is crooked and thick, and about seven or eight inches long. Its snout, for it can hardly be called a face, is long and thick, and on each side of its cheeks it has a pouch, into which, when satiated with eating, it puts the remainder of its provisions. It is covered with long thick hair of a reddish brown colour, and pretty uniform over the whole body. It walks more commonly upon all-fours than upright, and its hands as well as its feet are armed with long sharp claws, instead of the broad round nails of the ape kind.

An animal thus made for strength, and furnished with dangerous weapons, is found in fact to be one of the most formidable of the savage race, in those countries where it is bred.

It

It appears, in its native woods, to be impelled by two opposite passions; an hatred for the males of the human species, and a desire for women. Were we assured of these strange oppositions in its disposition from one testimony alone, the account might appear doubtful; but as it comes from a variety of the most credible witnesses, we cannot refuse our assent. From them, therefore, we learn that these animals will often assail women in a body, and force them into the woods, where they keep them against their will, and kill them when refractory. From the Chevalier Forbin we learn, that in Siam whole troops of these will often sally forth from their forests, and attack a village, when they know the men are engaged in their rice harvest. They are on such occasions actuated, as well by desire as by hunger; and not only plunder the houses of whatever provisions they can find, but endeavour to force the women. These, however, as the Chevalier humorously relates, not at all liking either the manners or the figure of the paltry gallants, boldly stand on their defence, and with clubs, or whatever other arms they can provide, instead of answering their caresses, oblige their ugly suitors to retreat; not, however, before they have damaged or plundered every thing eatable they can lay their hands on.

At the Cape of Good Hope they are less for-

midable, but to the best of their power equally mischievous. They are there under a sort of natural discipline, and go about whatever they undertake with surprising skill and regularity. When they set about robbing an orchard or a vineyard, for they are extremely fond of grapes, apples, and ripe fruit, they do not go singly to work, but in large companies, and with preconcerted deliberation. On these occasions, a part of them enter the enclosure, while one is set to watch. The rest stand without the fence, and form a line reaching all the way from their fellows within to their rendezvous without, which is generally in some craggy mountain. Every thing being thus disposed, the plunderers within the orchard throw the fruit to those that are without as fast as they can gather it; or, if the wall or hedge be high, to those that sit on the top; and these hand the plunder to those next them on the other side. Thus the fruit is pitched from one to another all along the line, till it is safely deposited at their head quarters. They catch it as readily as the most skilful tennis player can a ball; and while the business is going forward, which they conduct with great expedition, a most profound silence is observed among them. Their sentinel, during this whole time, continues upon the watch, extremely anxious and attentive; but if he perceives any one coming, he instantly sets up a  
loud

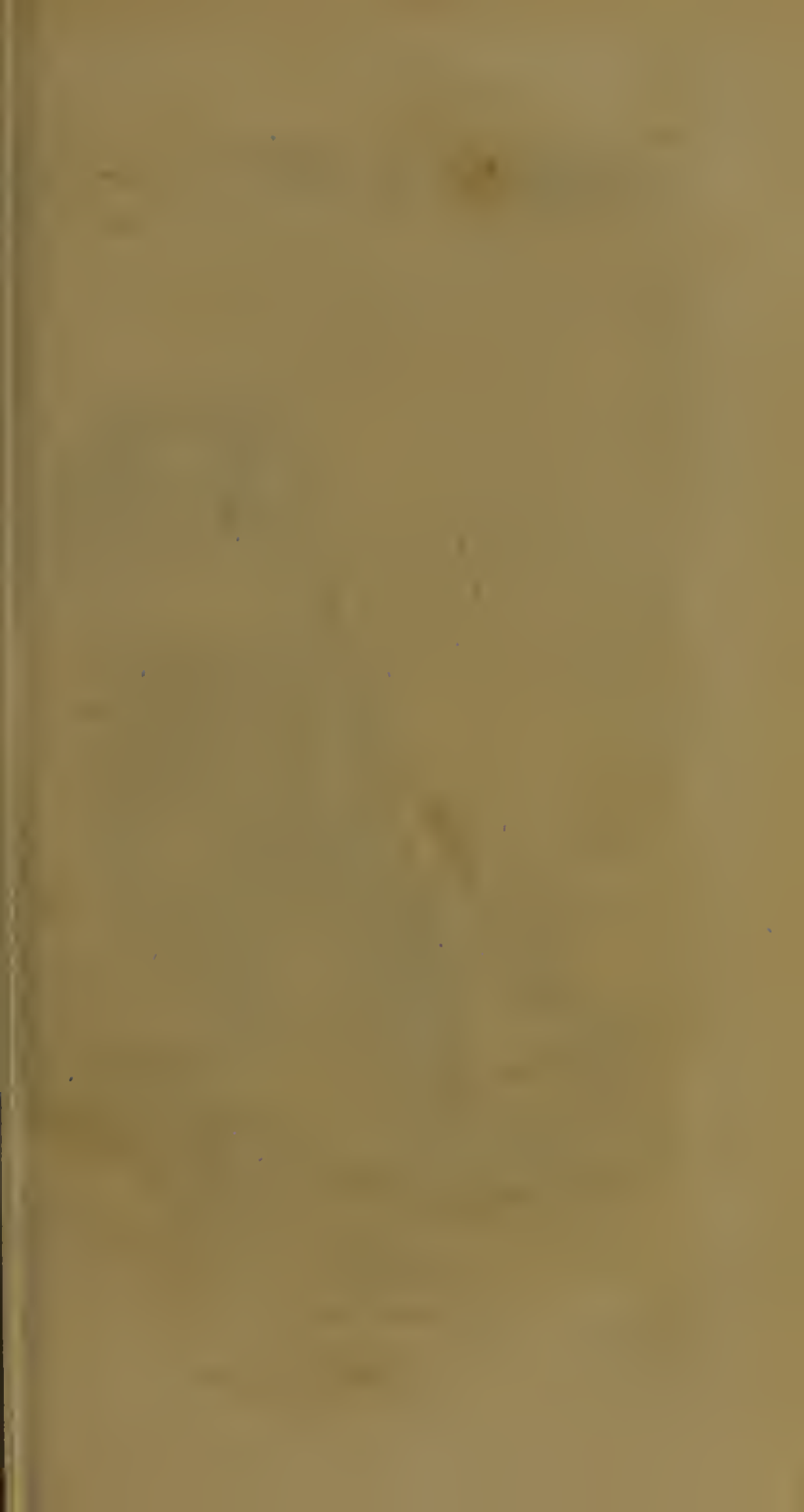


loud cry, and at this signal the whole company scamper off. Nor yet are they at any time willing to leave the place empty-handed; for if they be plundering a bed of melons, for instance, they go off with one in their mouths, one in their hands, and one under their arm. If the pursuit is hot, they drop first that from under their arm, then that from their hand; and, if it be continued, they at last let fall that which they had hitherto kept in their mouths.

The natives of the Cape often take the young of these animals, and, feeding them with sheep and goats milk, accustom them to guard their houses; which duty they perform with great punctuality. Those, however, that have been brought into Europe, are headstrong, rude, and untractable. Dogs and cats, when they have done any thing wrong, will run off; but these seem careless and insensible of the mischief they do; and I have seen one of them break a whole table of china, as it should seem by design, without appearing in the least conscious of having done amiss. It was not, however, in any respect so formidable as that described by Mr. Buffon, of which he gives the following description. "It was not," says he, "extremely ugly, and yet it excited horror. It continually appeared in a state of savage ferocity, gnashing its teeth, flying at the spectators, and furiously rest-

less. It was obliged to be confined in an iron cage, the bars of which it so forcibly attempted to break, that the spectators were struck with apprehension. It was a sturdy bold animal, whose short limbs and powerful exertions shewed vast strength and agility. The long hair with which it was covered seemed to add to its apparent abilities; which, however, were in reality so great, that it could easily overcome more than a single man, unless armed. As to the rest, it for ever appeared excited by that passion which renders the mildest animals at intervals furious. Its lasciviousness was constant, and its satisfactions particular. Some others also of the monkey kind shewed the same degree of impudence, and particularly in the presence of women; but, as they were less in size, their petulance was less obvious, and their insolence more easily corrected."

But, however violent the desires of these animals may be, they are not found to breed in our climate. The female brings forth usually but one at a time, which she carries in her arms, and in a peculiar manner clinging to her breast. As to the rest, these animals are not at all carnivorous; they principally feed upon fruits, roots, and corn, and generally keep together in companies. The internal parts are more unlike those of man than of quadrupedes, particularly the liver, which is like that of a dog  
divided





De Jero del.

J. Vander s.

The Wanderow.

divided into six lobes. The lungs are more divided, the guts in general are shorter, and the kidneys rounder and flatter.

The largest of the baboon kind is the Mandril; an ugly disgusting animal, with a tail shorter than the former, though of a much larger stature, being from four to five feet high. The muzzle is still longer than that of the preceding, it is of a bluish colour, and strongly marked with wrinkles, which give it a frightful appearance. But what renders it truly loathsome is, that from the nose there is always seen issuing a snout, which the animal takes care at intervals to lick off with its tongue and swallow. It is a native of the Gold Coast; it is said to walk more frequently erect than upon all-fours; and when displeas'd, to weep like a child. There was one of them shewn in England some years ago. It seem'd tame but stupid, and had a method of opening its mouth and blowing at such as came too near.

The Wanderow is a baboon rather less than the former, with the body less compact and muscular, and the hinder parts seemingly more feeble. The tail is from seven to eight inches long; the muzzle is prominent as in the rest of this kind; but what particularly distinguishes it is a large long white head of hair, together with a monstrous white beard, coarse, rough, and descending; the colour of the rest of the

body being brown or black. As to the rest, in its savage state, it is equally fierce with the others; but, with a proper education, it seems more tractable than most of its kind, and is chiefly seen in the woods of Ceylon and Malabar.

The Maimon of Buffon, which Edwards calls the Pigtail, is the last of the baboons, and in size rather approaches the monkey, being no larger than a cat. Its chief distinction, besides its prominent muzzle, like a baboon, is in the tail, which is about five or six inches long, and curled up like that of an hog; from which circumstance, peculiar to this animal, our English naturalist gave it the name. It is a native of Sumatra, and does not well endure the rigours of our climate. Edwards, however, kept one of them a year in London; and another of them happening at the same time to be exposed in a shew of beasts, he brought the two exiles together, to see if they would claim or acknowledge their kindred. The moment they came into each other's presence, they testified their mutual satisfaction, and seemed quite transported at the interview.

## THE MONKEY.

THE varieties in the larger tribes of the monkey kind are but few; in the ape we have  
seen

seen but four, and in the baboon about as many. But when we come to the smaller class, the differences among them seem too tedious for enumeration. These, as was observed in the beginning, are all small in stature, and with long tails, by which they are distinguished from the preceding, that entirely want the tail, or are large and have but a short one. The varieties in the form and colour of dogs, or squirrels, is nothing to what are found among monkeys of the smaller kind. Bosman mentions above fifty sorts on the Gold Coast alone, and Smith confirms the account. Condamine asserts that it would take up a volume to describe the differences of these to be found along the river Amazons; and we are sure that every one of these is very different from those on the African coast. Naturalists, however, have undertaken to make a catalogue of their numbers; and they either transmit their descriptions from one to another, or only enumerate those few that have found their way to Europe, and have fallen within the narrow circle of their own observation. But, though it may be proper enough to describe such as fall under notice, it is certainly wrong to offer a scanty catalogue as complete, and to induce the reader to suppose he sees a picture of the whole groupe of these animals, when he is only presented with a small part of the number. Such, therefore, as are fond of the

reputation of adding new descriptions to the stock of natural history, have here a wide, though surely a barren, field to enlarge in; and they will find it no difficult matter, by observing the various animals of this kind that are from time to time brought from their native coasts to this country, to indulge in description, and to ring the changes upon all the technical terms with which this most pleasing science is obscured and rendered disgusting. For my own part, I will spare the reader and myself the trouble of entering into an elaborate description of each; content with observing once more, that their numbers are very great, and their differences very trifling. There is scarce a country in the tropical climates that does not swarm with them, and scarce a forest that is not inhabited by a race of monkeys distinct from all others. Every different wood along the coasts of Africa may be considered as a separate colony of monkeys, differing from those of the next district in colour, in size, and malicious mischief. It is indeed remarkable that the monkeys of two cantons are never found to mix with each other, but rigorously to observe a separation; each forest produces only its own; and these guard their limits from the intrusion of all strangers of a different race from themselves. In this they somewhat resemble the human inhabitants of the savage nations, among whom



whom they are found, where the petty kingdoms are numerous, and their manners opposite. There, in the extent of a few miles, the traveller is presented with men speaking different languages, professing different religions, governed by different laws, and only resembling each other in their mutual animosity.

In general, monkies of all kinds, being less than the baboon, are endued with less powers of doing mischief. Indeed, the ferocity of their nature seems to diminish with their size; and when taken wild in the woods, they are sooner tamed, and more easily taught to imitate man; than the former. More gentle than the baboon, and less grave and sullen than the ape, they soon begin to exert all their sportive mimickries, and are easily restrained by correction. But it must be confessed that they will do nothing they are desired without beating; for, if their fears be entirely removed, they are the most insolent and headstrong animals in nature.

In their native woods they are not less the pests of man than of other animals. The monkies, says a traveller\*, are in possession of every forest where they reside, and may be considered as the masters of the place. Neither the tiger, nor the lion itself, will venture to dis-

\* Description Historique de Macacar, p. 51.

pute the dominion, since these, from the tops of trees, continually carry on an offensive war, and by their agility escape all possibility of pursuit. Nor have the birds less to fear from their continual depredations; for, as these harmless inhabitants of the wood usually build upon trees, the monkeys are for ever on the watch to find out and rob their nests; and such is their petulant delight in mischief, that they will fling their eggs against the ground when they want appetite or inclination to devour them.

There is but one animal in all the forest that ventures to oppose the monkey, and that is the serpent. The larger snakes are often seen winding up the trees where the monkeys reside; and, when they happen to surprise them sleeping, swallow them whole, before the little animals have time to make a defence. In this manner, the two most mischievous kinds in all nature keep the whole forest between them; both equally formidable to each other, and for ever employed in mutual hostilities. The monkeys, in general inhabit the tops of the trees, and the serpents cling to the branches nearer the bottom; and in this manner they are for ever seen near each other, like enemies in the same field of battle. Some travellers, indeed, have supposed that their vicinity rather argued their mutual friendship, and that they united in this manner

manner to form an offensive league against all the rest of animated nature \*. “I have seen these monkies,” says Labat, “playing their gambols upon those very branches on which the snakes were reposing, and jumping over them without receiving any injury, although the serpents of that country were naturally vindictive, and always ready to bite whatever disturbed them.” These gambols, however, were probably nothing more than the insults of an enemy that was conscious of its own safety; and the monkies might have provoked the snake in the same manner as we often see sparrows twitter at a cat. However this be, the forest is generally divided between them; and these woods, which Nature seems to have embellished with her richest magnificence, rather inspire terror than delight, and chiefly serve as retreats for mischief and malignity.

The enmity of these animals to mankind, is partly ridiculous, and partly formidable. They seem, says Le Comte and others, to have a peculiar instinct in discovering their foes; and are perfectly skilled, when attacked, in mutually defending and assisting each other. When a traveller enters among these woods, they consider him as an invader upon their dominions, and join all to repel the intrusion. At first

\* Labat, Relat, de l’Africq. Occident. p. 317.

they

they survey him with a kind of insolent curiosity. They jump from branch to branch, pursue him as he goes along, and make a loud chattering, to call the rest of their companions together. They then begin their hostilities by grinning, threatening, and flinging down the withered branches at him, which they break from the trees: they even take their excrements in their hands, and throw them at his head. Thus they attend him wherever he goes; jumping from tree to tree with such amazing swiftness, that the eye can scarce attend their motions. Although they take the most desperate leaps, yet they are seldom seen to come to the ground, for they easily fasten upon the branches that break their fall, and stick, either by their hands, feet, or tail, wherever they touch. If one of them happens to be wounded, the rest assemble round, and clap their fingers into the wound, as if they were desirous of sounding its depth. If the blood flows in any quantity, some of them keep it shut up, while others get leaves, which they chew, and thrust into the opening: however extraordinary this may appear, it is asserted to be often seen, and to be strictly true. In this manner they wage a petulant, unequal war; and are often killed in numbers before they think proper to make a retreat. This they effect with the same precipitation with which they at first came together.

ther. In this retreat the young are seen clinging to the back of the female, with which she jumps away, seemingly unembarrassed by the burthen.

The curiosity of the Europeans has, in some measure, induced the natives of the places where these animals reside, to catch or take them alive by every art they are able. The usual way in such case, is to shoot the female as she carries her young, and then both, of course, tumble to the ground. But even this is not easily performed; for if the animal be not killed outright, it will not fall; but clinging to some branch, continues, even when dead, its former grasp, and remains on the tree where it was shot until it drops off by putrefaction. In this manner it is totally lost to the pursuer; for to attempt climbing the tree, to bring either it or the young one down, would probably be fatal, from the number of serpents that are hid among the branches. For this reason the sportsman always takes care to aim at the head; which, if he hits, the monkey falls directly to the ground; and the young one comes down at the same time, clinging to its dead parent.

The Europeans along the coasts of Guinea often go into the woods to shoot monkies; and nothing pleases the Negroes more than to see those animals drop, against which they have the greatest animosity. They consider them, and  
not

not without reason, as the most mischievous and tormenting creatures in the world; and are happy to see their numbers destroyed, upon a double account; as well because they dread their devastations, as because they love their flesh. The monkey, which is always skinned before it is eaten, when served up at a Negroe feast, looks so like a child, that an European is shocked at the very sight. The natives, however, who are not so nice, devour it as one of the highest delicacies; and assiduously attend our sportsmen, to profit by the spoil. But what they are chiefly astonished at, is to see our travellers carefully taking their young ones alive, while they leave them the old ones, that are certainly the most fit to be eaten. They cannot comprehend what advantage can arise to us from educating or keeping a little animal, that, by experience, they know to be equally fraught with tricks and mischief: some of them have even been led to suppose, that, with a kind of perverse affection, we love only creatures of the most mischievous kinds; and having seen us often buy young and tame monkies, they have taken equal care to bring rats to our factors, offering them for sale, and greatly disappointed at finding no purchaser for so hopeful a commodity\*.

