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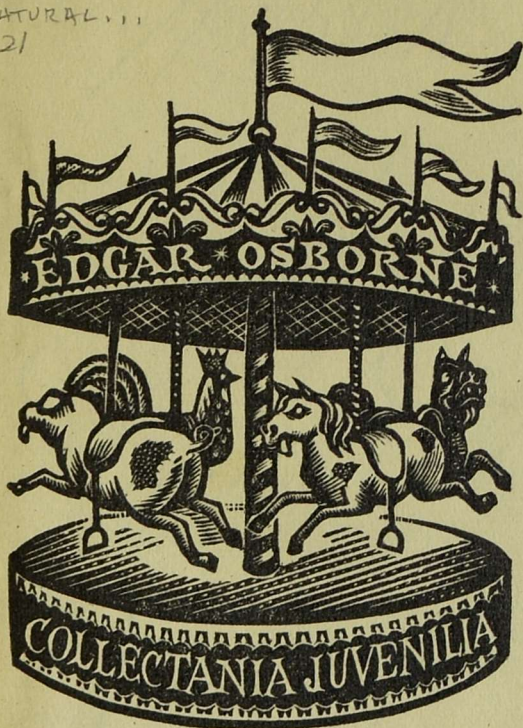
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THE

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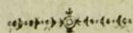


OF THE

PREFACE.

THERE is one peculiarity in the following account of Reptiles and Serpents, which it may be useful to mention to the young reader. The Frog is the only animal in the collection which is found in Ireland. Amongst the remainder, the Viper and the Toad, together with one or two kinds of harmless Serpents and the Nimble Lizard, are natives of England, but the whole number, whether harmless or hurtful, with the exception already mentioned, are unable to bear our climate. Every one has, doubtless, heard, that venomous animals do not exist amongst us; but whatever may be the

cause, (and it proceeds, most probably, from the coldness of our atmosphere,) we should not forget to thank Him, whose gift it is, that we can walk through our fields, without fearing injury from those deadly animals, which are found in the hotter parts of the earth. In the Appendix will be found a brief account of Worms, Corals, and Sponges, the next classes which occur as we descend, in the history of Animals. Their structure becomes gradually more simple, and their powers fewer; but it is well deserving of observation, how admirably fitted to the station allotted to it each is by Almighty Wisdom.



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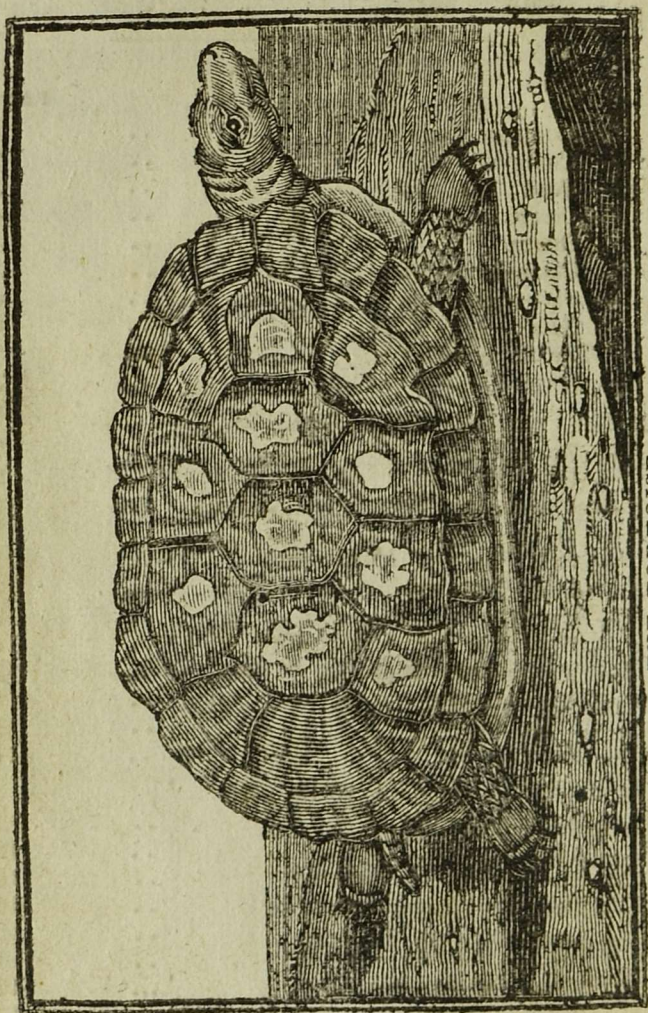
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THE TORTOISE.

HISTORY

OF

REPTILES.



THE COMMON TORTOISE.

THE common Tortoise rarely exceeds eight inches in length, and seldom weighs more than three pounds. Its shell is composed, (as in all the varieties of this animal) of thirteen middle pieces, and about twenty-five marginal ones. The legs are short, and the feet covered with strong scales, and armed with four strong claws. The tail is rather shorter than the legs and covered with small scales, which end with a hard pointed tip. Thus we see the Tortoise has an advantage, which most other animals have not. From the moment of its breaking

shell, it has a solid and durable house, strong enough to resist its enemies, and yet not fixed to one spot. It carries every where the dwelling which nature has furnished for its defence, and under it, can dwell in perfect security.

This species resides principally in burrows that it forms in the ground. In these, it sleeps away the greatest part of its time, appearing abroad only for a few hours in the middle of each day. It feeds on various kinds of herbs, fruit, worms, snails, and insects. Its manners are exceedingly gentle and peaceable; hence it is easily domesticated, and is an agreeable object in gardens, where it destroys noxious slugs and insects. In defect of its usual food, it may be supplied with, and will live sufficiently well on, bran or meal.

In the autumn, it retires to some hiding place under the surface of the earth, where it remains in a state of torpor for four or five months, not again making its appearance abroad, until recalled into life by the warmth of the sun in spring. —About the beginning of June, the female, when in her native state, scratches a hole in some warm situation, where she deposits four or five eggs. These are hatched in September; and the young ones, when they first come into the world, are not bigger than a walnut.

This small species, which is sometimes met in a domesticated state, often arrives at a great age, even beyond the period of a century. One

of these that was brought into the archbishop's palace at Lambeth, about the year 1633, was still living, in the year 1753, and then was thought to have died from neglect, rather than from old age. In the year 1765, a tortoise was living in the garden of Samuel Simmons, Esq. at Landwich, in Kent, which was known to have been there eighty-six years; but how long before that period, no one could say with authority. It was on the premises before Mr. Simmons took them, and was supposed to have been brought there from the West Indies, by the former possessor. This creature received a considerable injury about thirty years before it died, from the wheel of a loaded waggon, which went over it and cracked its shell.

It was always extremely alarmed when surprised by a sudden shower of rain, during its peregrinations for food, shuffling away on the first sprinklings, and always, if possible, running its head up into a corner.—It thus became an excellent barometer; for if it walked elate, and, as it were, on tiptoe, feeding with great earnestness, in a morning, there was almost invariably, rain before night.

Mr. White, of Selbourne, attended accurately to the manners of one that was in the possession of a lady of his acquaintance (who resided in Sussex) upwards of thirty years. It regularly retired underground, about the middle of November, from whence it did not come forth until

about the middle of April. Its appetite was always most voracious in the height of summer, eating very little either in the spring or autumn. Milky plants, such as lettuces, dandelions, and sowthistles, were its principal food.

Mr. White was much pleased with the sagacity of the above-mentioned animal, in distinguishing those persons from whom it was accustomed to receive attention. Whenever the good old lady came in sight, who had waited on it for more than thirty years, it always hobbled, with all the alacrity it could use, towards its benefactress, whilst to strangers it was altogether inattentive. Thus, not only "the ox knoweth his owner and the ass his master's crib," but the most torpid of creatures distinguished the hand that fed it, and exhibited marks of gratitude not always to be found in superior orders of animal being. It never stirred out after dark, and very frequently appeared abroad for a few hours only in the middle of the day, in wet days it never came at all from its retreat. Although this Tortoise loved warm weather, yet he carefully avoided the hot sun, since his thick shell, when once heated, must have become extremely painful, and probably dangerous to him. He therefore spent the more sultry hours under the shade of a large cabbage leaf, or amidst the waving stems of an asparagus bed. But, as he endeavoured to avoid the heat in the summer, he improved the faint autumnal beams by get-

ting within the reflection of a fruit-tree wall ; and taught by that wonderful instinct with which kind Providence endues all animals, he frequently inclined his shell, by tilting it against the wall, to collect and admit every feeble ray.