\* Labat, *Relat. de l'Afrique Occident.* p. 317.

The Negroes consider these animals as their greatest plague; and, indeed, they do incredible damage, when they come in companies to lay waste a field of Indian corn or rice, or a plantation of sugar-canes. They carry off as much as they are able; and they destroy ten times more than they bear away. Their manner of plundering is pretty much like that of the baboons already mentioned, in a garden. One of them stands centinel upon a tree, while the rest are plundering, carefully and cautiously turning on every side, but particularly to that on which there is the greatest danger: in the mean time, the rest of the spoilers pursue their work with great silence and assiduity; they are not contented with the first blade of corn, or the first cane that they happen to lay their hands on; they first pull up such as appear most alluring to the eye: they turn it round, examine, compare it with others, and if they find it to their mind, stick it under one of their shoulders. When in this manner they have got their load, they begin to think of retreating: but if it should happen that the owners of the field appear to interrupt their depredations, their faithful centinel instantly gives notice, by crying out, *Houp, houp, houp!* which the rest perfectly understand, and all at once throwing down the corn they hold in the left hands, scamper off upon three legs, carrying the remainder  
in

in the right. If they are still hotly pursued, they then are content to throw down their whole burthen, and to take refuge among their woods, on the tops of which they remain in perfect security.

Were we to give faith to what some travellers assure us, of the government, policies, and subordination of these animals, we might perhaps be taxed with credulity; but we have no reason to doubt that they are under a kind of discipline, which they exercise among each other. They are generally seen to keep together in companies, to march in exact order, and to obey the voice of some particular chieftain, remarkable for his size and gravity. One species of these, which Mr. Buffon calls the Ouarine, and which are remarkable for the loudness and the distinctness of their voice, are still more so for the use to which they convert it. "I have frequently been a witness," says Margrave, "of their assemblies and deliberations. Every day, both morning and evening, the ouarines assemble in the woods to receive instructions. When all come together, one among the number takes the highest place on a tree, and makes a signal with his hand to the rest to sit round, in order to hearken. As soon as he sees them placed he begins his discourse, with so loud a voice, and yet in a manner so precipitate, that to hear him at a distance, one would think the whole



whole company were crying out at the same time: however, during that time, one only is speaking; and all the rest observe the most profound silence. When this has done, he makes a sign with the hand for the rest to reply; and at that instant they raise their voices together, until by another signal of the hand they are enjoined silence. This they as readily obey; till, at last, the whole assembly breaks up, after hearing a repetition of the same preaching.”

The chief food of the monkey-tribe is fruits, the buds of trees, or succulent roots and plants. They all, like man, seem fond of sweets; and particularly the pleasant juice of the palm-tree and the sugar-cane. With these the fertile regions in which they are bred seldom fail to supply them; but when it happens that these fail, or that more nourishing food becomes more agreeable, they eat insects and worms; and, sometimes, if near the coasts, descend to the sea-shore, where they eat oysters, crabs, and shell-fish. Their manner of managing an oyster is extraordinary enough; but it is too well attested, to fail of our assent. As the oysters in the tropical climates are generally larger than with us, the monkeys, when they go to the sea-side, pick up a stone, and clap it between the opening shells: this prevents them from closing; and the monkey then eats the fish at his ease. They often  
also

also draw crabs from the water, by putting their tail to the hole where that animal takes refuge, and the crab fastening upon it, they withdraw it with a jerk, and thus pull their prey upon shore. This habit of laying traps for other animals, makes them very cautious of being entrapped themselves; and I am assured, by many persons of credit, that no snare, how nicely baited soever, will take the monkey of the West-Indian islands; for having been accustomed to the cunning of man, it opposes its natural distrust to human artifice.

The monkey generally brings forth one at a time, and sometimes two. They are rarely found to breed when brought over into Europe; but of those that do, they exhibit a very striking picture of parental affection. The male and female are never tired of fondling their young one. They instruct it with no little assiduity; and often severely correct it, if stubborn, or disinclined to profit by their example: they hand it from one to the other; and when the male has done shewing his regard, the female takes her turn. When wild in the woods, the female, if she happens to have two, carries one on her back, and the other in her arms: that on her back clings very closely, clasping its hands round her neck, and its feet about her middle; when she wants to suckle it, she then alters their position; and that which has been  
fed

fed gives place to the other, which she takes in her arms. It often happens that she is unable to leap from one tree to another, when thus loaden; and upon such occasions, their dexterity is very surprizing. The whole family form a kind of chain, locking tail in tail, or hand in hand, and one of them holding the branch above, the rest swing down, balancing to and fro, like a pendulum, until the undermost is enabled to catch hold of the lower branches of some neighbouring tree. When the hold is fixed below, the monkey lets go that which was above, and thus comes undermost in turn; but, creeping up along the chain, attains the next branches, like the rest; and thus they all take possession of the tree, without ever coming to the ground.

When in a state of domestic tameness, those animals are very amusing, and often fill up a vacant hour, when other entertainment is wanting. There are few that are not acquainted with their various mimickries, and their capricious feats of activity. But it is generally in company with other animals of a more simple disposition that their tricks and superior instincts are shewn; they seem to take a delight in tormenting them; and I have seen one of them amusing itself for hours together, in imposing upon the gravity of a cat. Erasmus tells us of a large monkey, kept by Sir Thomas

More, that, one day diverting itself in his garden, where some tame rabbits were kept, played several of its usual pranks among them, while the rabbits scarce well knew what to make of their new acquaintance: in the mean time, a weasel, that came for very different purposes than those of entertainment, was seen peering about the place in which the rabbits were fed, and endeavouring to make its way, by removing a board that closed their hutch. While the monkey saw no danger, it continued a calm spectator of the enemy's efforts; but just when, by long labour, the weasel had effected its purpose, and had removed the board, the monkey stepped in, and, with the utmost dexterity, fastened it again in its place; and the disappointed weasel was too much fatigued to renew its operations. To this I will only add what Father Carli, in his history of Angola, assures us to be true. In that horrid country, where he went to convert the savage natives to Christianity, and met with nothing but distress and disappointment; while his health was totally impaired by the raging heats of the climate, his patience exhausted by the obstinacy of the stupid natives, and his little provisions daily plundered, without redress, in such an exigency he found more faithful services from the monkeys than the men; these he had taught to attend him, to guard him, while sleeping, against thieves and rats, to comb his head, to  
fetch

fetch his water; and, he asserts, that they were even more tractable than the human inhabitants of the place. It is indeed remarkable, that in those countries where the men are most barbarous and stupid, the brutes are most active and sagacious: It is in the torrid tracts, inhabited by Barbarians, that such various animals are found with instinct so nearly approaching reason. The savages both of Africa and America, accordingly suppose monkeys to be men; idle, slothful, rational beings; capable of speech and conversation; but obstinately dumb, for fear of being compelled to labour.

As of all savages, those of Africa are the most brutal, so, of all countries, the monkeys of Africa are the most expert and entertaining. The monkeys of America are, in general, neither so sagacious nor so tractable, nor is their form so nearly approaching that of man. The monkeys of the new continent may be very easily distinguished from those of the old, by three marks. Those of the antient continent are universally found to have a naked callous substance behind, upon which they sit; which those of America are entirely without: those also of the ancient continent have the nostrils differently formed, more resembling those of men, the holes opening downward; whereas the American monkeys have them opening on each side; those of the antient world have pouches on each side the jaw, into

which they put their provisions, which those of America are without: lastly, none of the monkeys of the antient continent hang by the tail, which many of the American sorts are known to do. By these marks the monkeys of either continent may be readily distinguished from each other, and prized accordingly. The African monkey, as I am assured, requires a longer education, and more correction, than that of America; but it is at last found capable of more various powers of imitation, and shews a greater degree of cunning and activity.

Mr. Buffon, who has examined this race of imitative beings with greater accuracy than any other naturalist before him, makes but nine species of monkeys belonging to the antient continent; and eleven belonging to the new. To all these he gives the names which they go by in their respective countries; which, undoubtedly, is the method least liable to error, and the most proper for imitation.

Of the monkeys of the antient continent, the first he describes, is the Macaguo; somewhat resembling a baboon in size, strength of body, and an hideous wrinkled visage: it differs, however, in having a very long tail, which is covered with tufted hair. It is a native of Congo.

The second is the Patas, which is about the same size with the former; but differs, in having  
a longer

a longer body, and a face less hideous; it is particularly remarkable for the colour of its hair, which is of a red, so brilliant, that the animal looks as if it were actually painted. It is usually brought from Senegal; and by some called the Red African Monkey.

The third of the ancient continent is the Malbrouk; of which he supposes the monkey which he calls the Bonet Chinois to be a variety. The one is remarkable for a long tail, and long beard; the other for a cap of hair, that covers the crown of the head, from whence it takes the name. Both are natives of the East Indies; and the Bramins, who extend their charity to all the brute creation, have hospitals for such of them as happen to be sick, or otherwise disabled.

The fourth of this kind is the Mangabey; this may be distinguished from all others, by its eyelids, which are naked, and of a striking whiteness. It is a native of Madagascar.

The fifth is the Mona, or the Cephus of the ancients; it is distinguished by its colour, which is variegated with black and red; and its tail is of an ash-colour, with two white spots on each side, at its insertion. It is a native of the northern parts of Africa.

The sixth is the Callitrix, or Green Monkey of St. Iago; distinguished by its beautiful green

colour on the back, its white breast and belly, and its black face.

The seventh is the Mouftoc, or White Nose; distinguished by the whiteness of its lips, from whence it has received its name, the rest of the face being of a deep blue. It is a native of the Gold Coast, and a very beautiful little animal.

The eighth is the Talapoin; and may be distinguished as well by its beautiful variety of green, white, and yellow hair, as by that under the eyes, being of a greater length than the rest. It is supposed to be a native of Africa and the East.

The ninth and last of the monkeys of the antient continent, is the Douc, so called in Cochin-china, of which country it is a native. The douc seems to unite the characters of all the former together: with a long tail, like the monkey; of a size as large as the baboon; and with a flat face, like the ape: it even resembles the American monkeys, in having no callosity on its posteriors. Thus it seems to form the shade by which the monkeys of one continent are linked with those of the other.

Next come the monkeys of the new continent; which, as hath been said, differ from those of the old, in the make of their nostrils, in their having no callosity on their posteriors, and in their  
having



having no pouches on each side of the jaw. They differ also from each other, a part of them making no use of their tails to hang by; while others of them have the tail very strong and muscular, and serving by way of a fifth hand to hold by. Those with muscular holding tails are called Sapajous; those with feeble useleſs tails are called Sagoins. Of the ſapajous there are five ſorts: of the ſagoins there are ſix.

The firſt of the ſapajous is the Warine, or the Brazilian Guariba. This monkey is as large as a fox, with black long hair, and remarkable for the loudneſs of its voice. It is the largeſt of the monkey kind to be found in America.

The ſecond is the Coaiti; which may be diſtinguiſhed from the reſt, by having no thumb, and, conſequently, but four fingers on the two fore paws. The tail, however, ſupplies the defects of the hand; and with this the animal flings itſelf from one tree to another, with ſurpriſing rapidity.

The third is the Sajou; diſtinguiſhed from the reſt of the ſapajous, by its yellowiſh, fleſh-coloured face.

The fourth is the Sai. It is ſomewhat larger than the ſajou, and has a broader muzzle. It is called alſo the Bewailer, from its peculiar manner of lamenting, when either threatened or beaten.

The fifth and last of the sapajou kind, or monkeys that hold by the tail, is the Samiri, or Aurora; which is the smallest and the most beautiful of all. It is of a fine orange colour, with two circles of flesh round the eyes. It is a very tender, delicate animal, and held in high price.

Of the sagoins with feeble tails, there are six kinds. The first and the largest, is the Saki, or Cagui; so remarkable for the length of the hair on its tail, that it has been often termed the Fox-tailed Monkey. It is of different sizes; some being twice as large as others.

The second of this kind is the Tamaim; which is usually black, with the feet yellow. Some, however, are found all over brown, spotted with yellow.

The third is the Wistiti; remarkable for the large tufts of hair upon its face, and its annulated tail.

The fourth is the Marikina; with a mane round the neck, and a bunch of hair at the end of the tail, like a lion.

The fifth is called the Pinch; with the face of a beautiful black, and white hair that descends on each side of the face, like that of man.

The last, least, and most beautiful of all, is the Mico, an animal too curiously adorned, not to demand a particular description; which is thus  
given

given of it, by Mr. Condamine. "That," says he, "which the governor of Para made me a present of, was the only one of its kind that was seen in the country. The hair on its body was of a beautiful silver colour, brighter than that of the most venerable human hair: while the tail was of a deep brown, inclining to blackness. It had another singularity, more remarkable than the former; its ears, its cheeks, and lips, were tinged with so bright a vermillion, that one could scarce be led to suppose that it was natural. I kept it a year; and it was still alive when I made this description of it, almost within sight of the coasts of France: all I could then do, was to preserve it in spirits of wine, which might serve to keep it in such a state as to shew that I did not in the least exaggerate in my description."

## O F T H E M A K I.

T H E last of the monkey kind are the Makies; which have no other pretensions to be placed in this class, except that of having hands like the former, and making use of them to climb trees, or to pluck their food. Animals of the hare kind, indeed, are often seen to feed themselves with their fore paws, but they can hold nothing in one of them singly, and are obliged to take up whatever they eat in both at once:

but it is otherwise with the maki ; as well as the monkey kinds, they seize their food with one hand, pretty much like a man, and grasp it with great ease and firmness. The maki, therefore, from this conformation in its hands, both before and behind, approaches nearly to the monkey kind ; but, in other respects, such as the make of the snout, the form of the ears, and the parts that distinguish the sexes, it entirely differs from them. There are many different kinds of these animals ; all varying from each other in colour or size, but agreeing in the human-like figure of their hands and feet, and in their long nose, which somewhat resembles that of a dog. As most of these are bred in the depths of the forest, we know little more concerning them than their figure. Their way of living, their power of pursuit and escape, can only be supposed, from the analogy of their conformation, somewhat to resemble those of the monkey.

The first of this kind is the Mococo ; a beautiful animal, about the size of a common cat, but the body and limbs slenderer, and of a longer make. It has a very long tail, at least double the length of its body ; it is covered with fur, and marked alternately with broad rings of black and white. But what it is chiefly remarkable for, besides the form of its hands and feet, is the largeness of its eyes, which are surrounded  
with



De Sève del.

J. Taylor sculp

The Mococo.



with a broad black space ; and the length of the hinder legs, which by far exceed those before. When it sleeps, it brings its nose to its belly, and its tail over its head. When it plays, it uses a sort of galloping, with its tail raised over its back, which keeps continually in motion. The head is covered with dark ash-coloured hair ; the back and sides with a red ash-colour, and not so dark as on the head ; and the whole glossy, soft, and delicate, smooth to the touch, and standing almost upright, like the pile of velvet. It is a native of Madagascar ; appears to be an harmless gentle animal ; and though it resembles the monkey in many respects, it has neither its malice nor its mischief : nevertheless, like the monkey, it seems to be always in motion ; and moves, like all four-handed animals, in an oblique direction.

A second of this kind, which is also a native of Madagascar, is the Mongooz ; which is less than the former ; with a soft, glossy robe, but a little curled. The nose also is thicker than that of the mococo ; the eyes are black, with orange-coloured circles round the pupil ; and the tail is of one uniform colour. As to the rest, it is found of various colours ; some being black, others brown ; and its actions somewhat resemble those of a monkey.

The Vari is much larger than either of the former ; its hair is much longer, and it has a

kind of ruff round the neck, consisting of very long hair, by which it may be easily distinguished from the rest. It differs also in its disposition, which is fierce and savage; as also in the loudness of its voice, which somewhat resembles the roaring of the lion. This also is a native of Madagascar.

To this tribe we may refer a little four-handed animal, of the island of Ceylon, which Mr. Buffon calls the Lori; very remarkable for the singularity of its figure. This is, of all other animals, the longest, in proportion to its size; having nine vertebræ in the loins; whereas other quadrupedes have only seven\*. The body appears still the longer, by having no tail. In other respects, it resembles those of the maki kind; as well in its hands and feet, as in its snout, and in the glossy qualities of its hair. It is about the size of a squirrel; and appears to be a tame, harmless little animal.

## OF THE OPPOSSUM, AND ITS KINDS.

TO these four-handed animals of the ancient continent, we may add the four-handed animals of the new, that use their hands like

\* Buffon, vol. xxvi. p. 274.





*De Sore del.*

*J. Taylor sculp.*

The Loris.







*2<sup>o</sup> de Jove del.*

*J. Taylor sculp.*

The Opossum.

the former, as well as their tails, and that fill up the chasm between the monkey tribe and the lower orders of the forest. As the maki kind in some measure seem to unite the fox and the monkey in their figure and size, so these seem to unite the monkey and the rat. They are all less than the former; they have long tails, almost bare of hair; and their fur, as well as their shape, seems to place them near the rat kind. Some have accordingly ranked them in that class; but their being four-handed, is a sufficient reason for placing them in the rear of the monkeys.

The first and the most remarkable of this tribe is the *Opposum*, an animal found both in North and South America, of the size of a small cat. The head resembles that of a fox; it has fifty teeth in all; but two great ones in the midst, like those of a rat. The eyes are little, round, clear, lively, and placed upright; the ears are long, broad, and transparent, like those of the rat kind; its tail also increases the similitude, being round, long, a little hairy in the beginning, but quite naked towards the end. The fore legs are short, being about three inches long; while those behind are about four. The feet are like hands, each having five toes or fingers, with white crooked nails, and rather longer behind than before. But it is particular in this animal, that the thumb on the hinder

legs wants a nail; whereas the fingers are furnished with clawed nails as usual.

But that which distinguishes this animal from all others, and what has excited the wonder of mankind for more than two centuries, is the extraordinary conformation of its belly, as it is found to have a false womb, into which the young, when brought forth in the usual manner, creep, and continue for some days longer, to lodge and suckle securely. This bag, if we may so call it, being one of the most extraordinary things in natural history, requires a more minute description. Under the belly of the female is a kind of slit or opening, of about three inches long; this opening is composed of a skin, which makes a bag internally, which is covered on the inside with hair, and in this bag are the teats of the female; and into it the young, when brought forth, retire, either to suckle or to escape from danger. This bag has a power of opening and shutting, at the will of the animal; and this is performed by means of several muscles, and two bones, that are fitted for this purpose, and that are peculiar to this animal only. These two bones are placed before the os pubis, to which they are joined at the base; they are about two inches long, and grow smaller and smaller to their extremities. These support the muscles that serve to open the bag, and give them a fixture. To these  
muscles

muscles there are antagonists, that serve, in the same manner, to shut the bag; and this they perform so exactly, that in the living animal the opening can scarce be discerned, except when the sides are forcibly drawn asunder. The inside of this bag is furnished with glands, that exude a musky substance, which communicates to the flesh of the animal, and renders it unfit to be eaten. It is not to be supposed that this is the place where the young are conceived, as some have been led to imagine; for the opossum has another womb, like that of the generality of animals, in which generation is performed in the ordinary manner. The bag we have been describing, may rather be considered as a supplemental womb. In the real womb, the little animal is partly brought to perfection; in the ordinary one, it receives a kind of additional incubation; and acquires, at last, strength enough to follow the dam wherever she goes. We have many reasons to suppose that the young of this animal are all brought forth prematurely, or before they have acquired that degree of perfection, which is common in other quadrupedes. The little ones, when first produced, are in a manner but half completed; and some travellers assert, that they are, at that time, not much larger than flies. We are assured also, that immediately on quitting the real womb, they creep into the false one; where they

they continue fixed to the teat, until they have strength sufficient to venture once more into the open air, and share the fatigues of the parent. Ulloa assures us, that he has found five of these little creatures hidden in the belly of the dam three days after she was dead, still alive, and all clinging to the teat with great avidity. It is probable, therefore, that upon their first entering the false womb, they seldom stir out from thence; but when more advanced, they venture forth several times in the day; and, at last, seldom make use of their retreat, except in cases of necessity or danger. Travellers are not agreed in their accounts of the time which these animals take to continue in the false womb; some assure us, they remain there for several weeks; and others, more precisely mention a month. During this period of strange gestation, there is no difficulty in opening the bag in which they are concealed; they may be reckoned, examined, and handled, without much inconvenience; for they keep fixed to the teat, and cling there as firm as if they made a part of the body of the animal that bears them. When they are grown stronger, they drop from the teat into the bag in which they are contained; and, at last, find their way out, in search of more copious subsistence. Still, however, the false belly serves them for a retreat; either when they want to sleep or to suckle, or  
when



when they are pursued by an enemy. The dam, on such occasions, opens her bag to receive them, which they enter,

———Pars formidine turpi

Scandunt rursus equum et nota conduntur in alvo.

The Opposum, when on the ground, is a slow, helpless animal; the formation of its hands are alone sufficient to shew its incapacity of running with any degree of swiftness: but, to counterbalance this inconvenience, it climbs trees with great ease and expedition\*. It chiefly subsists upon birds; and hides among the leaves of the trees, to seize them by surprize. It often also hangs by the tail, which is long and muscular; and, in this situation, for hours together, with the head downwards, it keeps watching for its prey. If any lesser animal, which it is able to overcome, passes underneath, it drops upon it with deadly aim, and quickly devours it. By means of its tail, the opposum also flings from one tree to another, hunts insects, escapes its pursuers, and provides for its safety. It seems to be a creature that lives upon vegetables, as well as animal substances, roots, sugar-canes, the bark, and even the leaves of trees. It is easily tamed, but it is a disagreeable domestic, as well from its stupidity and figure, as its scent, which, however

\* Buffon, vol. xxi. p. 174.

fragrant in small quantities, fails not to be ungrateful when copiously supplied.

An animal greatly resembling the former\*, is the Marmose, which is found in the same continent. It seems only to differ in size, being less; and, instead of a bag to receive its young, has only two longitudinal folds near the thighs, within which the young, which are prematurely brought forth, as in the last instance, continue to suckle. The young of these, when first produced, are not above the size of a bean; but continue sticking to the teat, until they have arrived at greater maturity.

The Cayopolin is somewhat larger than the former; and a good deal resembling it in habits and figure, except that its snout is more pointed, its tail longer in proportion, and its colour different, being of an ash, somewhat inclining to yellow; however, I should suppose it to be only a variety of the former.

To this number we may add the Phalanger, so called by Mr. Buffon; a good deal resembling the former, but distinguished by the fashion of its hinder hands: the thumb and the fore-finger being joined together, except at the extremities. This animal is about the size of a rat; and has, accordingly, by some, been called the Rat of Surinam.

\* Buffon, vol. xxi. p. 212.

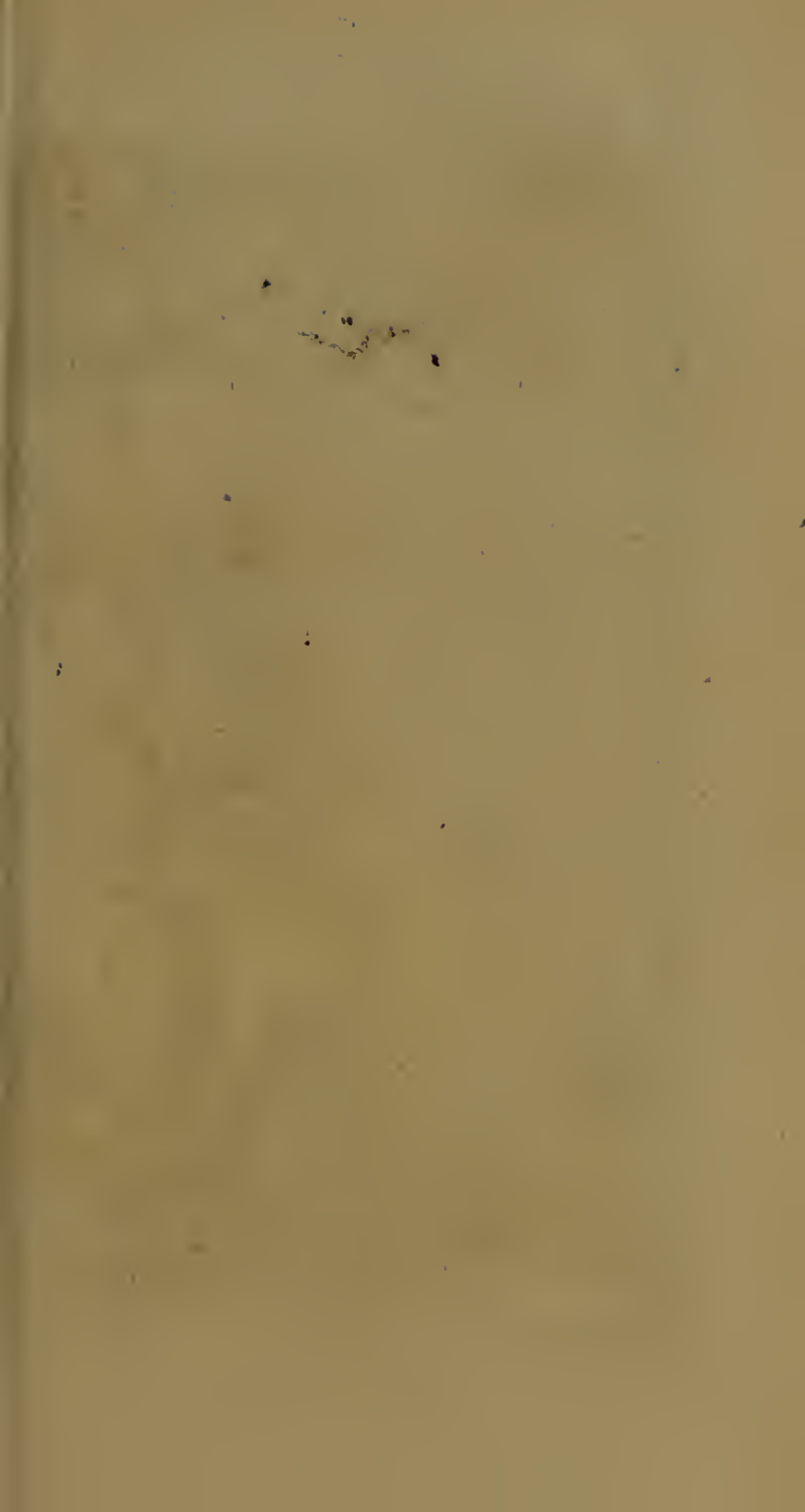


*De Sève del.*

*J. Taylor sculp.*

The Cayopolin.







*Die Sive del.*

*J. Taylor sculp.*

The Tarrier.

The last animal of this class is called, by Mr. Buffon, the Tarfier. This extraordinary little animal resembles the former, in having four hands, and a long tail; but it differs very much in the extreme length of its hinder legs, which are longer than the rest of its whole body. The bones of that part of the foot called the tarsus, are likewise so very long, that from thence the animal has received its name: the tail is naked in the middle, and hairy only at both extremities: its hair is woolly, soft, and of a deep ash colour. As to the rest, it is unknown from what country this animal was brought; but the naturalist from whom we have its description, supposes it to be a native of America.

From this general description of four-handed animals, we perceive what few advantages the brute creation derive from those organs that, in man, are employed to so many great and useful purposes. The being able to pluck their food from the trees, the capacity of clinging among the branches, or at most of converting one of those branches into a weapon of offence, are the highest stretches of their sagacity, and the only use their hands have hitherto been employed in: and yet, some superficial men have asserted, that the hands alone are sufficient to vindicate the dominion of mankind over other animals; and that much of his boasted reason, is nothing more than the result of his happier conformation:

conformation: however, were this so, an ape or a monkey would in some instances be more rational than we; their fingers are smaller, and, in some of them, more finely formed than ours. To what a variety of purposes might they not be employed, if their powers were properly exerted! Those works which we, from the largeness of our fingers, are obliged to go clumsily about, one of these could very easily perform with the utmost exactness; and if the fineness of the hand assisted reason, an ape would be one of the most reasonable beings in the creation. But these admirably formed machines are almost useless both to mankind and themselves; and contribute little more to the happiness of animal life, than the paws of the lowest quadrupede. They are supplied, indeed, with the organs; but they want the mind, to put them into action: it is that reasoning principle alone, with which man has been endowed, that can adapt seemingly opposite causes, to concur in the same general design; and even where the organs are deficient, that can supply their place, by the intervention of assisting instruments. Where reason prevails, we find that it scarcely matters what the organs are that give it the direction; the being furnished with that principle, still goes forward, steadily and uniformly successful; breaks through every obstacle, and becomes master of every enterprize. I have  
seen







De Sève del.

J. Taylor sculp

The Elephant.

seen a man, without hands or legs, convert, by practice, his very stumps to the most convenient purposes; and with these clumsy instruments perform the most astonishing feats of dexterity. We may therefore conclude, that it is the mind alone that gives a master to the creation; and that, if a bear or an horse were endowed with the same intellects that have been given to man, the hardness of an hoof, or the awkwardness of a paw, would be no obstacle to their advancement in the arts of dominion, or of social felicity.

## C H A P. VIII.

### *Of the Elephant.*

**H**AVING gone through the description of those quadrupedes that, by resembling each other in some striking particular, admit of being grouped together and considered under one point of view, we now come to those insulated sorts that bear no similitude with the rest, and that to be distinctly described must be separately considered.

The foremost of these, and in every respect the noblest quadrupede in nature, is the elephant, not less remarkable for its size than its docility and understanding. All historians concur in giving it the character of the most sagacious

cious animal next to man; and yet, were we to take our idea of its capacity from its outward appearance, we should be led to conceive very meanly of its abilities. The elephant, at first view, presents the spectator with an enormous mass of flesh, that seems scarcely animated. Its huge body, covered with a callous hide, without hair; its large mis-shapen legs, that seem scarcely formed for motion; its little eyes, large ears, and long trunk, all give it an air of extreme stupidity. But our prejudices will soon subside when we come to examine its history; they will even serve to encrease our surprize, when we consider the various advantages it derives from so clumsy a conformation.

The elephant is seen from seven to no less than fifteen feet high. Whatever care we take to imagine a large animal beforehand, yet the first sight of this huge creature never fails to strike us with astonishment, and in some measure to exceed our idea. Having been used to smaller animals, we have scarce any conception of its magnitude; for a moving column of flesh, fourteen feet high, is an object so utterly different from those we are constantly presented with, that to be conceived it must be actually seen. Such, I own, were the suggestions that naturally arose to me when I first saw this animal, and yet for the sight of which I had taken care to prepare my imagination. I found my  
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ideas fall as short of its real size as they did of its real figure; neither the pictures I had seen, nor the descriptions I had read, giving me adequate conceptions of either.

It would, therefore, be impossible to give an idea of this animal's figure by a description; which, even assisted by the art of the engraver, will but confusedly represent the original. In general it may be observed, that the forehead is very high and rising, the ears very large and dependant, the eyes extremely small, the proboscis, or trunk, long, the body round and full, the back rising in an arch, and the whole animal short in proportion to its height. The feet are round at the bottom; on each foot there are five flat horny risings, which seem to be the extremities of the toes, but do not appear outwardly. The hide is without hair, full of scratches and scars, which it receives in its passage through thick woods and thorny places. At the end of the tail there is a tuft of hair, a foot and a half long. The female is less than the male, and the udder is between the fore-legs. But a more accurate, as well as a more entertaining description of the parts, will naturally occur in the history of their uses.

Of all quadrupedes, the elephant is the strongest, as well as the largest; and yet, in a state of nature, it is neither fierce nor formidable.

midable\*. Mild, peaceful, and brave, it never abuses its power or its strength, and only uses its force for its own protection, or that of its community. In its native deserts, the elephant is seldom seen alone, but appears to be a social friendly creature. The oldest of the company conducts the band; that which is next in seniority brings up the rear. The young, the weak, and the sickly, fall into the center; while the females carry their young, and keep them from falling by means of their trunks. They maintain this order only in dangerous marches, or when they desire to feed in cultivated grounds; they move with less precaution in the forests and solitudes; but without ever separating, or removing so far asunder as to be incapable of lending each other any requisite assistance. Nothing can be more formidable than a drove of elephants as they appear at a distance in an African landscape; wherever they march, the forests seem to fall before them; in their passage, they bear down the branches upon which they feed; and, if they enter into an inclosure, they destroy all the labours of the husbandman in a very short time. Their inva-

\* I have extracted the greatest part of this description from Mr. Buffon. Where I add, I mark with commas, "thus."

sions are the more disagreeable, as there is no means of repelling them; since it would require a small army to attack the whole drove when united. It now and then happens that one or two is found lingering behind the rest, and it is against these that the art and force of the hunters are united; but an attempt to molest the whole body would certainly be fatal. They go forward directly against him who offers the insult, strike him with their tusks, seize him with their trunks, fling him into the air, and then trample him to pieces under their feet. But they are thus dreadful only when offended, and do no manner of personal injury when suffered to feed without interruption. It is even said that they are mindful of injuries received; and, when once molested by man, seek all occasions for the future to be revenged; they smell him with their long trunks at a distance; follow him with all their speed upon the scent; and, though slow to appearance, they are soon able to come up with and destroy him.

In their natural state, they delight to live along the sides of rivers, to keep in the deepest vales, to refresh themselves in the most shady forests and watery places. They cannot live far from the water; and they always disturb it before they drink. They often fill their trunk with it, either to cool that organ, or to divert themselves by spurting it out like a fountain.

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They are equally distressed by the extremes of heat and cold; and, to avoid the former, they frequently take shelter in the most obscure recesses of the forest, or often plunge into the water, and even swim from the continent into islands some leagues distant from the shore.

Their chief food is of the vegetable kind, for they loath all kind of animal diet. When one among their number happens to light upon a spot of good pasture, he calls the rest, and invites them to share in the entertainment; but it must be a very copious pasture indeed that can supply the necessities of the whole band. As with their broad and heavy feet they sink deep wherever they go, they destroy much more than they devour; so that they are frequently obliged to change their quarters, and to migrate from one country to another. The Indians and Negroes, who are often incommoded by such visitants, do all they can to keep them away, making loud noises, and large fires round their cultivated grounds; but these precautions do not always succeed; the elephants often break through their fences, destroy their whole harvest, and overturn their little habitations. When they have satisfied themselves, and trod down or devoured whatever lay in their way, they then retreat into the woods in the same orderly manner in which they made their irruption.

Such



Such are the habits of this animal, considered in a social light; and, if we regard it as an individual, we shall find its powers still more extraordinary. With a very awkward appearance, it possesses all the senses in great perfection, and is capable of applying them to more useful purposes than any other quadrupede. The elephant, as we observed, has very small eyes, when compared to the enormous bulk of its body. But, though their minuteness may at first sight appear deformed, yet, when we come to examine them, they are seen to exhibit a variety of expression, and to discover the various sensations with which it is moved. It turns them with attention and friendship to its master; it seems to reflect and deliberate; and as its passions slowly succeed each other, their various workings are distinctly seen.

The elephant is not less remarkable for the excellence of its hearing. Its ears are extremely large, and greater in proportion than even those of an ass. They are usually dependent; but it can readily raise and move them. They serve also to wipe its eyes, and to protect them against the dust and flies that might otherwise incommode them. It appears delighted with music, and very readily learns to beat time, to move in measure, and even to join its voice to the sound of the drum and the trumpet.

This animal's sense of smelling is not only exquisite, but it is in a great measure pleased with the same odours that delight mankind. The elephant gathers flowers with great pleasure and attention; it picks them up one by one, unites them into a nosegay, and seems charmed with the perfume. The orange-flower seems to be particularly grateful both to its sense of taste and smelling; it strips the tree of all its verdure, and eats every part of it, even to the branches themselves. It seeks in the meadows the most odoriferous plants to feed upon; and in the woods it prefers the coco, the banana, the palm, and the sago-tree, to all others. As the shoots of these are tender, and filled with pith, it eats not only the leaves and the fruits, but even the branches, the trunk, and the whole plant to the very roots.