This animal was at last given to Mr. White, and in the month of March, 1780, he dug it out of its winter residence in order to convey it to his own house in Hampshire. The spring was a backward one ; but the animal was become sufficiently recovered from its torpidity to express its resentment for the disturbance, by hissing. It was packed in a box, and carried eighty miles in post-chaises. The rattle and hurry of the journey so roused it, that, when it was turned out on a border in Mr. White's garden, it walked twice down to the bottom. In the evening, however, the weather being cold, it buried itself in the loose mould, and remained concealed for above a month. Towards the time of its coming forth, it opened a breathing place in the ground near its head, requiring, no doubt, a free respiration as it became more lively. On the twenty-first of April, it heaved up the mould and put out its head ; and on the following morning, issued forth from its retreat, and walked about until four o'clock in the afternoon.

The Great Mediterranean Turtle is the largest of the turtle kind with which we are acquainted. It is found from five to eight feet

long, and from six to nine hundred pounds weight. But, unluckily, its utility bears no proportion to its size ; as it is unfit for food, and sometimes poisons those who eat it. The shell also, which is a tough strong integument, resembling a hide, is unfit for all serviceable purposes. One of these animals was taken in the year 1729, at the mouth of the Loire, a river of France, in nets that were not designed for so large a capture. This Turtle, which was of enormous strength, by its own struggles involved itself in the nets in such a manner as to be incapable of doing mischief : yet, even thus shackled, it appeared terrible to the fishermen, who were at first for flying ; but finding it impotent, they gathered courage to drag it on shore, where it made a most horrible bellowing ; and was to be heard at half a mile's distance. They were still further intimidated by its nauseous and pestilential breath, which so powerfully affected them, that they were near fainting. This animal wanted but four inches of being eight feet long, and was above two feet broad, its shell more resembled leather than the shell of a tortoise ; and, unlike all other animals of this kind, it was furnished with teeth in each jaw, one rank behind another, like those of a shark : its feet also, different from the rest of this kind, wanted claws ; and the tail was quite disengaged from the shell, and fifteen inches long, more resembling that of a quadruped than a Tortoise.

This animal was then unknown upon the coasts of France; and was supposed to have been brought into the European seas, in some India ship that was wrecked upon her return. Since that, however, two or three of these animals have been taken upon the coasts; two in particular on those of Cornwall, in the year 1756, the largest of which weighed eight hundred pounds; and one upon the Isle of Rhea, but two years before, that weighed between seven and eight hundred. One, most probably of this kind also, was caught near Scarborough, in England, and a good deal of company was invited to feast upon it, a gentleman, who was one of the guests, told the company that it was a Mediterranean Turtle, and not wholesome; but a person who was willing to satisfy his appetite at the risk of his life, eat of it; he was seized with a violent vomiting and purging; but his constitution overpowered the malignity of the poison.

These, however, are a formidable and useless kind, if compared to the Turtle caught in the South Seas and the Indian Ocean. These are of different kinds; not only unlike each other in form, but furnishing man with very different advantages. They are usually distinguished by sailors into four kinds; the Trunk Turtle, the Loggerhead, the Hawksbill, and the Green Turtle.

The Trunk Turtle is commonly larger than

the rest, and its back higher and rounder. The flesh of this is rank, and not very wholesome.

The Loggerhead is so called from the largeness of its head, which is much bigger in proportion than that of the other kinds. The flesh of this also is very rank, and not eaten but in case of necessity.

The Hawksbill Turtle is the least of the four, and has a long and small mouth, somewhat resembling the bill of an hawk. The flesh of this is also very indifferent eating; but the shell serves for the most valuable purposes. This is the animal that supplies the Tortoise-shell, of which such a variety of beautiful trinkets are made. The substance of which the shells of other Turtles are composed, is thin and porous; but that of the Hawksbill is firm, and, when polished, is beautifully marbled. They generally carry about three pounds; but the largest of all six pounds. The shell consists, as in all the kinds, of thirteen leaves, or plates, of which eight are flat, and five hollow. They are raised and taken off by means of fire, which is made under the shell, after the flesh is taken out. As soon as the heat affects the leaves, they start from the ribs, and are easily raised with the point of a knife. By being scraped and polished on both sides, they become beautifully transparent; or are easily cast into whatever form the workman thinks proper, by making them soft and pliant in warm water, and then

screwing them in a mould, like a medal: however, the shell is most beautiful before it undergoes this last operation.

The green Turtle, which has so long, been esteemed as an article of luxury by the rich, is so named, from the green colour of its fat. It abounds in the West Indies to such a degree, that Catesby says, 40 sloops are employed by the inhabitants of Port Royal in Jamaica, for the sole purpose of catching them; and that the markets are there supplied with turtles, as ours are with butcher's meat. It is found also, in great quantities, on the coasts of all the other islands and continents in the middle parts of the earth. These places produce vast quantities of sea plants, which though covered by the water, are near enough to the surface to be readily seen by the naked eye, in calm weather; amidst these sub-marine pastures, great numbers of green turtle are often seen, feeding quietly on the plants which are produced there.

The length of the green Turtle is sometimes upwards of six feet, and the weight five or six hundred pounds. Dampier mentions an immensely large one that was caught at Port-Royal, in the Bay of Campeachy. It was nearly six feet in width, and four feet in thickness. A son of Captain Roch, a boy about ten years old, went in the shell, as in a boat, from the shore to his father's ship, lying about a quarter of a mile distant.

After having satisfied its appetite upon the grass, sea weed, and other plants which grow at the bottom, the turtle often times retires to the fresh water, at the mouth of the great rivers, where it floats on the surface, holding its head above, for the purpose of breathing the fresh air. But as it is surrounded with many dangers, both from its enemies of the deep and from mankind, it is obliged to use great precaution in thus indulging itself with cool air, and with the refreshing streams of river water. The instant it perceives even the shadow of an object, from which it suspects danger, it dives to the bottom for security.

The account which Catesby has given respecting the manner in which the inhabitants of the Bahama islands, in the West Indies, catch their turtles, is very satisfactory. "These people," he says, "go out in the month of April, in little boats, to Cuba, and other neighbouring islands, where in the evening, especially in moonlight nights, they watch the going and returning of the turtle to and from their nests, at which time, they turn them on their backs, when they leave them and pass on, turning all they find; some are so large that it requires three men to turn one of them, and these must often employ even handspikes, for that purpose. Once they are laid on their back, the upper shell is so flat, that they are quite helpless, and can never more recover their feet."

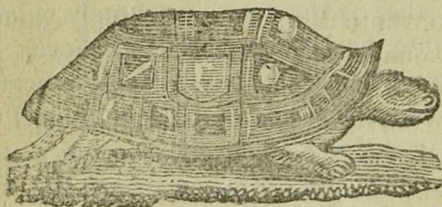
But many turtles are taken not on land but in the sea, and at a considerable distance from the shore. These are struck with a kind of spear, whose shaft is about four yards in length. For this work, two men usually get into a small and light boat, or canoe, one to paddle it gently along, and steer, and the other to stand at the head with his weapon. Sometimes the Turtles are discovered swimming with their head and back out of water; but they are most commonly seen lying at the bottom, where the water is a fathom or more in depth. If the animal perceives that he is discovered, he immediately attempts to escape. The men pursue and endeavour to keep him in sight, and generally so far tire him, that, in the course of half an hour, he sinks to the bottom, which affords them an opportunity to strike him with the spear through the shell. The head of the spear, which now slips off and is left in his body, is fastened with a string to the pole; and by means of this apparatus, they are enabled to pursue him, if he should not be sufficiently spent without: if however, that is the case, he tamely submits to be taken into the boat, or hauled ashore.

In some parts of the South Seas, a peculiarly dexterous method is adopted of catching Turtles. A bold diver throws himself into the water, at some distance from the place where the Turtles are observed floating asleep on the surface. He dives under the animals, and rising gently be-

hind one of them, seizes the upper shell just behind the tail, and pressing down the hinder part in the water, obliges the fore-part of the animal now awakened, to keep upright, and thus prevents it from diving, until his companions come with a boat, and take him and his prey on board.

Green Turtles are sometimes caught on the European shores, driven thither by stress of weather. In the year 1752, one, six feet long and four broad, weighing betwixt eight and nine hundred pounds, was caught in the harbour of Dieppe, after a storm. In 1754, a still larger one, upwards of eight feet long, was caught near Antioche, and was carried to the abbey of Long-veau, near Vannes, in Brittany; and a few years ago a small one was caught amongst the submarine rocks near Christchurch, Hants.

The introduction of the Turtle, as an article of luxury, into England, appears to have taken place within the last seventy years. We import them principally, if not entirely, from the West India islands.



THE COMMON FROG.

IT is not necessary to enter into a minute description of an animal so well known as the Frog. Its whole appearance is lively, and its form by no means inelegant. The limbs are well calculated for aiding the peculiar motions of the animal, and its webbed hind feet for assisting its progress in the water, to which it occasionally retires during the heats of summer, and again in the frosts of winter. During the latter period, and till the return of warm weather, it lies in a state of torpor, either deeply plunged in the soft mud at the bottom of stagnant waters, or in the hollows beneath their banks. Immediately on coming forth in the spring, they change their skin, and this operation they repeat, generally about every eight or ten days, through the whole summer. The old skin, after it is entirely separated from the body, resembles rather a kind of thin mucus, than a membrane.

The spawn of this Frog, which is generally cast in the month of March, consists of a clustered mass of jelly-like transparent, and round eggs, from six hundred to a thousand in number, in the middle of each of which, is contained the embryo or tadpole, in the form of a black speck. This at first sinks to the bottom of the water; but when the eggs begin to enlarge, in conse-

quence of becoming proportionally lighter, it rises to the surface. About the thirty-ninth day, the little animals begin to have motion. They are then so perfectly unlike the Frog in its complete state, that no person could suppose any relationship existed between them. The Tadpole appears to consist merely of head and tail, the former large, black and roundish, the latter slender and bordered with a broad transparent finny margin. At first it quits the matter in which it was enclosed only occasionally, as if to try its strength, and soon afterwards returns, apparently for the double purpose of retreat and nourishment.

When the animal is about six weeks old, the hind-legs appear, and in about a fortnight, these are succeeded by the fore-legs. The animal now bears a kind of ambiguous appearance, partaking of the form of a Frog and a Lizard. —The tail, at this period, begins to decrease, at first very gradually, and at length so rapidly, as to disappear in the space of a day or two afterwards; the form is then completed, and the animal for the first time, ventures upon land.

With this wonderful change of body, the animals also change their food, and instead of their former vegetable diet, live upon the smaller species of snails, worms, and insects; the structure of their tongue is admirably adapted for seizing and securing this prey. the root is

attached to the fore-part of the mouth, so that when unemployed, it lies with the tip towards the throat. The animal by this singular contrivance, is enabled to bend it to a considerable distance out of its mouth. When it is about to seize on any object, it darts it out with great agility, and the prey is secured on its broad and jagged gluey extremity. This it swallows with so instantaneous a motion, that the eye can scarcely follow it.—Nothing, however, can appear more awkward than a Frog engaged with a large worm or small snake; for nature seems to have put a restraint upon the voracity of these animals, by forming them very inaptly for seizing and holding their larger prey. Dr. Townson had a large Frog, that one day swallowed in his presence a blind-worm, near a span long, which in its struggles frequently got half its body out again; and when completely swallowed, its contortions were very visible in the flaccid sides of its victor.

About the end of July, when the young Frogs have entirely laid aside their tadpole shape, they quit the water, and soon afterwards emigrate into the woods and meadows. The commencement of their journey is always in the evening. They travel all night, and conceal themselves during the day, under stones, or in other recesses; and resume their journey only when the night begins. In the day time, how-

ever, whenever it happens to rain, they always come out of their retreats, as if to refresh themselves in the falling moisture. Mr. Ray informs us, that as he was riding one afternoon in Berkshire, he was much surprised at seeing an immense multitude of Frogs crossing the road. On further examination, he found two or three acres of ground nearly covered with them; they were all proceeding in the same direction, towards some woods and ditches that were before them. He traced them back to the side of a very large pond, which in the spawning-time, he was informed, always so much abounded with Frogs, that their croaking was frequently heard at a great distance.

However singular it may appear, the fact is well ascertained, that Frogs will sometimes fasten upon the backs of fish, so as not to be easily disengaged. Mr. Pennant mentions that in a pond in Dorsetshire, great numbers of Carp were found, each having one of those animals clinging to it; the hind legs were upon the back, and the fore legs attached to the corner of each eye; the Carp also was much wasted away, being teased by its little persecutor.

Frogs are numerous throughout Europe, and in the parts of America, about Hudson's Bay, as far north as latitude 61 deg. They frequent there the margins of lakes, ponds, rivers, and swamps; and, as the winter approaches, they burrow under the moss, at a

considerable distance from the water, where they remain in a frozen state till spring. Mr. Hearne says, he has frequently seen them dug up with the moss, frozen as hard as ice. In this state, their legs are as easily broken off as the stem of a tobacco-pipe, without giving them the least sensation: but, by wrapping them up in warm skins, and exposing them to a slow fire, they soon come to life, and the mutilated animals gain their usual activity. If, however, they are permitted to freeze again, they are past all recovery.

The croaking of Frogs is well known to all persons in the country, who live in the neighbourhood of marshy lands. In the fens of Lincolnshire, in England, these animals have, in consequence of this noise, received, among the common people, the appellation of *Dutch Nightingales*. For a whole month, in the heat of summer, they, however, become entirely silent; and this period is called by the country people of many parts of England, the *Paddock Moon*.

There is another kind of Frog considerably larger than the one we have been describing, which is made use of as an article of food on the Continent, and is acknowledged by all who can overcome their prejudices, to be both nutritive and delicate. Its colour is an olive green, distinctly marked with black patches on the back, and on its limbs with cross bars of the same. From the tip of the nose, three distinct

stripes of pale yellow extend to the extremity of the body, the middle one slightly depressed, and the side ones considerably elevated. — The under parts are of a pale whitish colour, tinged with green, and marked with irregular brown spots.

These creatures are brought from the country thirty or forty thousand at a time, to Vienna, and other great towns on the continent, and sold to the great dealers, who have conservatories for them, which are large holes, four or five feet deep, dug in the ground, the mouth covered with a board, and in severe weather with straw. In these conservatories, even during a hard frost, the Frogs never become quite torpid. When taken out and placed on their backs, they are always sensible of the change, and have strength enough to turn themselves. They instinctively get together in heaps, one upon another, and thereby remain fresh and moist; for no water is ever put to them. In Vienna, in the year 1793, there were only three great dealers; by whom most of those persons were supplied who brought them to the market ready for the cook.

The Edible Frogs are caught in various ways: sometimes in the night, by means of nets, collecting together round the light of torches carried out for the purpose; or sometimes by hooks, baited with worms, insects, flesh, or even a bit of red cloth. Being exceedingly

voracious, they seize greedily, every thing that moves, and, when once they have fixed, they keep their hold with great obstinacy. In Switzerland, they are caught by means of large rakes, with long, close-set teeth, which are thrown into the water, and drawn suddenly out again.