But it is in the sense of touching that this animal excels all others of the brute creation, and perhaps even man himself. The organ of this sense lies wholly in the trunk, which is an instrument peculiar to this animal, and that serves it for all the purposes of an hand. The trunk is, properly speaking, only the snout lengthened out to a great extent, hollow like a pipe, and ending in two openings, or nostrils, like those of an hog. An elephant of fourteen feet high has the trunk about eight feet long, and five feet and an half in circumference at  
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the mouth, where it is thickest. It is hollow all along, but with a partition running from one end of it to the other; so that though outwardly it appears like a single pipe, it is inwardly divided into two. This fleshy tube is composed of nerves and muscles, covered with a proper skin of a blackish colour, like that of the rest of the body. It is capable of being moved in every direction, of being lengthened and shortened, of being bent or streightened, so pliant as to embrace any body it is applied to, and yet so strong that nothing can be torn from the gripe. To aid the force of this grasp, there are several little eminences, like a caterpillar's feet, on the underside of this instrument, which without doubt contribute to the sensibility of the touch, as well as to the firmness of the hold. Through this trunk the animal breathes, drinks, and smells, as through a tube; and at the very point of it, just above the nostrils, there is an extension of the skin, about five inches long, in the form of a finger, and which in fact answers all the purposes of one; for, with the rest of the extremity of the trunk, it is capable of assuming different forms at will, and consequently of being adapted to the minutest objects. By means of this, the elephant can take a pin from the ground, untie the knots of a rope, unlock a door, and even write with a pen. "I have myself seen," says Ælian, "an

elephant writing Latin characters on a board, in a very orderly manner, his keeper only shewing him the figure of each letter. While thus employed, the eyes might be observed studiously cast down upon the writing, and exhibiting an appearance of great skill and erudition." It sometimes happens that the object is too large for the trunk to grasp; in such a case the elephant makes use of another expedient as admirable as any of the former. It applies the extremity of the trunk to the surface of the object, and, sucking up its breath, lifts and sustains such a weight as the air in that case is capable of keeping suspended. In this manner this instrument is useful in most of the purposes of life; it is an organ of smelling, of touching, and of suction; it not only provides for the animal's necessities and comforts, but it also serves for its ornament and defence.

But, though the elephant be thus admirably supplied by its trunk, yet, with respect to the rest of its conformation, it is unwieldy and helpless. The neck is so short that it can scarce turn the head, and must wheel round in order to discover an enemy from behind. The hunters that attack it upon that quarter, generally thus escape the effects of its indignation; and find time to renew their assaults while the elephant is turning to face them. The legs are, indeed, not so inflexible as the neck, yet they  
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are very stiff, and bend not without difficulty. Those before seem to be longer than the hinder; but, upon being measured, are found to be something shorter. The joints, by which they bend, are nearly in the middle, like the knee of a man; and the great bulk which they are to support makes their flexure ungainly. While the elephant is young, it bends the legs to lie down or to rise; but when it grows old, or sickly, this is not performed without human assistance; and it becomes, consequently, so inconvenient, that the animal chuses to sleep standing. The feet, upon which these massy columns are supported, form a base scarce broader than the legs they sustain. They are divided into five toes, which are covered beneath the skin, and none of which appear to the eye; a kind of protuberance like claws are only observed, which vary in number from three to five. The apparent claws vary; the internal toes are constantly the same. The sole of the foot is furnished with a skin as thick and hard as horn, and which completely covers the whole under part of the foot.

To the rest of the elephant's incumbrances may be added its enormous tusks, which are unserviceable for chewing, and are only weapons of defence. These, as the animal grows old, become so heavy, that it is sometimes obliged to make holes in the walls of its stall to rest

them in, and ease itself of the fatigue of their support. It is well known to what an amazing size these tusks grow; they are two in number, proceeding from the upper jaw, and are sometimes found above six feet long. Some have supposed them to be rather the horns than the teeth of this animal; but, besides their greater similitude to bone than to horn, they have been indisputably found to grow from the upper jaw, and not from the frontal bones, as some have thought proper to assert\*. Some also have asserted, that these tusks are shed in the same manner as the stag sheds its horns; but it is very probable, from their solid consistence, and from their accidental defects, which often appears to be the effect of a slow decay, that they are as fixt as the teeth of other animals are generally found to be. Certain it is that the elephant never sheds them in a domestic state, but keeps them till they become inconvenient and cumbrous to the last degree. An account of uses to which these teeth are applied, and the manner of chusing the best ivory, belongs rather to an history of the arts than of nature.

This animal is equally singular in other parts of its conformation; the lips and the tongue in

\* See Mr. Daubenton's description of the skeleton of this animal.

other creatures serve to suck up and direct their drink or their food; but in the elephant they are totally inconvenient for such purposes; and it not only gathers its food with its trunk, but supplies itself with water by the same means. When it eats hay, as I have seen it frequently, it takes up a small wisp of it with the trunk, turns and shapes it with that instrument for some time, and then directs it into the mouth, where it is chewed by the great grinding teeth, that are large in proportion to the bulk of the animal. This packet, when chewed, is swallowed, and never ruminated again, as in cows or sheep, the stomach and intestines of this creature more resembling those of an horse. Its manner of drinking is equally extraordinary. For this purpose, the elephant dips the end of its trunk into the water, and sucks up just as much as fills that great fleshy tube completely. It then lifts up its head with the trunk full, and turning the point into its mouth, as if it intended to swallow trunk and all, it drives the point below the opening of the wind-pipe. The trunk being in this position, and still full of water, the elephant then blows strongly into it at the other end, which forces the water it contains into the throat, down which it is heard to pour with a loud gurgling noise, which continues till the whole is blown down. From this manner of drinking, some have been led

into an opinion that the young elephant sucks with its trunk, and not with its mouth; this, however, is a fact which no traveller has hitherto had an opportunity of seeing, and it must be referred to some future accident to determine.

The hide of the elephant is as remarkable as any other part. It is not covered over with hair as in the generality of quadrupedes, but is nearly bare. Here and there indeed, a few bristles are seen growing in the scars and wrinkles of the body, and very thinly scattered over the rest of the skin; but in general the head is dry, rough, and wrinkled, and resembling more the bark of an old tree than the skin of an animal. This grows thicker every year; and, by a constant addition of substance, it at length contracts that disorder well known by the name of the elephantiasis, or Arabian leprosy; a disease to which man, as well as the elephant, is often subject. In order to prevent this, the Indians rub the elephant with oil, and frequently bathe it to preserve its pliancy. To the inconveniencies of this disorder is added another, arising from the great sensibility of those parts that are not callous. Upon these the flies settle in great abundance, and torment this animal unceasingly; to remedy which, the elephant tries all its arts; uses not only its tail and trunk in the natural manner to keep them off, but even takes the branch of a tree,



tree, or a bundle of hay, to strike them off with. When this fails, it often gathers up the dust with its trunk, and thus covers all the sensible places. In this manner it has been seen to dust itself several times a day, and particularly upon leaving the bath.

Water is as necessary to this animal as food itself. When in a state of nature, the elephant rarely quits the banks of the river, and often stands in water up to the belly. In a state of servitude, the Indians take equal care to provide a proper supply; they wash it with great address; they give it all the conveniencies for lending assistance to itself; they smooth the skin with a pumice-stone, and then rub it over with oils, essences, and odours.

It is not to be wondered at that an animal furnished with so many various advantages, both of strength, sagacity, and obedience, should be taken into the service of man. We accordingly find that the elephant, from time immemorial, has been employed either for the purposes of labour, of war, or of ostentation; to increase the grandeur of eastern princes, or to extend their dominions. We have hitherto been describing this animal in its natural state; we now come to consider it in a different view, as taken from the forest and reduced to human obedience. We are now to behold this brave harmless creature as learning a lesson from mankind,

and instructed by him in all the arts of war, massacre, and devastation. We are now to behold this half-reasoning animal led into the field of battle, and wondering at those tumults and that madness which he is compelled to increase. The elephant is a native of Africa and Asia, being found neither in Europe nor America. In Africa he still retains his natural liberty. The savage inhabitants of that part of the world, instead of attempting to subdue this powerful creature to their necessities, are happy in being able to protect themselves from his fury. Formerly, indeed, during the splendour of the Carthaginian empire, elephants were used in their wars; but this was only a transitory gleam of human power in that part of the globe; the natives of Africa have long since degenerated, and the elephant is only known among them from his devastations. However, there are no elephants in the northern parts of Africa at present, there being none found on this side of Mount Atlas. It is beyond the river Senegal that they are to be met with in great numbers, and so down to the Cape of Good Hope, as well as in the heart of the country. In this extensive region they appear to be more numerous than in any other part of the world. They are there less fearful of man: less retired into the heart of the forests, they seem to be sensible of his impotence and ignorance; and often come down

to ravage his little labours. They treat him with the same haughty disdain which they shew to other animals, and consider him as a mischievous little being, that fears to oppose them openly.

But, although these animals are most plentiful in Africa, it is only in Asia that the greatest elephants are found, and rendered subservient to human command. In Africa, the largest do not exceed ten feet high; in Asia they are found from ten to fifteen. Their price encreases in proportion to their size; and when they exceed a certain bulk, like jewels, their value then rises as the fancy is pleased to estimate.

The largest are entirely kept for the service of princes; and are maintained with the utmost magnificence, and at the greatest expence. The usual colour of the elephant is a dusky black, but some are said to be white; and the price of one of these is inestimable. Such a one is peculiarly appropriated for the monarch's own riding; he is kept in a palace, attended by the nobles, and almost adored by the people\*. Some have said that these white elephants are larger than the rest †; others assert, that they are less; and still others entirely doubt their existence.

\* P. Vincent Marie.

† P. Tachard.

As the art of war is but very little improved in Asia, there are few princes of the East who do not procure and maintain as many elephants as they are able, and place great confidence on their assistance in an engagement. For this purpose, they are obliged to take them wild in their native forests, and tame them; for the elephant never breeds in a state of servitude. It is one of the most striking peculiarities in this extraordinary creature, that his generative powers totally fail when he comes under the dominion of man; as if he seemed unwilling to propagate a race of slaves, to encrease the pride of his conqueror. There is, perhaps, no other quadrupede that will not breed in its own native climate, if indulged with a moderate share of freedom; and we know, that many of them will copulate in every climate. The elephant alone has never been seen to breed; and though he has been reduced under the obedience of man for ages, the duration of pregnancy in the female \* still remains a secret. Aristotle, indeed, asserts, that she goes two years with young; that she continues to suckle her young for three years, and

\* Multis persuasum est Elephantem non brutorum sed hominum more coire. Quod retro mingit non dubitatur. Sed ipse vidi marem hujusce speciei, in nostri regis stabulis super fæmellam itidem inclusam quadrupedum more filientem, pene paululum incurvato sed sufficienter recto.

that she brings forth but one at a time; but he does not inform us of the manner in which it was possible for him to have his information. From authorities equally doubtful, we learn, that the little one is about as large as a wild boar, the instant it is brought forth; that its tusks do not yet appear; but that all the rest of its teeth are apparent; that, at the age of six months, it is as large as an ox, and its tusks pretty well grown; and that it continues, in this manner, for near thirty years, advancing to maturity. All this is doubtful; but it is certain, that, in order to recruit the numbers which are consumed in war, the princes of the East are every year obliged to send into the forests, and to use various methods to procure a fresh supply. Of all these numerous bands, there is not one that has not been originally wild; nor one that has not been forced into a state of subjection. Men themselves are often content to propagate a race of slaves, that pass down in this wretched state through successive generations; but the elephant, under subjection, is unalterably barren; perhaps from some physical causes, which are as yet unknown.

The Indian princes having vainly endeavoured to multiply the breed of elephants, like that of other animals, have been, at last, content to separate the males from the females, to prevent those accesses of desire, which debilitated,

tated, without multiplying the species. In order to take them wild in the woods, a spot of ground is fixed upon, which is surrounded with a strong pallisade. This is made of the thickest and the strongest trees; and strengthened by cross bars, which give firmness to the whole. The posts are fixed at such distances from each other, that a man can easily pass between them; there being only one great passage left open, through which an elephant can easily come; and which is so contrived as to shut behind, as soon as the beast is entered. To draw him into this enclosure, it is necessary first to find him out in the woods; and a female elephant is conducted along into the heart of the forest, where it is obliged by its keeper to cry out for the male. The male very readily answers the cry, and hastens to join her; which the keeper perceiving, obliges her to retreat, still repeating the same cry, until she leads the animal into the enclosure already described, which shuts the moment he is entered. Still, however, the female proceeds calling, and inviting, while the male proceeds forward in the enclosure, which grows narrower all the way, and until the poor animal finds himself completely shut up, without the power of either advancing or retreating; the female, in the mean time, being let out by a private way, which she has been previously accustomed to. The wild elephant, upon seeing  
himself

himself entrapped in this manner, instantly attempts to use violence; and, upon seeing the hunters, all his former desires only turn to fury. In the mean time the hunters, having fixed him with cords, attempt to soften his indignation, by throwing buckets of water upon him in great quantities, rubbing the body with leaves, and pouring oil down his ears. Soon after, two tame elephants are brought, a male and a female, that caress the indignant animal with their trunks; while they still continue pouring water to refresh it. At last, a tame elephant is brought forward, of that number which is employed in instructing the new-comers, and an officer riding upon it, in order to shew the late captive that it has nothing to fear. The hunters then open the enclosure; and, while this creature leads the captive along, two more are joined on either side of it, and these compel it to submit. It is then tied by cords to a massy pillar provided for that purpose, and suffered to remain in that position for about a day and a night, until its indignation be wholly subsided. The next day it begins to be somewhat submissive; and, in a fortnight, is completely tamed like the rest. The females are taken when accompanying the males; they often come into these enclosures, and they shortly after serve as decoys to the rest. But this method of taking the elephant differs, according to the abilities.

abilities of the hunter; the Negroes of Africa, who hunt this animal merely for its flesh, are content to take it in pit-falls; and often to pursue it in the defiles of a mountain, where it cannot easily turn, and so wound it from behind till it falls.

The elephant, when once tamed, becomes the most gentle and obedient of all animals. It soon conceives an attachment for the person that attends it, caresses him, obeys him, and seems to anticipate his desires. In a short time it begins to comprehend several of the signs made to it, and even the different sounds of the voice; it perfectly distinguishes the tone of command from that of anger or approbation, and it acts accordingly. It is seldom deceived in its master's voice; it receives his orders with attention, and executes them with prudence, eagerly, yet without precipitation. All its motions are regulated; and its actions seem to partake of its magnitude; being grave, majestic, and secure. It is quickly taught to kneel down, to receive its rider; it caresses those it knows with its trunk; with this salutes such as it is ordered to distinguish; and with this, as with an hand, helps to take up a part of its load. It suffers itself to be arrayed in harness; and seems to take a pleasure in the finery of its trappings. It draws either chariots, cannon, or shipping, with surprising strength and perseverance;



verance; and this with a seeming satisfaction, provided that it be not beaten without a cause, and that its master appears pleased with its exertions.

The elephant's conductor is usually mounted upon its neck, and makes use of a rod of iron to guide it, which is sometimes pointed, and at others bent into an hook. With this the animal is spurred forward, when dull or disobedient; but, in general, a word is sufficient to put the gentle creature into motion, especially when it is acquainted with its conductor. This acquaintance is often perfectly necessary; for the elephant frequently takes such an affection to its keeper, that it will obey no other: and it has been known to die for grief, when, in some sudden fit of madness, it has killed its conductor. We are told, that one of these, that was used by the French forces in India for the drawing their cannon, was promised, by the conductor, a reward, for having performed some painful service; but being disappointed of its expectations, it slew him in a fury. The conductor's wife, who was a spectator of this shocking scene, could not restrain her madness and despair; but running with her two children in her arms, threw them at the elephant's feet, crying out, that since it had killed her husband, it might kill her and her children also. The elephant, seeing the children at his feet, instantly

stantly stopped, and moderating its fury, took up the eldest with its trunk, and placing him upon its neck, adopted him for its conductor, and obeyed him ever after with great punctuality.

But it is not for drawing burthens alone that the elephants are serviceable in war; they are often brought into the ranks, and compelled to fight in the most dangerous parts of the field of battle. There was a time, indeed, in India, when they were much more used in war than at present. A century or two ago, a great part of the dependence of the general was upon the number and the expertness of his elephants; but of late, since war has been contented to adopt fatal instead of formidable arts, the elephant is little used, except for drawing cannon, or transporting provisions. The princes of the country are pleased to keep a few for ornament, or for the purposes of removing their seraglios: but they are seldom led into a field of battle, where they are unable to withstand the discharge of fire-arms, and have been often found to turn upon their employers. Still, however, they are used in war, in the more remote parts of the East; in Siam, in Cochin-China, in Tonquin, and Pegu. In all these places, they not only serve to swell the pomp of state, being adorned with all the barbarian splendour that those countries can bestow, but they are actually

ally led into the field of battle, armed before with coats of mail, and loaded on the back each with a square tower, containing from five combatants to seven. Upon its neck sits the conductor, who goads the animal into the thickest ranks, and encourages it to encrease the devastation: wherever it goes, nothing can withstand its fury; it levels the ranks with its immense bulk, flings such as oppose it into the air, or crushes them to death under its feet. In the mean time, those who are placed upon its back, combat as from an eminence, and fling down their weapons with double force, their weight being added to their velocity. Nothing, therefore, can be more dreadful, or more irresistible, than such a moving machine, to men unacquainted with the modern arts of war; the elephant, thus armed and conducted, raging in the midst of a field of battle, inspires more terror than even those machines that destroy at a distance, and are often most fatal when most unseen. But this method of combating is rather formidable than effectual: polished nations have ever been victorious over those semi-barbarous troops that have called in the elephant to their assistance, or attempted to gain a victory by merely astonishing their opposers. The Romans quickly learned the art of opening their ranks, to admit the elephant; and thus separating it from assistance, quickly compelled

compelled its conductors to calm the animal's fury, and to submit. It sometimes also happened that the elephant became impatient of control; and, instead of obeying its conductor, turned upon those forces it was employed to assist. In either case, there was a great deal of preparation to very little effect; for a single elephant is known to consume as much as forty men in a day.