The Frogs already described, however, cannot be compared in size with the Bull Frog, which frequently measures a foot and a half, or upwards, from the nose to the hind feet. In Virginia, in North America, they are in such abundance, that there is scarcely any where a spring that has not a pair of them. When suddenly surprised, by a long leap or two, they enter the hole, at the bottom of which they lie perfectly secure.

Their croaking somewhat resembles the hoarse lowing of a bull; and, in a calm night, when many of them are making a noise together, they may be heard to the distance of a mile and a half. The night is the time when they croak, and they are said to do it at intervals. In this act, they are either hidden among the grass or rushes, or they are in the water, with their heads above the surface. Kalm informs us, that as he was one day riding out, he heard one of them roaring before him, and supposed it to be a bull hidden in the bushes at a little distance. The voice was indeed more hoarse than that of a bull, yet, it was much too loud for him to conceive that it could be emitted by so small an animal as a

Frog, and he was in considerable alarm for his safety. He was undeceived a few hours afterwards, by a party of Swedes, to whom he had communicated his fears.

When alarmed, they leap to a most surprising distance at each exertion. A full-grown Bull Frog will sometimes leap three yards. The following story respecting one of them is well authenticated. The American Indians are known to be excellent runners, being almost able to equal the best horse in its swiftest course. In order, therefore, to try how well the Bull Frogs could leap, some Swedes laid a wager with a young Indian that he could not overtake one of them, provided it had two leaps beforehand. They carried a Bull Frog, which they had caught in a pond, into a field, and then let it go.—The fright, and the Indian who endeavoured to outrun the Frog, had together such an effect upon the animal, that it made its long leaps across the field as fast as it could. The Indian pursued it with all his might. The noise he made in running, frightened the Frog: it, therefore, redoubled its leaps, and, by that means, reached the pond, which was fixed on as their goal, before the Indian could overtake it.

Were it not for the deeply rooted prejudices which are imbibed, during childhood, against all the animals of the Frog tribe, the beauty of colour, and the elegance of motion of the

Green Tree Frog are such, that it would afford delight to every beholder. During the summer months, it resides principally on the upper branches of the trees, where it wanders among the foliage in quest of insects. These it catches with great dexterity, stealing softly towards them, as a cat does towards a mouse, till at a proper distance, when it makes a sudden spring upon them, of frequently more than two feet in height.—It often suspends itself by its feet, or abdomen, to the under parts of leaves; and, in this position, remains concealed among the foliage.

Although during summer it inhabits the woods, yet, about the end of autumn, it retires to the waters, and lies concealed in a torpid state, in the mud, or under the banks, till the spring. At the return of warm weather, it comes forth, like the rest of its tribe, in order to deposit its spawn in the water. This is done about the end of April, or the beginning of May; and, as soon as the operation is over, the animals return to their accustomed haunts in the trees. The offspring continue until the month of August in their tadpole state.

During the breeding season, the male inflates his throat in a very surprising manne, so, indeed, as to form a tolerably large sphere beneath his head. He then, also, exerts a very rough croak, that may be heard to a vast distance. Whenever one of them begins, all that

are within hearing, join in this discordant chorus; and the whole is so loud, as almost to resemble the noise of a pack of hounds: this, in still evenings, especially just before rain, when they most exert themselves, has been plainly heard nearly three miles. They are said to be so excellent as barometers, that, if kept in glasses in a room, and supplied with proper food, they will afford a sure presage of changes in the weather.

In order to make some observations on the respiration of the Reptile tribe, Dr. Townson had, among others, some Tree-Frogs. He kept them in a window, and appropriated to their use, a bowl of water, in which they lived. They soon grew quite tame; and to two, that he had for a considerable time, and were particular favourites, he gave the names of Damon and Musidora. In the hot weather, whenever they descended to the floor, they soon became lank and emaciated. In the evening, they seldom failed to go into the water, unless the weather was cold and damp; in which case, they would sometimes remain out for a couple of days. When they were out of the water, if a few drops were thrown upon the board, they always applied their bodies as close to it as they could; and, from this absorption through the skin, though they were flaccid before, they soon again appeared plump. A Tree-Frog that had not been in water during the night, was

weighed, and then immersed; after it had remained about half an hour in the bowl it came out, and was found to have absorbed nearly half its own weight of water. From other experiments on the Tree-Frogs, it was discovered, that they frequently absorbed nearly their whole weight of water; and that, as was clearly proved, and is very remarkable, by the under surface only of the body. They will even absorb moisture from wetted blotting-paper. Sometimes they throw out water with considerable force from their bodies, to the quantity of a fourth part or more of their own weight.

Both Frogs and Toads will frequently suffer their natural food to remain before them untouched, yet, on the smallest motion it makes, they instantly seize it. A knowledge of this circumstance, enabled Dr. Townson to feed his favourite Tree-Frog, *Musidora*, through the winter. Before the flies, which were her usual food, had disappeared in autumn, he collected for her a great quantity, as winter provision. When he laid any of them before her, she took no notice of them; but the moment he moved them with his breath, she sprung upon and ate them. Once, when flies were scarce, the Doctor cut some flesh of a tortoise into small pieces, and moved them by the same means. She seized them, but the instant afterwards rejected them from her tongue. After he had obtained her confidence, she ate, from his fingers, dead as

well as living flies.—Frogs will leap at a moving shadow of any small object; and both Frogs and Toads will soon become sufficiently familiar to sit on the hand, and be carried from one side of the room to the other, in order to catch flies as they settle on the wall.—At Gottingen, Dr. Townson made them his guards for keeping these troublesome creatures from his desert of fruit, and they acquitted themselves to his satisfaction.—He has even seen the small Tree-Frogs eat humble bees, but this was never done without some contest: they are, in general, obliged to reject them, being incommoded by their stings and hairy roughness; but, in each attempt, the bee is further covered with the viscid matter from the Frog's tongue, and when sufficiently coated with this, it is easily swallowed.

A Tree-Frog was kept by a surgeon in Germany, for nearly eight years. He had it in a glass vessel covered with a net, and during the summer he fed it with flies; but in winter, it probably did not eat at all, as only a few insects, with grass and moistened hay, were put to it. During this season, it was lean and emaciated; but in summer, when its favourite food could be had in plenty, it soon again became fat. In the eighth winter, it pined away by degrees, as was supposed, on account of no insects whatever being to be had.

As Captain Stedman was sailing up one of

the rivers of Surinam, in a canoe, one of the officers who was with him, observed, on the top of a mangrove tree. a battle between a Snake and a Tree-Frog. When the captain first perceived them, the head and shoulders of the Frog were in the jaws of the Snake, which was about the size of a large kitchen poker. This creature had its tail twisted round a tough limb of the mangrove; whilst the Frog, which appeared about the size of a man's fist, had laid hold of a twig with his hind-feet, In this position they were contending, the one for life, the other for his prey, forming one straight line between the two branches: and thus they continued for some time, apparently stationary, and without a struggle. Still it was hoped that the poor Frog might extricate himself by his exertions: but the reverse was the case. The jaws of the snake gradually relaxing, and by their elasticity forming an incredible orifice, the body and fore-legs of the Frog, by little and little, disappeared, till finally nothing more was seen than the hinder feet and claws, which were at last disengaged from the twig, and the poor creature was swallowed whole, by suction, down the throat of his formidable adversary. He passed some inches down the alimentary canal, and at last stuck, forming a knob or knot, at least six times as thick as the snake, whose jaws and throat immediately contracted, and

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resumed their former natural shape. The snake being out of reach of musket shot, they could not kill him in order to make further examination, but left him, continuing in the same attitude, motionless, and twisted round the branch.

This Frog is a native of various parts of America; of France, Germany, Italy, and many other European countries, but is not found in Great Britain, or Ireland.



THE TOAD.

AS the toad bears a general resemblance or figure to the frog, so also it resembles that animal in its nature and appetites. Like the frog, the toad is amphibious; like that animal, it lives upon worms and insects, which it seizes by darting out its length of tongue; and in the same manner, also, it crawls about in moist weather. It is not an animal found in Ireland.

In some countries, as at Carthagera, and Porto Bello in America, Toads are so extremely numerous, that, in rainy weather, not only all the marshy ground, but the gardens, courts, and streets, are almost covered with them; so much so, that many of the inhabitants absurdly believe, that every drop of rain is converted into a Toad. In these countries, this animal is of considerable size, the smallest individuals measuring at least six inches in length. If it happen to rain during the *night*, all the Toads quit their hiding places, and then crawl about in such inconceivable numbers, as almost literally to touch each other, and to hide the surface of the earth: on such occasions it is impossible to stir out of doors without trampling them under-foot at every step.

The female Toads deposit their spawn early in the spring, in the form of necklace-like chains or strings of beautifully transparent glue, three

or four feet in length, inclosing the eggs in a double row throughout. These have the appearance of so many jet-black globules: they are, however, nothing more than the larvæ or tadpoles lying in a globular form, which break from their confinement in about a fortnight, and afterwards undergo changes similar to the tadpoles of the frog. They become complete towards the beginning of autumn, about which time, the young animals are frequently to be seen in a moist summer's evening, crawling up, by myriads, from fenny places into situations somewhat more dry. There, having found out a retreat, or each having formed one for itself, they lead a solitary life, seldom venturing abroad except in moist evenings. At this period of the year, they have a sufficient supply of food, in the snails and worms with which the grass and pathways are then covered.

When it is irritated, the Toad emits from various parts of its skin, a kind of frothy fluid, which, in our climate, produces no further unpleasant symptoms than slight inflammation, from its weakly acrimonious nature. Dogs, on seizing these animals, appear to be effected with a slight swelling in their mouth, accompanied by an increased discharge of saliva. The limpid fluid which the Toad suddenly ejects from his body, when disturbed, has been ascertained to be perfectly free from any noxious qualities whatever. It is merely a watery liquor, the con-

tents of a peculiar reservoir, that, in case of alarm, appears to be emptied in order to lighten the body, that the animal may the more readily escape. It is its forbidding aspect only that has obtained for the Toad its present unjust character of being a dangerously poisonous animal. It is persecuted and murdered wherever it appears, on the supposition merely that because it is ugly, it must in consequence be venomous. Its eyes are, however, proverbially beautiful, having a brilliant, reddish, gold-coloured iris surrounding the dark pupil, and forming a striking contrast with the remainder of its body.

It is no difficult task, singular as it may appear to those who have never attended to this animal, to render it so tame, that it may be taken up into the hand, and carried about a room to catch the flies that alight on the walls, as we have already mentioned in the account of the 'Tree-Frog'. A correspondent of Mr. Pennant supplied him with some curious particulars respecting a domestic Toad, which continued in the same place for upwards of thirty-six years. It frequented the steps before the hall-door of a gentleman's house in Devonshire. By being constantly fed, it was rendered so tame as always to come out of its hole in an evening when a candle was brought, and to look up, as if expecting to be carried into the house, where it was frequently fed with insects. It appeared most partial to flesh maggots, which were kept for

it in bran. It would follow them on the table, and, when within a proper distance, would fix its eyes and remain motionless for a little while, apparently to prepare for the stroke, which was instantaneous. It threw out its tongue to a great distance, and the insect, stuck by the glutinous matter to its tip, was swallowed by a motion quicker than the eye could follow. After being kept above thirty-six years, it was at length destroyed by a tame raven, which one day, seeing it at the mouth of its hole, pulled it out, and so wounded it, that it died in consequence.

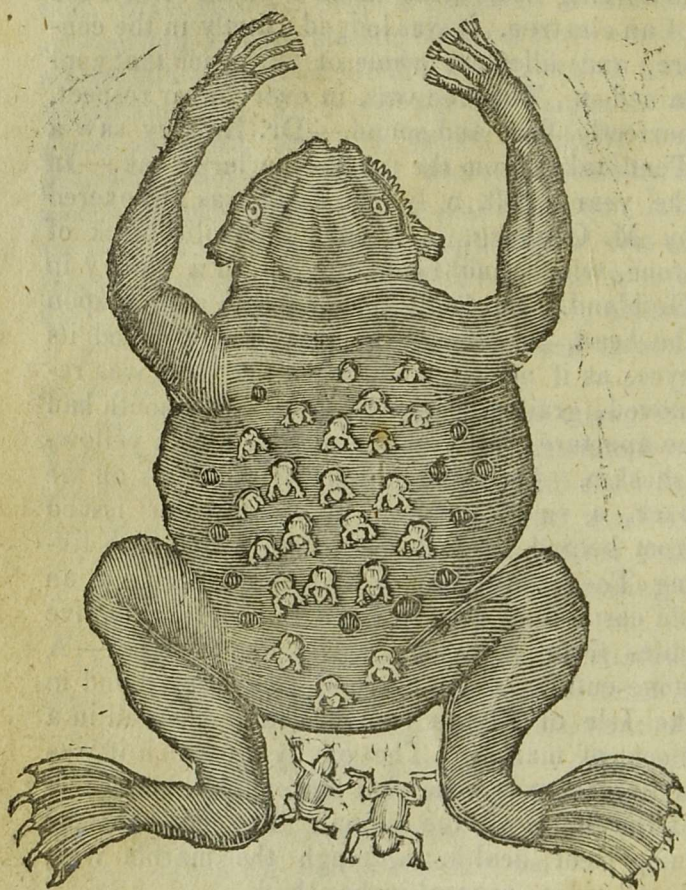
Like the rest of the animals of its tribe, the Toad becomes torpid towards the conclusion of the autumn, and remains so during all the winter months. The place of its retreat, is either in the cleft of some rock, under the hollow root of a tree, or amongst the mud at the bottom of stagnant pools.

Of the Toad we have a property recorded, more astonishing than what is mentioned of most other animals, that of continuing alive for centuries, enclosed in solid substances. Although we should always be very slow in yielding our belief to what appears marvellous, we have too many respectable authorities for the fact, and too frequent instances of its recurrence, to allow us to doubt its truth.

The following are a few of the best authenticated of these :—In the year 1719, M. Hubert,

Professor of Philosophy at Caen, was witness to a living Toad being taken from the solid trunk of an elm tree. It was lodged exactly in the centre, and filled the whole of the space that contained it. The tree was, in every other respect, perfectly firm and sound.—Dr. Bradley saw a Toad taken from the trunk of a large oak.—In the year 1733, a living Toad was discovered by M. Graburg, in a hard and solid block of stone, which had been dug up in a quarry in Gothland. On being touched with a stick upon the head, he informs us that it contracted its eyes, as if asleep, and, when the stick was removed, gradually opened them. Its mouth had no aperture, but was closed round by a yellowish skin. On being pressed with a stick on the back, a small quantity of clear water issued from behind, and it immediately died.—A living Toad was found in a block of marble at an old castle belonging to Lord Tankerville, twelve miles from Alnwick, in Northumberland.—A stone-cutter, of the name of Charlton, found in the Isle of Ely, a living Toad, enclosed in a block of marble. The cavity in which it was contained, was somewhat larger than, but nearly of the figure of, the animal. The Toad seemed in perfect health, although the marble was, on all sides, several inches thick.

There is a kind of Toad called the Pipa, or Surinam Toad, which is too strange a creature not to require a particular notice. It is considerably larger than the common Toad, has a



THE SURINAM TOAD.

flattish body, and a triangular head. On the back of the female there are certain cavities, opening outward, and somewhat resembling the cells of a bee-hive. They are of a circular form, about half an inch deep, and each nearly a quarter of an inch in diameter. They are at a little distance from each other, and somewhat irregularly ranged. At a certain period of incubation, if it may be so called, in each of these cells is found a little live toad, an exact miniature of its parent; but how it finds subsistence there, (for the creature has no adhesion to the parent, but may be easily taken out, as from a case, and again replaced without injury,) does not seem as yet to be fully ascertained. Mr. Ferman, who has described this animal, declares himself to have been an eye-witness to the procedure. The eggs are generated within the female, who, when they have attained the proper degree of maturity, drops them on the ground. The male gathers together the heap, and deposits them, with great care in the cavities, on the back of the female, which are, at that period, open for their reception, and which afterwards close over them. The eggs remain in the cells until the second birth, which takes place in somewhat less than three months, when the young ones emerge from the back of the parent, completely formed. During the time of concealment, they undergo the usual change into the tadpole state, which they

entirely put off before their final departure from the body of the parent Toad.—After all the young ones are come forth, the female rids herself of the cells, and at the same time of part of her skin, by rubbing herself against stones or vegetables, and the injured skin is soon renewed by a fresh growth.