At present, therefore, they are chiefly employed in carrying or drawing burthens, throughout the whole peninsula of India; and no animal can be more fitted by nature for this employment. The strength of an elephant is equal to its bulk, for it can, with great ease, draw a load that six horses could not remove: it can readily carry upon its back three or four thousand weight; upon its tusks alone it can support near a thousand: its force may also be estimated from the velocity of its motion, compared to the mass of its body. It can go, in its ordinary pace, as fast as an horse at an easy trot; and, when pushed, it can move as swiftly as an horse at full gallop. It can travel with ease fifty or sixty miles a day; and when hard pressed, almost double that distance. It may be heard trotting on at a great distance; it is easy also to follow it by the track, which is deeply impressed on the ground, and from fifteen to eighteen inches in diameter.

In India they are also put to other very disagreeable offices; for in some courts of the more barbarous princes, they are used as executioners; and this horrid task they perform with great dexterity: with their trunks they are seen to break every limb of the criminal at the word of command; they sometimes trample him to death, and sometimes impale him on their enormous tuiks, as directed. In this the elephant is rather the servant of a cruel master, than a voluntary tyrant, since no other animal of the forest is so naturally benevolent and gentle; equally mindful of benefits as sensible of neglect, he contracts a friendship for his keeper, and obeys him even beyond his capacity.

In India, where they were at one time employed in launching ships, a particular elephant was directed to force a very large vessel into the water: the work proved superior to its strength, but not to its endeavours; which, however, the keeper affected to despise. "Take away," says he, "that lazy beast, and bring another better fitted for service." The poor animal instantly upon this redoubled its efforts, fractured its scull, and died upon the spot.

In Deli, an elephant, passing along the streets, put his trunk into a taylor's shop, where several people were at work. One of the persons of the shop, desirous of some amusement, pricked the animal's trunk with his needle, and seemed highly

highly delighted with this slight punishment. The elephant, however, passed on without any immediate signs of resentment; but coming to a puddle filled with dirty water, he filled his trunk, returned to the shop, and spurted the contents over all the finery upon which the taylor's were then employed.

An elephant in Adsmeer, which often passed through the bazar or market, as he went by a certain herb-woman, always received from her a mouthful of greens. Being one day seized with a periodical fit of madness, he broke his fetters, and, running through the market, put the crowd to flight; and, among others, this woman, who in her haste forgot a little child at her stall. The elephant, recollecting the spot where his benefactress was accustomed to sit, took up the infant gently in his trunk, and conveyed it to a place of safety.

At the Cape of Good Hope it is customary to hunt those animals for the sake of their teeth. Three horsemen, well mounted, and armed with lances, attack the elephant alternately, each relieving the other, as they see their companion pressed, till the beast is subdued. Three Dutchmen, brothers, who had made large fortunes by this business, determined to retire to Europe, and enjoy the fruits of their labours; but they resolved, one day before they went, to have a last chace, by way of amusement: they met

met with their game, and began their attack in the usual manner; but, unfortunately, one of their horses falling, happened to fling his rider; the enraged elephant instantly seized the unhappy huntsman with his trunk, flung him up to a vast height in the air, and received him upon one of his tusks as he fell; and then turning towards the other two brothers, as if it were with an aspect of revenge and insult, held out to them the impaled wretch, writhing in the agonies of death.

The teeth of the elephant are what produces the great enmity between him and mankind; but whether they are shed, like the horns of the deer, or whether the animal be killed to obtain them, is not yet perfectly known. All we have as yet certain is, that the natives of Africa, from whence almost all our ivory comes, assure us, that they find the greatest part of it in their forests; nor would, say they, the teeth of an elephant recompense them for their trouble and danger in killing it: notwithstanding, the elephants which are tamed by man are never known to shed their tusks; and from the hardness of their substance, they seem no way analogous to deers horns.

The teeth of the elephant are very often found in a fossil state. Some years ago, two great grinding-teeth, and part of the tusk of an elephant, were

were discovered, at the depth of forty-two yards, in a lead-mine, in Flintshire\*.

The tusks of the Mammouth, so often found fossil in Siberia, and which are converted to the purposes of ivory, are generally supposed to belong to the elephant: however, the animal must have been much larger in that country than it is found at present, as those tusks are often known to weigh four hundred pounds; while those that come from Africa seldom exceed two hundred and fifty. These enormous tusks are found lodged in the sandy banks of the Siberian rivers; and the natives pretend that they belong to an animal which is four times as large as the elephant.

There have lately been discovered several enormous skeletons, five or six feet beneath the surface, on the banks of the Ohio, not remote from the river Miume in America, seven hundred miles from the sea-coast. Some of the tusks are near seven feet long; one foot nine inches in circumference at the base, and one foot near the point; the cavity at the root or base, nineteen inches deep. Besides their size, there are yet other differences: the tusks of the true elephant have sometimes a very slight lateral bend; these have a larger twist, or spiral

\* Pennant's Synopsis, p. 90.



curve, towards the smaller end: but the great and specific difference consists in the shape of the grinding-teeth; which, in these newly found, are fashioned like the teeth of a carnivorous animal; not flat and ribbed transversely on their surface, like those of the modern elephant, but furnished with a double row of high and conic processes, as if intended to masticate, not to grind their food. A third difference is in the thigh bone, which is of a great disproportionable thickness to that of the elephant; and has also some other anatomical variations. These fossile bones have been also found in Peru and the Brazils; and, when cut and polished by the workers in ivory, appear, in every respect, similar. It is the opinion of Doctor Hunter that they must have belonged to a larger animal than the elephant; and differing from it, in being carnivorous. But as yet this formidable creature has evaded our search; and if, indeed, such an animal exists, it is happy for man that it keeps at a distance; since what ravage might not be expected from a creature, endued with more than the strength of the elephant, and all the rapacity of the tiger!

## C H A P. IX.

*Of the Rhinoceros.*

**N**EXT to the elephant, the Rhinoceros is the most powerful of animals. It is usually found twelve feet long, from the tip of the nose to the insertion of the tail; from six to seven feet high; and the circumference of its body is nearly equal to its length. It is, therefore, equal to the elephant in bulk; and if it appears much smaller to the eye, the reason is, that its legs are much shorter. Words can convey but a very confused idea of this animal's shape; and yet there are few so remarkably formed: its head is furnished with an horn, growing from the snout, sometimes three feet and an half long; and but for this, that part would have the appearance of the head of an hog; the upper lip, however, is much longer in proportion, ends in a point, is very pliable, serves to collect its food, and deliver it into the mouth: the ears are large, erect, and pointed; the eyes are small and piercing; the skin is naked, rough, knotty, and lying upon the body in folds, after a very peculiar fashion: there are two folds very remarkable; one above the shoulders, and another over the rump: the skin, which is of a dirty brown colour, is so thick



*River del*

*J. Taylor sculp.*

The Rhinoceros.



as to turn the edge of a scymitar, and to resist a musquet-ball: the belly hangs low; the legs are short, strong, and thick, and the hoofs divided into three parts, each pointing forward.

Such is the general outline of an animal that appears chiefly formidable from the horn growing from its snout; and formed rather for war, than with a propensity to engage. This horn is sometimes found from three to three feet and an half long, growing from the solid bone, and so disposed, as to be managed to the greatest advantage. It is composed of the most solid substance; and pointed so as to inflict the most fatal wounds. The elephant, the boar, or the buffalo, are obliged to strike transversely with their weapons; but the rhinoceros employs all his force with every blow; so that the tiger will more willingly attack any other animal of the forest, than one whose strength is so justly employed. Indeed, there is no force which this terrible animal has to apprehend: defended, on every side, by a thick horny hide, which the claws of the lion or the tiger are unable to pierce, and armed before with a weapon that even the elephant does not chuse to oppose. The missionaries assure us, that the elephant is often found dead in the forests, pierced with the horn of a rhinoceros; and though it looks like wisdom to doubt whatever they tell

us, yet I cannot help giving credit to what they relate on this occasion, particularly when confirmed by Pliny. The combat between these two, the most formidable animals of the forest, must be very dreadful. Elnanuel, king of Portugal, willing to try their strength, actually opposed them to each other; and the elephant was defeated.

But though the rhinoceros is thus formidable by nature, yet imagination has not failed to exert itself, in adding to its terrors. The scent is said to be most exquisite; and it is affirmed, that it consorts with the tiger. It is reported also, that when it has overturned a man, or any other animal, it continues to lick the flesh quite from the bone with its tongue, which is said to be extremely rough. All this, however, is fabulous: the scent, if we may judge from the expansion of the olfactory nerves, is not greater than that of an hog, which we know to be indifferent; it keeps company with the tiger, only because they both frequent watery places in the burning climates where they are bred; and as to its rough tongue, that is so far from the truth, that no animal of near its size has so soft a one. "I have often felt it myself," says Ladvocat, in his description of this animal; "it is smooth, soft, and small, like that of a dog; and to the feel it appears as if one passed the hand over velvet.

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I have often seen it lick a young man's face who kept it; and both seemed pleased with the action."

The rhinoceros which was shewn at London in 1739, and described by Docter Parsons, had been sent from Bengal. Though it was very young, not being above two years old, yet the charge of his carriage and food from India cost near a thousand pounds. It was fed with rice, sugar, and hay: it was daily supplied with seven pounds of rice, mixed with three of sugar, divided into three portions; it was given great quantities of hay and grass, which it chiefly preferred; its drink was water, which it took in great quantities. It was of a gentle disposition, and permitted itself to be touched and handled by all visitors, never attempting mischief, except when abused, or when hungry; in such a case, there was no method of appeasing its fury, but by giving it something to eat. When angry, it would jump up against the walls of its room, with great violence; and made many efforts to escape, but seldom attempted to attack its keeper, and was always submissive to his threats. It had a peculiar cry, somewhat a mixture between the grunting of an hog and the bellowing of a calf.

The age of these animals is not well known; it is said by some, that they bring forth at three years old, and if we may reason from analogy,

it is probable they seldom live till above twenty. That which was shewn in London, was said, by its keeper, to be eighteen years old, and even at that age he pretended to consider it as a young one; however, it died shortly after, and that probably in the course of nature.

The rhinoceros is a native of the deserts of Asia and Africa, and is usually found in those extensive forests, that are frequented by the elephant and the lion. As it subsists entirely upon vegetable food, it is peaceful and harmless among its fellows of the brute creation; but, though it never provokes to combat, it equally disdains to fly. It is every way fitted for war, but rests content in the consciousness of its security. It is particularly fond of the prickly branches of trees, and is seen to feed upon such thorny shrubs as would be dangerous to other animals, either to gather, or to swallow. The prickly points of these, however, may only serve to give a poignant relish to this animal's palate, and may answer the same grateful ends in seasoning its banquet, that spices do in heightening ours.

In some parts of the kingdom of Asia, where the natives are more desirous of appearing warlike than shewing themselves brave, these animals are tamed, and led into the field to strike terror into the enemy; but they are always an unmanageable and restive animal, and probably  
more



more dangerous to the employers, than those whom they are brought to oppose.

The method of taking them, is chiefly watching them, till they are found either in some moist or marshy place, where, like hogs, they are fond of sleeping and wallowing. They then destroy the old one with fire-arms, for no weapons, that are thrown by the force of man, are capable of entering this animal's hide. If, when the old one is destroyed, there happens to be a cub, they seize and tame it: these animals are sometimes taken in pit-falls, covered with green branches, laid in those paths which the rhinoceros makes in going from the forest to the river side.

There are some varieties in this animal, as in most others; some of them are found in Africa with a double horn, one growing above the other; this weapon, if considered in itself, is one of the strongest, and most dangerous, that Nature furnishes to any part of the animal creation. The horn is entirely solid, formed of the hardest bony substance, growing from the upper maxillary bone, by so strong an apophyse, as seemingly to make but one part with it. Many are the medicinal virtues that are ascribed to this horn, when taken in powder, but these qualities have been attributed to it without any real foundation, and make only a

small part of the many fables which this extraordinary animal has given rise to.

## CHAP. X.

### *Of the Hippopotamos. -*

**T**HE Hippopotamos is an animal as large, and not less formidable, than the rhinoceros; its legs are shorter, and its head rather more bulky, than that of the animal last described. We have had but few opportunities in Europe of examining this formidable creature minutely, its dimensions, however, have been pretty well ascertained, by a description, given us by Zerenghi, an Italian surgeon, who procured one of them to be killed on the banks of the river Nile. By his account it appears, that this terrible animal, which chiefly resides in the waters of that river, is above seventeen feet long, from the extremity of the snout to the insertion of the tail; above sixteen feet in circumference round the body, and above seven feet high: the head is near four feet long, and above nine feet in circumference. The jaws open about two feet wide, and the cutting teeth, of which it hath four in each jaw, are above a foot long.

Its feet in some measure resemble those of  
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the elephant, and are divided into four parts. The tail is short, flat and pointed; the hide is amazing thick, and though not capable of turning a musket-ball, is impenetrable to the blow of a sabre; the body is covered over with a few scattered hairs, of a whitish colour. The whole figure of the animal is something between that of an ox and an hog, and its cry is something between the bellowing of the one and the grunting of the other.

This animal, however, though so terribly furnished for war, seems no way disposed to make use of its prodigious strength against an equal enemy; it chiefly resides at the bottom of the great rivers and lakes of Africa, the Nile, the Niger, and the Zara; there it leads an indolent kind of life, and seems seldom disposed for action, except when excited by the calls of hunger. Upon such occasions, three or four of them are often seen at the bottom of a river, near some cataract, forming a kind of line, and seizing upon such fish as are forced down by the violence of the stream. In that element they pursue their prey with great swiftness and perseverance; they swim with much force, and remain at the bottom for thirty or forty minutes without rising to take breath. They traverse the bottom of the stream, as if walking upon land, and make a terrible devastation where they find plenty of prey. But it often happens,

that this animal's fishy food is not supplied in sufficient abundance, it is then forced to come upon land, where it is an awkward and unwieldy stranger; it moves but slowly, and, as it seldom forsakes the margin of the river, it sinks at every step it takes; sometimes, however, it is forced, by famine, up into the higher grounds, where it commits dreadful havock among the plantations of the helpless natives, who see their possessions destroyed, without daring to resist their invader. Their chief method is, by lighting fires, striking drums, and raising a cry, to frighten it back to its favourite element; and, as it is extremely timorous upon land, they generally succeed in their endeavours. But if they happen to wound, or otherways irritate it too closely, it then becomes formidable to all that oppose it: it overturns whatever it meets, and brings forth all its strength, which it seemed not to have discovered before that dangerous occasion. It possesses the same inoffensive disposition in its favourite element, that it is found to have upon land; it is never found to attack the mariners in their boats, as they go up or down the stream; but should they inadvertently strike against it, or otherwise disturb its repose, there is much danger of its sending them, at once, to the bottom. "I have seen," says a mariner, as we find it in Dampier, "one of these animals open its jaws, and seizing any boat between his  
"teeth,

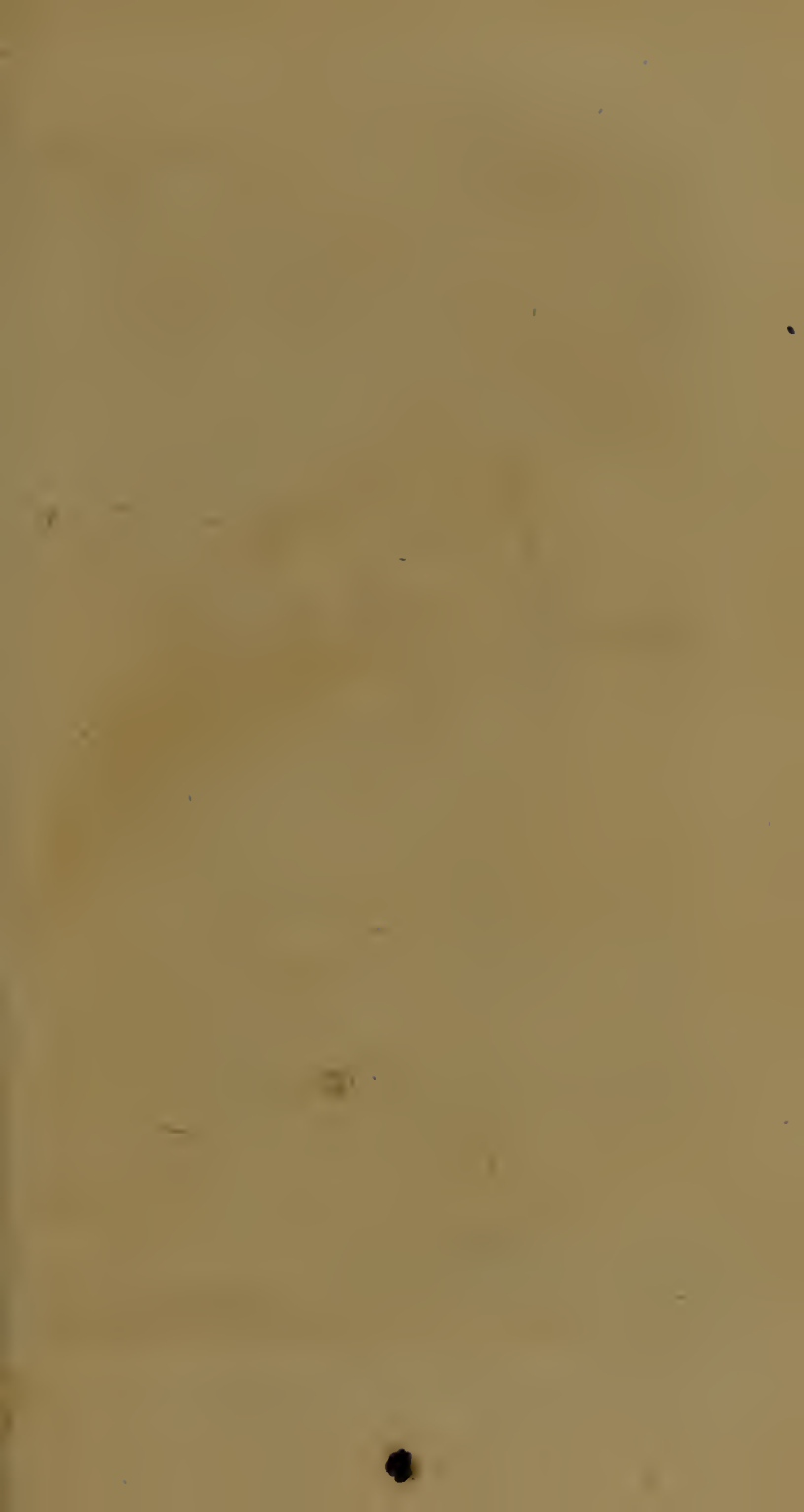
“teeth, at once bite and sink it to the bottom. “I have seen it, upon another occasion, place itself under one of our boats, and rising under it, overset it with six men which were in it; who, however, happily received no other injury.” Such is the great strength of this animal; and from hence, probably, the imagination has been willing to match it in combat against others more fierce, and equally formidable. The crocodile and shark have been said to engage with it, and yield an easy victory; but as the shark is only found at sea, and the hippopotamos never ventures beyond the mouth of fresh-water rivers, it is most probable that these engagements never occurred; it sometimes happens, indeed, that the princes of Africa amuse themselves with combats, on their fresh-water lakes, between this and other formidable animals; but whether the rhinoceros or the crocodile are of this number, we have not been particularly informed. If this animal be attacked at land, and finding itself incapable of vengeance from the swiftness of its enemy, it immediately returns to the river, where it plunges in head foremost, and after a short time rises to the surface, loudly bellowing, either to invite or intimidate the enemy; but though the negroes will venture to attack the shark, or the crocodile, in their natural element, and there destroy them, they are too well apprised

of the force of the hippopotamos to engage it; this animal, therefore, continues the uncontrouled master of the river, and all others fly from its approach, and become an easy prey.

As the hippopotamos lives upon fish and vegetables, so it is probable the flesh of terrestrial animals may be equally grateful; the natives of Africa assert, that it has often been found to devour children and other creatures that it was able to surprize upon land; yet as it moves but slowly, almost every creature, endowed with a common share of swiftness, is able to escape it; and this animal, therefore, seldom ventures from the river side, but when pressed by the necessities of hunger, or of bringing forth its young.

The female always comes upon land to bring forth, and it is supposed that she seldom produces above one at a time; upon this occasion these animals are particularly timorous, and dread the approach of a terrestrial enemy; the instant the parent hears the slightest noise, it dashes into the stream, and the young one is seen to follow it with equal alacrity.

The young ones are said to be excellent eating; but the negroes, to whom nothing that has life comes amiss, find an equal delicacy in the old. Dr. Pococke has seen their flesh sold in the shambles, like beef; and it is said, that their breast, in particular, is as delicate eating





De Vrocht.

by G. Kneller sculp.

The Camelopard.



as veal. As for the rest, these animals are found in great numbers, and as they produce very fast, their flesh might supply the countries where they are found, could those barbarous regions produce more expert huntsmen; it may be remarked, however, that this creature, which was once in such plenty at the mouth of the Nile, is now wholly unknown in Lower Egypt, and is no where to be found in that river, except above the cataracts.

## C H A P. XI.

*The Camelopard.*

WERE we to be told of an animal so tall, that a man on horseback could with ease ride under its belly, without stooping, we should hardly give credit to the relation; yet, of this extraordinary size is the camelopard, an animal that inhabits the deserts of Africa, and the accounts of which are so well ascertained, that we cannot deny our assent to their authority. It is no easy matter to form an adequate idea of this creature's size, and the oddity of its formation. It exhibits somewhat the slender shape of the deer, or the camel, but destitute of their symmetry, or their easy power of motion. The head somewhat resembles that of the deer, with two round horns, near a foot long,

long, and which, it is probable, it sheds as deer are found to do; its neck resembles that of an horse; its legs and feet, those of the deer; but with this extraordinary difference, that the fore legs are near twice as long as the hinder. As these creatures have been found eighteen feet high, and ten from the ground to the top of the shoulders, so allowing three feet for the depth of the body, seven feet remains, which is high enough to admit a man mounted upon a middle-sized horse. The hinder part, however, is much lower, so that when the animal appears standing, and at rest, it has somewhat the appearance of a dog sitting; and this formation of its legs gives it an awkward and a laborious motion; which, though swift, must yet be tiresome. For this reason, the camelopard is an animal very rarely found, and only finds refuge in the most internal desert regions of Africa. The dimensions of a young one, as they were accurately taken by a person, who examined its skin, that was brought from the Cape of Good Hope, were found to be as follow: the length of the head, was one foot eight inches; the height of the fore leg, from the ground to the top of the shoulder, was ten feet; from the shoulder to the top of the head, was seven; the height of the hind leg, was eight feet five inches; and from the top of the shoulder to the insertion of the tail, was just seven feet long.

No animal, either from its disposition, or its formation, seems less fitted for a state of natural hostility; its horns are blunt, and even knobbed at the ends; its teeth are made entirely for vegetable pasture; its skin is beautifully speckled with white spots, upon a brownish ground; it is timorous and harmless, and notwithstanding its great size, rather flies from, than resists the slightest enemy; it partakes very much of the nature of the camel, which it so nearly resembles; it lives entirely upon vegetables, and when grazing, is obliged to spread its fore legs very wide, in order to reach its pasture; its motion is a kind of pace, two legs on each side moving at the same time, whereas in other animals they move transversely. It often lies down with its belly to the earth, and, like the camel, has a callous substance upon its breast, which, when reposed, defends it from injury. This animal was known to the ancients, but has been very rarely seen in Europe. One of them was sent from the East to the emperor of Germany, in the year 1559, but they have often been seen tame at Grand Cairo, in Egypt; and I am told there are two there at present. When ancient Rome was in its splendour, Pompey exhibited, at one time, no less than ten, upon the theatre. It was the barbarous pleasure of the people, at that time, to see the most terrible, and the most extraordinary

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nary animals produced in combat against each other. The lion, the lynx, the tiger, the elephant, the hippopotamos, were all let loose promiscuously, and were seen to inflict indiscriminate destruction.

## C H A P. XII.

### *The Camel, and the Dromedary.*

THESE names do not make two distinct kinds, but are only given to a variety of the same animal, which has, however, subsisted time immemorial. The principal, and perhaps the only sensible difference, by which those two races are distinguished, consists in this, that the camel has two bunches upon his back, whereas the dromedary has but one; the latter also, is neither so large, nor so strong, as the camel. These two races, however, produce with each other, and the mixed breed formed between them is considered the best, the most patient, and the most indefatigable of all the kind.

Of the two varieties, the dromedary is by far the most numerous; the camel being scarcely found except in Turkey, and the countries of the Levant, while the other is found spread over all the deserts of Arabia, the southern parts of Africa, Persia, Tartary, and a great part of the eastern

eastern Indies. Thus, the one inhabits an immense tract of country, the other, in comparison, is confined to a province; the one inhabits the sultry countries of the torrid zone, the other delights in a warm, but not a burning climate; neither, however, can subsist, or propagate, in the variable climates towards the north, they seem formed for those countries, where shrubs are plenty and water scarce; where they can travel along the sandy desert, without being impeded by rivers, and find food at expected distances; such a country is Arabia, and this, of all others, seems the most adapted to the support, and production of this animal.

The camel is the most temperate of all animals, and it can continue to travel several days without drinking. In those vast deserts, where the earth is every where dry and sandy, where there are neither birds nor beasts, neither insects nor vegetables, where nothing is to be seen but hills of sand and heaps of bone, there the camel travels, posting forward, without requiring either drink or pasture, and is often found six or seven days without any sustenance whatsoever. Its feet are formed for travelling upon sand, and utterly unfit for moist or marshy places; the inhabitants, therefore, find a most useful assistant in this animal, where no other could subsist, and by its means cross those deserts with  
safety,

safety, which would be unpassable by any other method of conveyance.

An animal, thus formed for a sandy and desert region, cannot be propagated in one of a different nature. Many vain efforts have been tried to propagate the camel, in Spain; they have been transported into America, but have multiplied in neither. It is true, indeed, that they may be brought into these countries, and may, perhaps, be found to produce there, but the care of keeping them is so great, and the accidents to which they are exposed, from the changeableness of the climate, are so many, that they cannot answer the care of keeping. In a few years also, they are seen to degenerate; their strength and their patience forsake them; and instead of making the riches, they become the burthen of their keepers.

But it is very different in Arabia, and those countries where the camel is turned to useful purposes. It is there considered as a sacred animal, without whose help the natives could neither subsist, traffic, or travel; its milk makes a part of their nourishment; they feed upon its flesh, particularly when young; they clothe themselves with its hair, which it is seen to molt regularly once a year, and if they fear an invading enemy, their camels serve them in flight, and in a single day they are known to  
travel

travel above an hundred miles. Thus, by means of the camel, an Arabian finds safety in his deserts; all the armies upon earth might be lost in the pursuit of a flying squadron of this country, mounted upon their camels, and taking refuge in solitudes where nothing interposes to stop their flight, or to force them to wait the invader. Nothing can be more dreary than the aspect of these sandy plains, that seem entirely forsaken of life and vegetation: wherever the eye turns, nothing is presented but a sterile and dusty soil, sometimes torn up by the winds, and moving in great waves along, which, when viewed from an eminence, resemble less the earth than the ocean; here and there a few shrubs appear that only teach us to wish for the grove—that remind us of the shade in these sultry climates, without affording its refreshment; the return of morning, which in other places carries an idea of cheerfulness, here serves only to enlighten the endless and dreary waste, and to present the traveller with an unfinished prospect of his forlorn situation; yet in this chasm of nature, by the help of the camel, the Arabian finds safety and subsistence. There are here and there found spots of verdure, which, though remote from each other, are, in a manner, approximated by the labour and industry of the camel. Thus these deserts, which present the stranger with nothing but objects of  
danger

danger and sterility, afford the inhabitant protection, food, and liberty. The Arabian lives independent and tranquil in the midst of his solitudes; and, instead of considering the vast solitudes spread round him as a restraint upon his happiness, he is, by experience, taught to regard them as the ramparts of his freedom.

The camel is easily instructed in the methods of taking up and supporting his burthen; their legs, a few days after they are produced, are bent under their belly; they are in this manner loaded, and taught to rise; their burthen is every day thus encreased, by insensible degrees, till the animal is capable of supporting a weight adequate to its force; the same care is taken in making them patient of hunger and thirst: while other animals receive their food at stated times, the camel is restrained for days together, and these intervals of famine are encreased in proportion as the animal seems capable of sustaining them. By this method of education, they live five or six days without food or water; and their stomach is formed most admirably by Nature, to fit them for long abstinence: besides the four stomachs, which all animals have, that chew the cud, (and the camel is of the number) it has a fifth stomach, which serves as a reservoir, to hold a greater quantity of water than the animal has an immediate occasion for. It is of a sufficient capacity to contain a  
large



large quantity of water, where the fluid remains without corrupting, or without being adulterated by the other aliments: when the camel finds itself pressed with thirst, it has here an easy resource for quenching it; it throws up a quantity of this water by a simple contraction of the muscles, into the other stomachs, and this serves to macerate its dry and simple food; in this manner, as it drinks but seldom, it takes in a large quantity at a time; and travellers, when straitened for water, have been often known to kill their camels for that which they expected to find within them.

In Turkey, Persia, Arabia, Barbary, and Egypt, their whole commerce is carried on by means of camels, and no carriage is more speedy, and none less expensive in these countries. Merchants and travellers unite themselves into a body, furnished with camels, to secure themselves from the insults of the robbers that infest the countries in which they live. This assemblage is called a caravan, in which the numbers are sometimes known to amount to above ten thousand, and the number of camels is often greater than those of the men: each of these animals is loaded according to his strength, and he is so sensible of it himself, that when his burthen is too great, he remains still upon his belly, the posture in which he is loaden, refusing to rise, till his burthen be lessened or taken away.

In

In general, the large camels are capable of carrying a thousand weight, and sometimes twelve hundred; the dromedary from six to seven. In these trading journies, they travel but slowly, their stages are generally regulated, and they seldom go above thirty, or at most about five and thirty miles a day. Every evening, when they arrive at a stage, which is usually some spot of verdure, where water and shrubs are in plenty, they are permitted to feed at liberty; they are then seen to eat as much in an hour, as will supply them for twenty-four, they seem to prefer the coarsest weeds to the softest pasture, the thistle, the nettle, the casia, and other prickly vegetables, are their favourite food; but their drivers take care to supply them with a kind of paste composition, which serves as a more permanent nourishment. As these animals have often gone the same track, they are said to know their way precisely, and to pursue their passage when their guides are utterly astray: when they come within a few miles of their baiting-place, in the evening, they sagaciously scent it at a distance, and encreasing their speed, are often seen to trot with vivacity to their stage.

The patience of this animal is most extraordinary; and it is probable, that its sufferings are great, for when it is loaded, it sends forth most lamentable cries, but never offers to resist the  
tyrant

tyrant that oppresses it. At the slightest sign it bends its knees and lies upon its belly, suffering itself to be loaded in this position; by this practice the burthen is more easily laid upon it, than if lifted up while standing; at another sign it rises with its load, and the driver getting upon its back, between the two panniers, which, like hampers, are placed upon each side, he encourages the camel to proceed with his voice and with a song. In this manner the creature proceeds contentedly forward, with a slow uneasy walk, of about four miles an hour, and when it comes to its stage, lies down to be unloaded, as before.

Mr. Buffon seems to consider the camel to be the most domesticated of all other creatures, and to have more marks of the tyranny of man imprinted on its form. He is of opinion, that this animal is not now to be found in a state of nature, that the humps on its back, the callosities upon its breast, and its legs, and even the great reservoir for water, are all marks of long servitude and domestic constraint. The deformities he supposes to be perpetuated by generation, and what at first was accident at last becomes nature. However this be, the humps upon the back grow large in proportion as the animal is well fed, and if examined, they will be found composed of a substance not unlike the udder of a cow.

The

The inhabitants generally leave but one male to wait on ten females, the rest they castrate; and though they thus become weaker, they are more manageable and patient. The female receives the male in the same position as when these animals are loaded; she goes with young for about a year, and, like all other great animals, produces but one at a time. The camel's milk is abundant and nourishing, and mixed with water makes a principal part of the beverage of the Arabians. These animals begin to engender at three years of age, and they ordinarily live from forty to fifty years. The genital part of the male resembles that of the bull, but is placed pointing backwards, so that its urine seems to be ejected in the manner of the female. This, as well as the dung, and almost every part of this animal, is converted to some useful purpose by the keepers. Of the urine sal ammoniac is made; and of the dung, litter for the horses, and fire for the purpose of dressing their victuals. Thus, this animal alone seems to comprise within itself a variety of qualities, any one of which serves to render other quadrupedes absolutely necessary for the welfare of man; like the elephant, it is manageable and tame; like the horse, it gives the rider security; it carries greater burthens than the ox, or the mule; and its milk is furnished in as great abundance as that of the cow; the flesh

of the young ones is supposed to be as delicate as veal; their hair is more beautiful, and more in request than wool; while even of its very excrements, no part is useless.

## C H A P. XIV.

*The Lama.*

AS almost all the quadrupedes of America are smaller than the resembling ones of the ancient continent, so the Lama, which may be considered as the camel of the new world, is every way less than that of the old. This animal, like that described in the former chapter, stands high upon its legs, has a long neck, a small head, and resembles the camel, not only in its natural mildness, but its aptitude for fervitude, its moderation, and its patience. The Americans early found out its useful qualities, and availed themselves of its labours: like the camel, it serves to carry goods over places inaccessible to other beasts of burthen; like that it is obedient to its driver, and often dies under, but never resists his cruelty.

Of these animals, some are white, others black, but they are mostly brown; its face resembles that of the camel, and its height is about equal to that of an ass. They are not found in the ancient continent, but entirely be-

long to the new; nor are they found spread over all America, but are found chiefly upon those mountains that stretch from New Spain to the Streights of Magellan. They inhabit the highest regions of the globe, and seem to require purer air than animals of a lower situation are found to enjoy. Peru seems to be the place where they are found in greatest plenty. In Mexico, they are introduced rather as curiosities than beasts of burthen; but in Potosi, and other provinces of Peru, they make the chief riches of the Indians and Spaniards who rear them: their flesh is excellent food; their hair, or rather wool, may be spun into beautiful cloathing, and they are capable, in the most rugged and dangerous ways, of carrying burthens not exceeding an hundred weight, with the greatest safety. It is true indeed that they go but slowly, and seldom above fifteen miles a day; their tread is heavy, but sure; they descend precipices, and find footing among the most craggy rocks, where even men can scarce accompany them; they are, however, but feeble animals, and after four or five days labour, they are obliged to repose for a day or two. They are chiefly used in carrying the riches of the mines of Potosi; and we are told that there are above three hundred thousand of these animals in actual employ.

This

This animal, as was said before, is above three feet high, and the neck is three feet long, the head is small and well proportioned, the eyes large, the nose long, the lips thick, the upper divided, and the lower a little depending; like all those animals that feed upon grass, it wants the upper cutting teeth; the ears are four inches long, and move with great agility; the tail is but five inches long, it is small, strait, and a little turned up at the end; it is cloven-footed, like the ox, but it has a kind of spear-like appendage behind, which assists it in moving over precipices and rugged ways; the wool on the back is short, but long on the sides and the belly; it resembles the camel in the formation of the genital parts in the male, so that it makes urine backwards; it couples also in the same manner, and though it finds much difficulty in the action, it is said to be much inclined to venery. A whole day is often passed, before this necessary business can be completed, which is spent in growling, quarrelling, and spitting at each other; they seldom produce above one at a time, and their age never extends above ten or twelve years at farthest.