In this singular production of its young, the *Pipa* seems to bear a great resemblance to the different species of opossum.

It would seem that the flesh of this Toad is not unwholesome, as, according to Madame Merian, the negroes of Surinam eat of it with pleasure, and suffer no inconvenience from its use.



THE CROCODILE.

TO look for the Crocodile in all its natural terrors, grown to an enormous size, propagated in surprising numbers, and committing unceasing devastations, we must go to the uninhabited regions of Africa and America, to those immense rivers that roll through extensive and desolate kingdoms, where the most powerful animals exert their strength with confidence and security. Those that sail up the river Amazons, or the river Niger, well know how numerous and terrible those animals are in such parts of the world. There they indolently bask on the surface, no way disturbed at the approach of an enemy, since, from the repeated trials of their strength, they found none they were not able to subdue.

Of this terrible animal there are two kinds; the Crocodile found in Egypt and the waters of the Nile, and the Alligator of South America. Travellers, however, have rather made the distinction than nature; and it would be speaking more properly to call these animals the Crocodiles of the eastern and the western world.

If we except the Elephant, the Hippopotamus, the Whale, and some of the enormous Serpents, these are the largest animals that have yet been discovered; some of them have been

known to attain the length of twenty-five feet and upwards, and probably like fishes, their size continues to increase during their whole life.

The Crocodile has no lips ; so that even when walking or swimming with the utmost tranquillity, the teeth are bare, and the aspect seems animated by rage. Another circumstance that contributes to increase the terrific appearance of its countenance, is the fiery glare of the eyes ; and these, being situated near each other, have also a malignant aspect.

The armour with which the Crocodile is clad, may be accounted among the most elaborate pieces of Nature's mechanism. In the full-grown animal it is so strong, as easily to repel a musket ball. On the lower parts it is much thinner and more pliable than on the upper. The whole animal appears as if covered with the most regular, and curious carved work. The colour of the full-grown Crocodile is blackish-brown above, and yellowish-white beneath. The upper parts of the legs and sides are varied with deep yellow, somewhat tinged with green. The mouth is of vast width, and furnished with numerous sharp-pointed teeth, thirty or more on each side of the jaws ; and these are so disposed, as when the mouth is closed, to fit alternately above and below.

In the water the Crocodile seems to enjoy his whole strength with much greater advantage than on land. In spite of his size, and his ap-



THE CROCODILE.

parent unvioldiness, he moves about in the water with considerable agility, oftentimes emitting a kind of half-suppressed murmuring noise. Although the great length of his body prevents him from turning suddenly round, he swims forward with astonishing velocity, when about to seize his prey. On land its motions are much more embarrassed, and he is consequently, there, a less dangerous enemy. We are told of an Englishman, who was pursued so quickly by a large Crocodile, which came out of one of the rivers of South America, that unless the Spaniards who were in his company, had cried out to him to quit the straight road, and run in a circle, he must have been caught.

Except when pressed by hunger, or with a view of depositing its eggs, this enormous creature seldom leaves the water. Its usual method is to float along upon the surface, (where it appears like a large piece of floating wood,) and seize whatever animals come within its reach; but, when this method fails, it then goes closer to the bank. There it waits in patient expectation of some land animal that may come to drink; the dog, the bull, the tiger, or man himself when he can take him unawares. Nothing is to be seen on their approach, nor is its retreat discovered till it is too late for safety. It seizes the victim with a spring, and goes at a bound much farther than such an unvioldy animal could be supposed capable of doing. Then having

secured the prey, it drags it into the water, instantly sinks with it to the bottom, and, in this manner, quickly drowns it. Sometimes it happens that the creature wounded by the Crocodile makes its escape; in which case, the latter pursues and often takes it a second time. He seldom moves far from rivers, except in covert and marshy places; so that, in many parts of the East, it is very dangerous to walk carelessly on the banks of unknown rivers, or among sedgy grounds; and still more so to bathe, without the utmost circumspection, in unfrequented places.

It often happens, in its depredations along the bank, that the Crocodile seizes on a creature as formidable as itself, and meets with a most desperate resistance. We are told of frequent combats between the Crocodile and the tiger. All creatures of the tiger kind, are continually oppressed by a parching thirst that keeps them in the vicinity of great rivers, whither they descend to drink very frequently. It is upon these occasions that they are seized by the Crocodile; and they die not unrevenged. The instant they are seized upon, they turn with the greatest agility, and force their claws into the Crocodile's eyes, while he plunges with his fierce antagonist into the river. There they continue to struggle for some time, till at last the tiger is drowned.

It is man alone that can combat it with success, and even he must be prepared for the contest.

We are assured by Labat, that a Negro, with no other weapons than a knife in his right hand, and his arm wrapped round with a cow hide, ventures boldly to attack this animal in its own element. As soon as he approaches the Crocodile, he presents his left arm, which the animal swallows most greedily; and sticking in his throat, the Negro has time to give it several stabs under the throat; and the water also getting in it at the mouth, which is held involuntarily open, the creature is soon bloated up as big as a tun, and expires.

All the rivers of Guinea are infested with vast shoals of Crocodiles. On hot days, great numbers of them lie basking on the banks of rivers, and as soon as they observe any one approach, they plunge into the water.—Mr. Adanson says, that in the great river Senegal, on the western coast of Africa, he has sometimes seen more than two hundred of them swimming together, with their heads just above water, resembling a great number of trunks of trees floating down the river.—He gives the following account of an engagement between a Negro and a Crocodile seven feet long, which the Negro discovered sleeping among some bushes at the foot of a tree, near the banks of a river. When the man was convinced that the Crocodile was asleep, he approached with great caution, and gave him a deep wound with a knife on the side of the neck; the animal, though mortally wounded,

struck the Negro so violently on the legs with his tail as to knock him down; but without quitting his hold, he rose instantly and slipped a cord over the muzzle of the Crocodile, while one of his companions secured the tail. Mr. Adanson then mounted on his back to hold him down, while the Negro drew out the knife from the wound and dispatched him. Except when thus attacked, they seldom molest man. In the neighbourhood of Thebes, the small boat, in which M. Sonnini sailed up the river, was often surrounded by Crocodiles on a level with the surface. They observed the boat pass by them, but with apparent indifference, discovering neither fear nor any cruel intention at its approach.

The French soldiers in Egypt are stated to have set the Crocodiles at defiance. They were not once attacked by them, nor did they ever meet with a Crocodile, at a distance from the river. It is probable that these animals find, in the Nile itself, a sufficient quantity of food, which is not difficult to be procured, and which, as in all other cold blooded animals, they digest very slowly.

The young of the Crocodile are produced from eggs deposited in the sand, and hatched by the heat of the sun, near the bank of some river or lake. The female is said to be extremely cautious in depositing them unobserved. The general number is from eighty to a hundred. They are not larger than a tennis ball, and are

covered with a tough white skin. She fills up the hole carefully before she leaves them. In each of the two succeeding days, she lays as many more, which she hides in the same manner. The eggs are hatched generally in about thirty days. The fetus of Crocodiles are rolled up within the egg, and at the time when they break the shell, seldom exceed six or seven inches in length. They sometimes do this with their head, and sometimes with the scaly roots or studs on the back. When they come forth they immediately run into the water, where multitudes of them are devoured by various kinds of fish, and even by the larger animals of their own species. It is, however, in the destruction of their eggs, that the most material service to mankind is effected. The ichneumon and the vultures, seem peculiarly appointed by Providence to abridge the enormous fecundity of the Crocodiles, and, in this capacity, destroy and devour millions of their eggs.