Though the lama is no way comparable to the camel, either for size, strength, or perseverance, yet the Americans find a substitute in it, with which they seem perfectly contented.

It appears formed for that indolent race of masters, which it is obliged to serve; it requires no care, nor no expence in the attending or providing for its sustenance; it is supplied with a warm covering, and therefore does not require to be housed; satisfied with vegetables and grass, it wants neither corn nor hay to subsist it; it is not less moderate in what it drinks, and exceeds even the camel in temperance. Indeed, of all other creatures, it seems to require water least, as it is supplied by Nature with saliva in such large quantities, that it spits it out on every occasion: this saliva seems to be the only offensive weapon that the harmless creature has to testify its resentment. When overloaded, or fatigued, and driven on by all the torturing acts of its keeper, it falls on its belly, and pours out against him a quantity of this fluid; which, though probably no way hurtful, the Indians are much afraid of. They say, that wherever it falls, it is of such an acrimonious nature, that it will either burn the skin, or cause very dangerous eruptions.

Such are these animals in their domestic state; but as they are found wild in very great numbers, they exhibit marks of great force and agility, in their state of nature. The stag is scarcely more swift, or the goat, or the sham-moy a better climber. All its shapes are more delicate and strong; its colour is tawney, and its



its wool is but short; in their native forests, they are gregarious animals, and are often seen in flocks of two or three hundred at a time. When they perceive a stranger, they regard him at first with astonishment, without marking any fear or surprize; but shortly, as if by common consent, they snuff up the air, somewhat like horses, and at once, by a common flight, take refuge on the tops of the mountains: they are fonder of the northern than the southern side of the Andes; they often climb above the snowy tracts of the mountain, and seem vigorous in proportion to the coldness of their situation. The natives hunt the wild lama for the sake of its fleece. If the dogs surprize one upon the plain, they are generally successful; but if once the lama obtains the rocky precipice of the mountain, the hunters are obliged to desist in their pursuit.

The lama seems to be the largest of the camel kind in America; there are others, which are called guanacoes and pacos, that are smaller and weaker, but endued with the same nature, and formed pretty much in the same manner. They seem to bear the same proportions to each other, that the horse does to the ass, and are employed with the same degree of subordination. The wool, however, of the paco, seems to be the most valuable, and it is formed into stuffs, not inferior to silk, either in price

or beauty. The natural colour of the paco is that of a dried rose-leaf; the manufacturers seldom give its wool any other dye, but form it into quilts and carpets, which exceed those from the Levant. This manufacture forms a very considerable branch of commerce in South America, and probably too, might be extended to Europe, were the beauty and the durability of what is thus wrought up sufficiently known.

## C H A P. XV.

### *The Nyl-ghau.*

**T**HIS animal, the name of which is pronounced Nylgaw, is a native of India, and has but lately been imported into Europe; it seems to be of a middle nature, between the cow and the deer, and carries the appearance of both in its form. In size, it is as much smaller than the one, as it is larger than the other; its body, horns, and tail, are not unlike those of a bull; and the head, neck, and legs, are very like those of a deer. The colour, in general, is ash or grey, from a mixture of black hairs and white; all along the ridge or edge of the neck, the hair is blacker, larger, and more erect, making a short thin and upright mane. Its horns are seven inches long, they

they are six inches round at the foot; growing smaller by degrees, they terminate in a blunt point. The bluntness of these, together with the form of its head and neck, might incline us to suppose it was of the deer kind; but, as it never sheds its horns, it has a greater affinity to the cow.

From the disposition of that brought over to this country, which has been very accurately and minutely described by Dr. Hunter, their manners were harmless and gentle. Although in its native wildness, it is said to be fierce and vicious, this seemed pleased with every kind of familiarity, and always licked the hand that stroked, or gave it bread, and never once attempted to use its horns offensively; it seemed to have much dependance on its organs of smell, and snuffed keenly, and with noise, whenever any person came within sight; it did so likewise, when any food or drink was brought to it; and was so easily offended with smells, or so cautious, that it would not taste the bread which was offered, when the hand happened to smell strong of turpentine. Its manner of fighting is very particular. It was observed, at Lord Clive's, where two males were put into a little inclosure, that, while they were at a considerable distance from each other, they prepared for the attack, by falling upon their fore-knees, then they shuffled towards each other, with a quick pace,

keeping still upon their fore-knees, and when they were come within some yards, they made a spring, and darted against each other. The intrepidity and force with which they dart against any object, appeared by the strength with which one of them attempted to overturn a poor labourer who unthinkingly stood on the outside of the pales of its inclosure. The nyl-ghau, with the quickness of lightning, darted against the wood-work with such violence, that he broke it to pieces, and broke off one of his horns close to the root, which occasioned the animal's death. At all the places in India where we have settlements, they are considered as rarities, and brought from the distant interior parts of the country. The Emperor, sometimes, kills them in such numbers, as to distribute quarters of them to all his omrahs; which shews that they are internally wild and in plenty, and esteemed good or delicious food. The nyl-ghaus, which have been brought to England, have been most, if not all of them, received from Surat or Bombay; and they seem to be less uncommon in that part of India, than in Bengal; which gives room for a conjecture, that they may be indigenious, perhaps, in the province of Guzarat, one of the most western and the most considerable of the Hindostan empire, lying to the northward of Surat, and stretching away to the Indian ocean.





*De Sève del.*

*J. Taylor sculp.*

The Brown Bear.

## C H A P. XVI.

*The Bear.*

OF the Bear, there are three different kinds, the brown bear of the Alps, the black bear of North-America, which is smaller, and the great Greenland, or white bear. These, though different in their form, are no doubt of the same original, and owe their chief variations to food and climate. They have all the same habitudes, being equally carnivorous, treacherous, and cruel. It has been said indeed, that the black bear of America rejects animal food, but of the contrary I am certain, as I have often seen the young ones, which are brought over to London, prefer flesh to every kind of vegetable aliment.

The brown bear is properly an inhabitant of the temperate climates; the black finds subsistence in the northern regions of Europe and America, while the great white bear takes refuge in the most icy climates, and lives where scarce any other animal can find subsistence.

The brown bear\* is not only savage but solitary; he takes refuge in the most unfre-

\* Buffon.

quented parts, and the most dangerous precipices of uninhabited mountains. It chuses its den in the most gloomy parts of the forest, in some cavern that has been hollowed by time, or in the hollow of some old enormous tree. There it retires alone, and passes some months of the winter without provisions, or without ever stirring abroad. However, this animal is not entirely deprived of sensation, like the bat, or the dormouse, but seems rather to subsist upon the exuberance of its former flesh, and only feels the calls of appetite, when the fat it had acquired in summer begins to be entirely wasted away. In this manner, when the bear retires to its den, to hide for the winter, it is extremely fat, but at the end of forty or fifty days, when it comes forth to seek for fresh nourishment, it seems to have slept all its flesh away. It is a common report, that during this time they live by sucking their paws, which is a vulgar error that scarce requires confutation. These solitary animals couple in autumn, but the time of gestation with the female is still unknown; the female takes great care to provide a proper retreat for her young; she secures them in the hollow of a rock, and provides a bed of hay in the warmest part of the den; she brings forth in winter, and the young ones begin to follow her in spring. The male and female, by no means



means inhabit the same den; they have each their separate retreat, and seldom are seen together but upon the accessions of genial desire.

The voice of the bear is a kind of growl, interrupted with rage, which is often capriciously exerted; and though this animal seems gentle and placid to its master, when tamed; yet it is still to be distrusted, and managed with caution, as it is often treacherous and resentful without a cause.

This animal is capable of some degree of instruction. There are few but have seen it dance in awkward measures upon its hind feet, to the voice or the instrument of its leader; and it must be confessed, that the dancer is often found to be the best performer of the two. I am told, that it is first taught to perform in this manner, by setting it upon hot plates of iron, and then playing to it, while in this uneasy situation.

The bear, when come to maturity, can never be tamed; it then continues in its native fierceness, and though caged, still formidably impotent, at the approach of its keeper flies to meet him. But notwithstanding the fierceness of this animal, the natives in those countries where it is found, hunt it with great perseverance and alacrity. The least dangerous method of taking it is by intoxicating it, by throwing brandy upon honey, which it seems to be

chiefly fond of, and seeks for in the hollow of trees. In Canada, where the black bears are very common, and where their dens are made in trees, that are hollow towards the top, they are taken by setting fire to their retreats, which are often above thirty feet from the ground. The old one is generally seen first to issue from her den, and is shot by the hunters. The young ones, as they descend, are caught in a noose, and are either kept or killed for provision. Their paws are said to be a great delicacy, and their hams are well enough known at the tables of the luxurious here. Their fat also, which still preserves a certain degree of fluidity, is supposed to be an efficacious remedy in white or indolent tumours, though probably very little superior to hogs-lard.

The white Greenland bear differs greatly, both in figure and dimensions, from those already described; and though it preserves in general the external form of its more southern kindred, yet it grows to above three times the size. The brown bear is seldom above six feet long; the white bear is often known from twelve to thirteen. The brown bear is made rather strong and sturdy, like the mastiff; the Greenland bear, though covered with very long hair, and apparently bulky, is nevertheless more slender, both as to the head, neck, and body, and more inclining to the shape of  
the



*J. Sevré del.*

*J. Taylor sculp.*

The White Bear.



the grey-hound. In short, all the variations of its figure and its colour seem to proceed from the coldness of the climate where it resides, and the nature of the food it is supplied with.

The white bear seems the only animal, that by being placed in the coldest climate, grows larger than those that live in the temperate zones. All other species of animated nature diminish as they approach the poles, and seem contracted in their size, by the rigours of the ambient atmosphere; but the bear, being unmolested in these desolate climates, and meeting no animal, but what he can easily conquer, finding also a sufficient supply of fishy provisions, he grows to an enormous size; and as the lion is the tyrant of an African forest, so the bear remains undisputed master of the icy mountains in Spitzbergen and Greenland. When our mariners land upon those shores, in such parts as have not been frequented before, the white bears come down to view them with an aukward curiosity; they approach slowly, seeming undetermined whether to advance or retreat; and being naturally a timorous animal, they are only urged on by the conscious experience of their former victories; however, when they are shot at, or wounded, they endeavour to fly, or, finding that impracticable, they make a fierce and desperate resistance till they die.

As

As they live upon fish and seals, their flesh is too strong for food, and the captors have nothing but the skin to reward them, for the dangers incurred in the engagement.

The number of these animals that are found about the north-pole, if we consider the scarcity there of all other terrestrial creatures, is very amazing. They are not only seen at land, but often on ice-floats, several leagues at sea. They are often transported in this manner to the very shores of Iceland, where they no sooner land, but all the natives are in arms to receive them. It often happens, that when a Greenlander and his wife are paddling out at sea, by coming too near an ice-float, a white bear unexpectedly jumps into their boat, and if he does not upset it, sits calmly where he first came down, and like a passenger suffers himself to be rowed along. It is probable the poor little Greenlander is not very fond of his new guest, however he makes a virtue of necessity, and hospitably rows him to shore.

As this animal lives chiefly upon fish, seals, and dead whales, it seldom removes far from the shore. When forced by hunger, it often ventures into the deep, swims after seals, and devours whatever it can seize; it is however but a bad swimmer, and it is often hunted in this manner by boats, till it is fatigued, and at last destroyed. It often happens that a battle ensues

eniues between a bear and a morse or a whale ; as the latter are more expert in their own element, they generally prove victorious. However, when the bear can find a young whale, it repays him for the danger he incurs of meeting with the parent.

## C H A P. XVII.

*The Badger.*

**T**HE Badger's legs are so short, that its belly seems to touch the ground ; this however is but a deceitful appearance, as it is caused by the length of the hair, which is very long all over the body, and makes it seem much more bulky than it really is. It is a solitary stupid animal, that finds refuge remote from man, and digs itself a deep hole, with great assiduity. It seems to avoid the light, and seldom quits its retreat by day, only stealing out at night to find subsistence. It burrows in the ground very easily, its legs being short and strong, and its claws stiff and horny. As it continues to bury itself, it throws the earth behind it, to a great distance, and thus forms to itself a winding hole, at the bottom of which it remains in safety. As the fox is not so expert at digging into the earth, it often takes possession of that which has been quitted by the badger,

badger, and some say, forces it from its retreat, by laying its excrements at the mouth of the badger's hole.

This animal, however, is not long in making itself a new habitation, from which it seldom ventures far, as it flies but slowly, and can find safety only in the strength of its retreat. When it is surpris'd by the dogs at some distance from its hole, it then combats with desperate resolution; it falls upon its back, defends itself on every side, and seldom dies unrevenge'd in the midst of its enemies.

The badger, like the fox, is a carnivorous animal, and nothing that has life can come amiss to it. It sleeps the greatest part of its time, and thus, without being a voracious feeder, it still keeps fat, particularly in winter. They always keep their hole very clean, and when the female brings forth, she makes a comfortable warm bed of hay, at the bottom of her hole, for the reception of her young. She brings forth in summer, generally to the number of three or four, which she feeds at first with her milk, and afterwards with such petty prey as she can surprize. She seizes the young rabbits in their warren, robs birds nests, finds out where the wild bees have laid up their honey, and brings all to her expecting brood.

The young ones when taken are easily tamed, but the old still continues savage and incorrigible;



gible; the former, after a short time, play with the dogs, follow their master about the house, but seem of all other animals the most fond of the fire. They often approach it so closely, that they burn themselves in a dangerous manner. They are sometimes also subject to the mange, and have a gland under their tail, which scents pretty strongly. The poor of some countries eat their flesh; which, though fat, is at best but rank and ill tasted.

## CHAPTER XVIII.

### *The Tapir.*

**T**HERE seems to be a rude, but inferior resemblance between many animals of the old and the new world. The congar of America resembles the tiger in natural ferocity, though far inferior in its dimensions. The lama bears some affinity to the camel, but is far behind it in strength and utility. The Tapir may be considered as the hippopotamos of the New Continent, but degraded both as to its size and ferocity.

This animal bears some distant resemblance in its form to a mule. It has a long snout, which it lengthens or contracts at pleasure. Its ears are small, long, and pendent. Its neck and tail are short, and its claws strong and firm,  
of

of which it has four upon each foot. Its skin is thick, and covered with brown hair, and the natives make shields of it, which cannot be pierced by an arrow.

This animal may in some measure be termed amphibious, as it chiefly resides in the water. It differs however from all others of this kind, in feeding entirely upon vegetables, and not making this element the place of its depredations. It feeds upon the pastures by the river side, and as it is very timorous, the instant it hears the least noise, it plunges into the stream. They are greatly sought after by the natives, as their flesh is considered as a delicacy, and thought by some not inferior to beef.

## C H A P. XIX.

### *The Raccoon.*

**T**HE Raccoon, which some authors have called the Jamaica rat, is about the size of a small badger; its body is short and bulky; its fur is fine, long, and thick, blackish at the surface, and grey towards the bottom; the nose is rather shorter, and more pointed than that of a fox; the eyes large and yellow, the teeth resembling those of a dog, the tail thick, but tapering towards a point, regularly marked with rings of black, and at least as long as the body; the



Levee del.

J. Taylor sculp.

The Raccoon.



the fore-feet are much shorter than the hinder, both armed with five sharp claws, with which, and his teeth, the animal makes a vigorous resistance. Like the squirrel, it makes use of its paws to hold its food while eating, but it differs from the monkey kind, which use but one hand on those occasions, whereas the racoon and the squirrel use both, as, wanting the thumb, their paws singly are unfit for grasping or holding; though this animal be short and bulky, it is however very active; its pointed claws enable it to climb trees with great facility; it runs on the trunk with the same swiftness that it moves upon the plain, and sports among the most extreme branches with great agility, security, and ease; it moves forward chiefly by bounding, and though it proceeds in an oblique direction, it has speed enough most frequently to escape its pursuers.

This animal is a native of the southern parts of America, nor have any travellers mentioned its being found in the ancient continent. But in the climates of which it is a native, it is found in noxious abundance, particularly in Jamaica, where it keeps in the mountains, and where it often descends to feed upon the plantations of sugar-cane. The planters of these climates consider these animals as one of their greatest miseries; they have contrived various methods of destroying them, yet still they propagate

pagate in such numbers, that neither traps nor fire-arms can set them free ; so that a swarm of these famished creatures are found to do more injury in a single night, than the labours of a month can repair.

But though, when wild, they are thus troublesome, in a state of tameness no animal is more harmless or amusing ; they are capable of being instructed in various little amusing tricks. The racoon is playful and cleanly, and is very easily supported ; it eats of every thing that is given it, and if left to itself, no cat can be a better provider ; it examines every corner, eats of all flesh, either boiled or raw, eggs, fruits, or corn, insects themselves cannot escape it, and if left at liberty in a garden, it will feed upon snails, worms, and beetles ; but it has a particular fondness for sweets of every kind, and to be possessed of these in its wild state, it incurs every danger. Though it will eat its provisions dry, it will for choice dip them in water if it happens to be in the way ; it has one peculiarity which few other animals have been found to possess, it drinks as well by lapping, like the dog, as by sucking like the horse.

## C H A P. XX.

*The Coatimondi.*

THE first peculiarity with which this animal strikes the spectator, is the extreme length of its snout, which in some measure resembles that of the hog, but elongated to a surprising degree; it bears some distant resemblance to the animal last described, except that the neck and the body are longer, the fur shorter, and the eyes smaller; but its principal distinction, as was said before, consists in the shape of its nose, the upper jaw being an inch longer than the lower, and the snout, which is moveable in every division, turning up at the end. Like the racoon, it sits up on the hinder legs with great ease, and in this position, with both paws, carries the food to its mouth.

This animal is very subject to eat its own tail, which is rather longer than its body, but this strange appetite is not peculiar to the coati alone; the mococo, and some of the monkey kinds, do the same, and seem to feel no pain in wounding a part of the body so remote from the center of circulation.