The vultures are ever found in greatest numbers where the Crocodile is most numerous; and hiding themselves within the thick branches of the trees that shade the banks of the river, they watch the female in silence, and permit her to lay all her eggs without interruption. Then when she has retired, they encourage each other with cries to the spoil; and flocking all together upon the hidden treasure, tear up the eggs, and devour them in a much quicker time than they were deposited. Nor are they less diligent in attend-

ing the female while she is carrying her young to the water ; for if any one of them happens to drop by the way, it is sure to receive no mercy.

The manner of taking the Crocodile in Siam, is by throwing three or four strong nets across a river, at proper distances from each other ; so that if the animal breaks through the first, it may be caught by one of the rest. When it is first taken, it employs the tail, which is the grand instrument of strength, with great force ; after many unsuccessful struggles, the animal's strength is at last exhausted. Then the natives approach their prisoner in boats, and pierce him with their weapons in the most tender parts till he is weakened with the loss of blood. When he has done stirring, they begin by tying up his mouth, and with the same cord they fasten his head to his tail, which last they bend back like a bow. However, they are not yet perfectly secure from his fury ; but, for their greater safety, they tie his fore feet as well as those behind to the top of his back. These precautions are not useless ; for if they were to omit them, the Crocodile would soon recover strength enough to do a great deal of mischief.

The king of Saba, on the slave coast of Africa, at this day, has always two ponds filled with Crocodiles. In the Rio San Domingo, likewise, on the western coast of Africa, M. Brue was astonished to find the Crocodiles, usually considered such ferocious animals, perfectly harm-

less, insomuch, that the children played with them, mounted on their backs, and even beat them, without danger, or any appearance of resentment. This gentleness of disposition, he says, proceeds from their being kept always full fed, and from the attention paid to them by the natives; for in all other parts of Africa, they attack indiscriminately men and other animals.

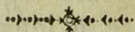
The eggs, and the flesh of the Crocodile, particularly that of the tail and belly, are used as food by the Negroes of Africa, and of several of the Indian nations. This flesh is white and juicy, and is considered by these people as peculiarly delicious. But such Europeans as have ventured to eat of it, have been, for the most part, disgusted by its strong musky flavour.

The voracity of the American Crocodile or Alligator, is so great, that they sometimes do not spare even mankind. A short time before M. Navarette was at the Manillas, he was told that, as a young woman was washing her feet in one of the rivers, an Alligator seized and carried her off. Her husband, to whom she had been but that morning married, hearing her screams, threw himself headlong into the water, and with a dagger in his hand, pursued the robber. He overtook, and fought him with such success, as to recover his wife: but, unfortunately for her brave rescuer, she died before she could be brought to the shore.

Where Alligators are very numerous, they

will sometimes attempt to get into the canoes or boats that pass their haunts during the night, in order to destroy the passengers. M. de la Borde, at Cayenne, says, he has seen them attempt to raise themselves against the sides of small boats in the river.—He informs us also, that the Alligators which inhabit the lakes of South America, are sometimes left dry, in consequence of the water evaporating. In this case, they are forced to subsist by catching birds or land animals, or even to live a long time without food. We are informed by Dampier, that the Alligators about the Bay of Campeachy, (probably from their having a full supply of food,) are by no means so ferocious as they are represented to be in other places. He never knew them attack a man, but he has often seen them run away from his sailors. He has drunk out of a pond full of them, where the water was not even deep enough to cover their backs, and the pond itself so small, that he could get no water but by coming within two yards of an Alligator's nose, the animals lying all the while with their heads towards him. Dampier and some of his men, were one day passing through a swamp, two or three feet deep in water, when they perceived the strong scent of an Alligator. Presently afterwards he stumbled over one and fell down. He called out loudly to his companions for assistance, but they ran off, as fast as their legs would carry them, towards the woods. He had no

sooner recovered himself, than he stumbled over the animal a second, and afterwards a third time; but at last, though in the animal's own element, got off in safety. This adventure had, however, such an effect upon him, that he never again went through any extensive water, whilst he remained in the Bay of Campeachy.



THE GUANA.

THE GUANA, which is an animal of the Lizard tribe, is about five feet long, and the body about as thick as one's thigh: the skin is covered with small scales, like those of a serpent; and the back is furnished with a row of prickles, that stand up, like the teeth of a saw: the eyes seem to be but half opened, except when the animal is angry, and then they appear large and sparkling: both the jaws are full of very sharp teeth, and the bite is dangerous though not venemous, for it never lets loose its hold till it is killed. The male has a skin hanging under his throat, which reaches down to his breast; and, when displeased, he puffs it up like a bladder: he is one third larger and stronger than the female, though the strength of either avails them little towards their defence. The males are ash-coloured, and the females are green.

The flesh of these may be considered as the greatest delicacy of Africa and America; and the sportsmen of those climates, go out to hunt the Guana, as we do in pursuit of the pheasant or the hare. In the beginning of the season, when the great floods of the tropical climates are passed away, and vegetation starts into universal verdure, the sportsmen are seen, with a nooze and a stick, wandering along the sides of the rivers, to take the Guana. This animal, though apparently formed for combat, is the most harmless creature of all the forest; it lives among trees, or sports in the water, without ever offering to offend: there, having fed upon the flowers that grow along the banks of the stream, it goes to repose upon the branches of the trees that hang over the water. Upon land, the animal is swift of foot; but when once in possession of a tree, it seems conscious of the security of its situation, and never offers to stir.

There the sportsman having found it, he advances slowly towards it, whistling in a manner that attracts the Guana, who pleased with the sound, turns towards the place from whence it comes, and stretches out its neck as if unwilling to lose a note.—Thus delighted, the simple animal suffers the person to advance his rod gently, and rub it against his sides and throat. This additional pleasure completes its ruin; for the Guana, beyond measure gratified by this operation, turns on its back to enjoy the tickling,

while the negro seizes this moment for slipping the nooze over his neck, and drags him to the ground.

Catesby says, that the Guanas form a great part of the subsistence of the inhabitants of the Bahama islands; for which purpose, they visit many of the remote islands to catch them, which they do by dogs trained up for that purpose, and these are so dexterous, as not often to kill them; if they do, they are used immediately as food. If otherwise, they fasten up their mouths to prevent their biting, and put them into the hold of their sloop, till they have caught a sufficient number, which they carry alive for sale in Carolina, or salt and barrel up for the use of their families at home—their flesh is delicate and well tasted.

The Guana, like the rest of the Lizard tribe, will live a long time without food: Mr. Browne domesticated one in Jamaica, which was never observed to eat any thing. When first this creature was taken into the house, it was very fierce and ill-natured; but after some time, its temper improved, and at length it would pass the greatest part of the day on the bed, where it was fond of lying. Mr. Browne adds, that the Guana may be very easily tamed while young, and is then both an innocent and beautiful companion.



THE CHAMELEON.

LIKE the crocodile, this little animal proceeds from an egg; and it also nearly resembles that formidable creature in form: but it differs widely in its size and appetites; being not above eleven inches long, and chusing to sit upon trees, through fear of serpents, from which it is unable to escape on the ground.

The head of a large Chameleon, is almost two inches long; and like that of a fish is fixed immoveably to the shoulders: the thickness of the body varies according as it is more or less inflated; for it can blow itself up, and contract itself at pleasure. This swelling and contraction is not only of the back and the belly, but of the legs and tail.

When the air is completely discharged from the body of the Chameleon, it appears to consist of little more than skin and bone; indeed such is its leanness, that the ribs and the joints of the back-bone may be distinctly seen and counted. In this state, it is said to resemble a mere animated skeleton covered with a skin.