It seems possess'd of the same playful qualities, and indiscriminate appetites, with the animal described in the last chapter; if left at liberty

in a state of tameness, it will pursue the poultry, and destroy every living thing that it has strength to conquer; though it is playful with its keeper, yet it seems obstinately bent against receiving any instruction, and neither threats nor caresses can induce it to practise any arts to which it is not naturally inclined. When it sleeps, it rolls itself up in a lump, and in that position often continues for fourteen or fifteen hours together.

## C H A P. XXI.

### *Of the Ant-Bear.*

**T**HERE are many animals that live upon ants in Africa and America; the pangolin or scaly lizard of Guinea may be considered among this number; but there are a greater variety in America, which makes those minute insects their only subsistence. Though they are of different figures and sizes, yet in general they go under one common name of the Ant-Bear; the peculiar length and slenderness of their snout, their singular appetites, and their manner of taking their prey, striking us too strongly to attend to the minute differences of their size or form.

They have been classed by Mr. Buffon into the larger Tamandua, the smaller Tamandua,







*De more del.*

*J. Taylor sculp.*

The Ant Bear

and the Ant-eater. The longest of this kind is four feet long, from the tip of the snout to the insertion of the tail; their legs are short, and armed with four strong claws; their tail is long and tufted, and the animal often throws it on its back like the squirrel. The second of this kind is not above eighteen inches long; the tail is without hair, and it sweeps the ground as the animal moves. The ant-eater, which is the third variety, is still smaller than either of the former, as it is not above seven inches from the tip of the snout to the insertion of the tail. The two former are of a brown dusky colour, but this of a beautiful reddish, mixed with yellow; though they differ in figure, they all resemble each other in one peculiarity, which is the extreme slenderness of their snout, and the amazing length of their tongue.

The snout is produced in so disproportionate a manner, that the length of it makes near a fourth part of the whole figure. A horse has one of the longest heads of any animal we know, and yet the ant-bear has one above twice as long in proportion to its body. The snout of this animal is almost round and cylindrical; it is extremely slender, and is scarce thicker near the eyes than at its extremity. The mouth is very small, the nostrils are very close to each other, the eyes are little in proportion to the length of the nose, the neck is short, the  
tongue

tongue is extremely long, slender, and flattened on both sides; this it keeps generally doubled up in the mouth, and is the only instrument by which it finds subsistence; for the whole of this tribe are entirely without teeth, and find safety only in the remoteness and security of their retreat.

If we examine through the various regions of the earth, we shall find that all the most active, sprightly, and useful quadrupedes have been gathered round man, and either served his pleasures, or still maintained their independence by their vigilance, their cunning, or their industry. It is in the remote solitudes that we are to look for the helpless, the deformed, and the monstrous births of nature. These wretched animals being incapable of defending themselves, either by their agility or their natural arms, fall a prey to every creature that attacks them; they therefore retire for safety into the darkest forests, or the most desert mountains, where none of the bolder or swifter animals chuse to reside.

It may well be supposed that an animal so helpless as the ant-bear is, with legs too short to fit it for flight, and unprovided with teeth to give it a power of resistance, is neither numerous, nor often seen; its retreats are in the most barren and uncultivated parts of South America. It is a native only of the new continent,



W. A. C. del.

J. Taylor sculp.

The Ant Bear.



continent, and entirely unknown to the old. It lives chiefly in the woods, and hides itself under the fallen leaves. It seldom ventures from its retreat; and the industry of an hour supplies it with sufficient food for several days together. Its manner of procuring its prey is one of the most singular in all natural history: as its name implies, it lives entirely upon ants and insects; these, in the countries where it is bred, are found in the greatest abundance, and often build themselves hills five or six feet high, where they live in community. When this animal approaches an ant-hill, it creeps slowly forward on its belly, taking every precaution to keep itself concealed, till it comes within a proper distance of the place where it intends to make its banquet; there lying closely along at its length, it thrusts forth its round red tongue, which is often two feet long, across the path of these busy insects, and there lets it lie motionless for several minutes together. The ants of that country, some of which are half an inch long, considering it as a piece of flesh accidentally thrown before them, come forth and swarm upon it in great numbers, but wherever they touch, they stick; for this instrument is covered with a slimy fluid, which, like bird-lime, entangles every creature that lights upon it. When therefore the ant-bear has found a sufficient number for one morsel, it instantly draws in the tongue, and devours

them all in a moment; after which it still continues in its position, practising the same arts until its hunger is entirely appeased; it then retires to its hiding-place once more, where it continues in indolent existence till again excited by the calls of hunger.

Such is the luxurious life of a creature, that seems of all others the most helpless and deformed. It finds safety in its hiding-places from its enemies, and an ample supply in some neighbouring ant-hill for all its appetites. As it only tries to avoid its pursuers, it is seldom discovered by them; yet helpless as this animal is, when driven to an extremity, though without teeth, it will fight with its claws, with great obstinacy. With these arms alone it has often been found to oppose the dog, and even the jaguar. It throws itself upon its back, fastens upon its enemy with all its claws, sticks with great strength and perseverance, and even after killing its invader, which is sometimes the case, does not quit its hold, but remains fastened upon him with vindictive desperation.







*De Sivo del.*

*J. Taylor sculp.*

The Sloth.

## C H A P. XXII.

*Of the Sloth.*

OF the Sloth there are two different kinds, distinguished from each other by their claws; the one, which in its native country is called the Unan, having only two claws upon each foot, and being without a tail; the other, which is called the Ai, having a tail, and three claws upon each foot. The unan has the snout longer, the ears more apparent, and the fur very different from the other. It differs also in the number of its ribs, this having forty-six; while the ai has but twenty-eight. These differences, however, though very apparent, have been but little regarded in the description of two animals which so strongly resemble each other in the general out-lines of their figure, in their appetites, and their helpless formation.

They are both, therefore, described under the common appellation of the sloth, and their habitudes well deserve our wonder and curiosity. Nature seems cramped and constrained in their formation: other animals are often indolent from choice, these are slow from necessity; the ai, from which I shall take my description, and from which the other differs only in

the slight particulars above-mentioned, and in being rather more active, is of about the size of a badger. Its fur is coarse and staring, somewhat resembling dried grass; the tail very short, and scarce appearing; the mouth extending from ear to ear; the eye dull and heavy; the feet armed with three claws each, and made so short, and set on so awkwardly, that a few paces is often the journey of a week; but though the feet are short, they are still longer than its legs, and these proceed from the body in such an oblique direction, that the sole of the foot seldom touches the ground. When the animal therefore is compelled to make a step forward, it scrapes on the back of the nails along the surface, and wheeling the limbs circularly about, yet still touching the ground, it at length places its foot in a progressive position; the other three limbs are all brought about with the same difficulty; and thus it is seen to move, not above three feet in an hour. In fact, this poor creature seldom changes place but by constraint, and when impelled by the severest stings of hunger.

The sloth seems to be the meanest and most ill-formed of all those animals that chew the cud; it lives entirely upon vegetable food, on the leaves, the fruit, and the flowers of trees, and often even on the very bark, when nothing else is left on the tree for its subsistence. Like  
all

all other ruminant animals, it has four stomachs; and these requiring a large share of provision to supply them, it generally strips a tree of all its verdure in less than a fortnight. Still however it keeps aloft, unwilling to descend, while any thing remains that can serve it for food; it therefore falls to devouring the bark, and thus in a short time kills the tree upon which it found its support. Thus destitute of provisions above, and crawling slowly from branch to branch, in hopes of finding something still left, it is at last obliged to encounter all the dangers that attend it below. Though it is formed by Nature for climbing a tree with great pain and difficulty, yet it is utterly unable to descend; it therefore is obliged to drop from the branches to the ground, and as it is incapable of exerting itself to break the violence of its descent, it drops like a shapeless heavy mass, and feels no small shock in the fall. There, after remaining some time torpid, it prepares for a journey to some neighbouring tree; but this of all migrations is the most tedious, dangerous, and painful; it often takes a week in crawling to a tree not fifty yards distant; it moves with imperceptible slowness, and often baits by the way. All motions seem to torture it; every step it takes it sets forth a most plaintive, melancholy cry, which from some distant similitude to the human voice, excites

a kind of disgust, mixed with pity. This plaintive sound seems its chief defence; few quadrupeds appear willing to interrupt its progress, either that the flesh is offensive, or that they are terrified at its cries. When at length they reach their destined tree, they mount it with much greater ease than when they moved upon the plain. They fall to with famished appetite, and as before, destroy the very source that supplies them.

How far these may be considered as the unfinished productions of Nature, I will not take upon me to determine; if we measure their happiness by our sensations, nothing, it is certain, can be more miserable; but it is probable, considered with regard to themselves, they may have some stores of comfort unknown to us, which may set them upon a level with some other inferior ranks of the creation; if a part of their life be exposed to pain and labour, it is compensated by a larger portion of plenty, indolence, and safety. In fact, they are formed very differently from all other quadrupeds, and it is probable they have different enjoyments. Like birds, they have but one common vent for the purposes of propagation, excrement, and urine. Like the tortoise, which they resemble in the slowness of their motion, they continue to live some time after their nobler parts are wounded, or even taken away. They bear  
the

the marks of all those homely-formed animals, that, like rude machines, are not easily discomposed.

\* Its note, according to Kircher, is an ascending and descending hexachord, which it utters only by night; its look is so piteous, as to move compassion; it is also accompanied with tears, that dissuade every body from injuring so wretched a being. Its abstinence from food is remarkably powerful; one that had fastened itself by its feet to a pole, and was so suspended across two beams, remained forty days without meat, drink, or sleep; the strength of its feet is so great, that whatsoever it seizes on cannot possibly be freed from its claws. A dog was let loose at the above-mentioned animal, taken from the pole; after some time the sloth laid hold of the dog with its feet, and held him four days, till he perished with hunger.

### C H A P. XXIII.

#### *The Gerbua.*

**T**HIS animal as little resembles a quadrupede, as that which has been described in a former chapter. If we should suppose a bird, divested of its feathers, and walking upon

\* Pennant's Synopsis.

its legs, it might give us some idea of its figure. It has four feet indeed, but in running or resting, it never makes use of any but the hinder. The number of legs, however, do not much contribute to any animal's speed; and the gerbua, though, properly speaking, furnished but with two, is one of the swiftest creatures in the world.

The Gerbua is not above the size of a large rat, and its head is sloped somewhat in the manner of a rabbit, the teeth also are formed like those of the rat kind, there being two cutting teeth in each jaw; it has a very long tail, tufted at the end; the head, the back, and sides are covered with large ash-coloured soft hair; the breast and belly is whitish, but what most deserves our attention in the formation of this little animal, is the legs; the fore-legs are not an inch long, with four claws and a thumb upon each, while the hinder-legs are two inches and a quarter, and exactly resemble those of a bird, there being but three toes, the middlemost of which is longest.

The gerbua is found in Egypt, Barbary, Palestine, and the deserts between Bufferah and Aleppo; its hind-legs, as was said before, are only used in running, while the fore-paws, like those of a squirrel, grasp its food, and in some measure perform the office of hands. It is often seen by travellers as they pass along the deserts,



ferts, crossing their way, and jumping six or eight feet at every bound, and going so swiftly, that scarce any other quadrupede is able to overtake them. They are a lively, harmless race of animals, living entirely upon vegetables, and burrowing like rabbits in the ground. Mr. Pennant tells us of two that were lately brought to London, that burrowed almost through the brick wall of the room where they were kept; they came out of their hole at night for food, and when caught were much fatter and sleeker than when confined to their burrows. A variety of this animal is found also in Siberia and Circassia, and is, most probably, common enough over all Asia. They are more expert diggers than even the rabbit itself; and when pursued for a long time, if they cannot escape by their swiftness, they try to make a hole instantly in the ground, in which they often bury themselves deep enough to find security before their pursuers come up. Their burrows, in some places, are so thick, as to be dangerous to travellers, the horses perpetually falling in them. It is a provident little animal, and lays up for the winter. It cuts grass in heaps of a foot square, which when dried it carries into its burrow, therewith to serve it for food, or to keep its young warm during the rigours of the winter.

But of all animals of this kind, that which  
was

was first discovered and described by Mr. Banks, is the most extraordinary. He calls it the Kangaroo; and though from its general outline, and the most striking peculiarities of its figure, it greatly resembles the gerbua, yet it entirely differs, if we consider its size, or those minute distinctions which direct the makers of systems in assorting the general ranks of nature.

The largest of the gerbua kind which are to be found in the ancient continent, do not exceed the size of a rabbit. The kangaroo of New Holland, where it is only to be found, is often known to weigh above sixty pounds, and must consequently be as large as a sheep. Although the skin of that which was stuffed and brought home by Mr. Banks was not much above the size of a hare, yet it was greatly superior to any of the gerbua kind that have been hitherto known, and very different in many particulars. The snout of the gerbua, as has been said, is short and round, that of the new-discovered animal long and slender; the teeth also entirely differ; for as the gerbua has but two cutting teeth in each jaw, making four in all, this animal, besides its cutting teeth, has four canine teeth also; but what makes a more striking peculiarity, is the formation of its lower jaw, which, as the ingenious discoverer supposes, is divided into two parts, which open and shut like a pair of scissars, and cut grass, probably  
this

this animal's principal food. The head, neck, and shoulders are very small in proportion to the other parts of the body; the tail is nearly as long as the body, thick near the rump, and tapering towards the end; the skin is covered with a short fur, excepting the head and the ears, which bear a slight resemblance to those of the hare. We are not told, however, from the formation of its stomach, to what class of quadrupedes it belongs; from its eating grass, which it has been seen to do, one would be apt to rank it among the ruminant animals; but from the canine teeth which it is found to have, we may on the other hand suppose it to bear some relation to the carnivorous. Upon the whole, however, it can be classed with none more properly, than with animals of the gerbua kind, as its hind legs are so much longer than the fore; it moves also precisely in the same manner, taking great bounds of ten or twelve feet at a time, and thus sometimes escaping even the fleetest greyhound, with which Mr. Banks pursued it. One of them that was killed, proved to be good food; but a second, which weighed eighty-four pounds, and was not yet come to its full growth, was found to be much inferior.

With this last-described and last-discovered animal, I shall conclude the history of quadrupedes, which of all parts of natural knowledge  
seems

seems to have been described the most accurately. As these, from their figure, as well as their sagacity, bear the nearest resemblance to man, and from their uses or enmities are the most respectable parts of the inferior creation; so it was his interest, and his pleasure, to make himself acquainted with their history. It is probable therefore that time, which enlarges the sphere of our knowledge in other parts of learning, can add but very little to this. The addition of a new quadrupede to the catalogue already known, is of no small consequence, and happens but seldom; for the number of all is so few, that wherever a new one is found, it becomes an object worthy our best attention. It may take refuge in its native deserts from our pursuits, but not from our curiosity.

But it is very different with the inferior ranks of the creation; the classes of birds, of fishes, and of insects, are all much more numerous, and more incompletely known. The quadrupede is possessed of no arts of escaping, which we are not able to overcome; but the bird removes itself by its swiftness, the fishes find protection in their native element, and insects are secured in their minuteness, numbers, and variety. Of all these, therefore, we have but a very inadequate catalogue, and though the list be already very large, yet every hour is adding to its extent.

In fact, all knowledge is pleasant only as the object of it contributes to render man happy; and the services of quadrupedes being so very necessary to him in every situation, he is particularly interested in their history: without their aid, what a wretched and forlorn creature would he have been! the principal part of his food, his cloathing, and his amusements, are derived wholly from them, and he may be considered as a great lord, sometimes cherishing his humble dependants, and sometimes terrifying the refractory, to contribute to his delight and conveniencies.

The horse and the ass, the elephant, the camel, the lama, and the rein-deer, contribute to ease his fatigues, and to give him that swiftness which he wants from nature. By their assistance, he changes place without labour; he attains health without weariness; his pride is enlarged by the elegance of equipage; and other animals are pursued with a certainty of success. It were happy indeed for man, if while converting these quadrupedes to his own benefit, he had not turned them to the destruction of his fellow-creatures; he has employed some of them for the purposes of war, and they have conformed to his noxious ambition with but too fatal an obedience.

The cow, the sheep, the deer, and all their  
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varieties, are necessary to him, though in a different manner. Their flesh makes the principal luxuries of his table, and their wool or skins the chief ornament of his person. Even those nations that are forbid to touch any thing that has life, cannot wholly dispense with their assistance. The milk of these animals make a principal part of the food of every country, and often repairs those constitutions that have been broken by disease or intemperance.

The dog, the cat, and the ferret, may be considered as having deserted from their fellow-quadrupedes, to list themselves under the conduct and protection of man. At his command they exert all their services against such animals as they are capable of destroying, and follow them into places where he himself wants abilities to pursue.

As there is thus a numerous tribe, that he has taken into protection, and that supplies his necessities and amusements, so there is also a still more numerous one, that wages an unequal combat against him, and thus call forth his courage and his industry. Were it not for the lion, the tiger, the panther, the rhinoceros, and the bear, he would scarce know his own powers, and the superiority of human art over brutal fierceness. These serve to excite, and put

put his nobler passions into motion. He attacks them in their retreat, faces them with resolution, and seldom fails of coming off with a victory. He thus becomes hardier and better in the struggle, and learns to know and to value his own superiority.

As the last-mentioned animals are called forth by his boldest efforts, so the numerous tribe of the smaller vermin kind excite his continual vigilance and caution; his various arts and powers have been no where more manifest, than in the extirpation of those that multiply with such prodigious fecundity. Neither their agility nor their minuteness can secure them from his pursuits; and though they may infest, they are seldom found materially to injure him.

In this manner we see, that not only human want is supplied, but that human wit is sharpened, by the humbler partners of man in the creation. By this we see, that not only their benefits, but their depredations are useful, and that it has wisely pleased Providence to place us like victors in a subdued country, where we have all the benefit of conquest, without being so secure, as to run into the sloth and excesses of a certain and undisturbed possession. It appears, therefore, that those writers who are continually finding immediate benefit in every production,

duction, see but half way into the general system of nature. Experience must every hour inform us, that all animals are not formed for our use; but we may be equally well assured, that those conveniencies which we want from their friendship, are well repaid by that vigilance which we procure from their enmity.

END OF THE FOURTH VOLUME.