This method of puffing itself up, is similar to that in pigeons, whose crops are sometimes greatly distended with air. The Chameleon has a power of driving the air it breathes, over every part of the body: however, it only gets between the skin and the muscles, for the muscles them-

selves are never swollen. The skin is very cold to the touch; and though the animal seems so lean, there is no feeling the beating of the heart. The surface of the skin is unequal, and has a grain not unlike shagreen, but very soft, because each eminence is as smooth as if it were polished. The colour of all these eminences, when the Chameleon is at rest in a shady place, is of a bluish grey, and the spaces between are of a pale red and yellow.

But when the animal is removed into the sun, then comes the wonderful part of its history. At first it appears to suffer no change of colour, its grayish spots still continuing the same: but the whole surface soon seems to imbibe the rays of light; and the colouring of the body changes into a variety of hues. Wherever the light comes upon the body, it is of a tawney brown; but that part of the skin on which the sun does not shine, changes into several brighter colours, pale yellow, or vivid crimson; which form spots of the size of half one's finger: some of these descend from the spine half way down the back; and others appear on the sides, arm and tail. When the sun has done shining, the original gray colour returns by degrees, and covers all the body. Sometimes the animal becomes all over spotted with brown spots, of a greenish cast. When it is wrapped up in a white linen cloth for two or three minutes, the natural colour becomes much lighter; but not quite

white, however, from hence it must not be concluded that the Chameleon assumes the colour of the objects which it approaches; this is entirely an error, and probably has taken its rise from the continual changes it appears to undergo.

As these changes in the colour of the Chameleon appear so extraordinary, we shall add the report of a traveller, who had one for some time in his possession:—"Its general colour" says he, "was a pleasant green spotted with a pale blue; from this it changed to a bright yellow, dark olive, and a dull green, but never appeared to such advantage as when irritated, or a dog approached it; the body was then considerably inflated, and the skin clouded like tortoise-shell in shades of yellow, orange green and black. A black object always caused an immediate change of colour; the room in which it was kept was skirted by a board painted black, this, the Chameleon carefully avoided; but if he accidentally drew near it, or we placed a black hat in his way, he was reduced to a hideous skeleton, and from the most lively tints became black as jet; on removing the cause, the effect as suddenly ceasing; the sable hue was succeeded by a brilliant colouring, and the body was again inflated."

When the Chameleon changes place, and attempts to descend from an eminence, it moves with the utmost precaution, advancing one leg

very deliberately before the other, still securing itself by holding whatever it can grasp by the tail. It seldom opens the mouth, except for fresh air ; and when that is supplied, discovers its satisfaction by its motions, and the frequent changes of its colour. The tongue is sometimes darted out with amazing quickness after its prey, which is flies ; and this is about half the length of the whole body, resembling very much a common earth-worm. The eyes are remarkably little, though they stand out of the head : they have a single eye-lid, like a cap with a hole in the middle, through which the pupil of the eye appears, which is very bright ; and round it there is a little circle of a gold colour ; but the most extraordinary part of their conformation is, that the animal is able to see what passes before, behind, or on either side, and it can give all these motions to one eye while the other remains perfectly at rest.

It is supposed, that this wonderful structure is given to the eye by Providence, to defend it from the intense light of the sun ; and when we see the contrivance used by Laplanders and other northern nations, to protect themselves from the excessive gleam of the snow, by covering their eyes with a thin board having a narrow slit in the middle of it, we can scarcely hesitate in believing, that this provision is given to the Chameleon for the same purpose.

The peculiar property which the Chameleon

has of changing its colour, and assuming hues so different from each other, has been made the means of conveying to the young a very useful lesson, upon the modesty with which they should offer their own opinions and listen to those of others.—This lesson is contained in a poem which we subjoin both for the amusement and instruction of the young reader.

OFT has it been my lot to mark,
A proud, conceited, talking spark,
With eyes that hardly serv'd at most
To guard their master 'gainst a post :
Yet round the world the blade has been,
To see whatever could be seen.
Returning from his finish'd tour,
Grown ten times perter than before ;
Whatever word you chance to drop,
The travell'd fool your mouth will stop :
“ Sir, if my judgment you'll allow—
“ I've seen—and sure I ought to know.”
So begs you'd pay a due submission,
And acquiesce in his decision.

Two travellers of such a cast,
As o'er Arabia's wilds they past,
And on their way, in friendly chat,
Now talk'd of this, and then of that ;
Discours'd awhile, 'mongst other matter,
Of the Chameleon's form and nature.

" A stranger animal," cries one,
 " Sure never liv'd beneath the sun :
 " A lizard's body, lean and long,
 " A fish's head, and serpent's tongue.
 " Its foot with triple claw disjoin'd,
 " And what a length of tail behind !
 " How slow its pace ! and then its hue—
 " Whoever saw so fine a blue ?

" Hold there," the other quick replies,
 " 'Tis green, I saw it with these eyes,
 " As late with open mouth it lay,
 " And warm'd it in the sunny ray :
 " Stretch'd at its ease, the beast I view'd,
 " And saw it eat the air for food."

" I've seen it, Sir, as well as you,
 " And must again affirm it blue ;
 " At leisure I the beast survey'd
 " Extended in the cooling shade."

" 'Tis green, 'tis green, Sir, I assure ye."
 " Green !" cries the other, in a fury ;
 " Why, Sir, d'ye think I've lost my eyes ?"
 " 'Twere no great loss," the friend replies ,
 " For if they always serve you thus,
 " You'll find them but of little use."

So high at last the contest rose,
 From words they almost came to blows :
 When luckily came by a third ;
 To him the question they referr'd :
 And begg'd he'd tell them, if he knew,
 Whether the thing was green or blue.

" Sirs," cries the umpire, " cease your pother,
 " The creature's neither one nor t'other.

" I caught the animal last night,
 " And view'd it o'er by candle-light :
 " I mark'd it well—'twas black as jet—
 " You stare—but Sirs I've got it yet,
 " And can produce it."—" Pray, Sir, do ;
 " I'll lay my life the thing is blue."—
 " And I'll be sworn, that when you've seen
 " The reptile, you'll pronounce him green."
 " Well then, at once to ease the doubt,"
 Replies the man, " I'll turn him out :
 " And when before your eyes I've set him,
 " If you don't find him black—I'll eat him."
 He said ; and full before their sight
 Produc'd the beast, and lo !—'twas white !
 Both star'd, the man look'd wond'rous wise ;
 " My children," the Chameleon cries,
 (Then first the creature found a tongue)
 " You all are right, and all are wrong :
 " When next you talk of what you view,
 " Think others see as well as you :
 " Nor wonder, if you find that none
 " Prefers your eye-sight to his own."



THE FLYING DRAGON.

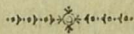
THE fables which were formerly spread abroad, and believed by the ignorant, concerning a fierce animal which had wings, and whose bite was mortal, most probably originated from the small, weak, and perfectly innocent creature we are about to describe.

The total length of this curious reptile is about a foot, the tail being extremely long in proportion to the body : The head is of a very singular form, being furnished beneath with a triple pouch, one of which hangs under the throat, while the other two project, one on each side : they are all sharp pointed, as may be observed from the figure in the frontispiece : the body and limbs are slender, and covered with scales. The colour on the upper parts is an elegant pale blue, the back and tail being marked by several dark bars, while the wings are elegantly spotted with brown, black, and white patches.

These reptiles inhabit Asia, Africa, and America, where they are seen flying from tree to tree, and feeding on flies, ants, and other insects. They are said to make a noise with their wings, and they are able to support themselves in the air, during a flight of thirty paces.

Several impositions have been often attempted to be passed on the public, of different animals stuffed in a peculiar manner, so as to represent

what those who have only heard of the animal, might suppose to be a Dragon. The most remarkable instance of this kind of deception was practised in Holland, some years ago, where a **Hamburgh** merchant professed to have a real **Dragon** in his possession, which he valued at a thousand pounds. The dishonesty, however, was detected, and exposed as it deserved, by the celebrated **Linnæus**, who declared it to be an ingenious combination of the skins of large snakes, the teeth of weasels, and the claws of birds of prey.



THE NIMBLE LIZARD.

THIS elegant little creature, which is known in almost every part of the temperate regions of Europe, seems to be the most gentle and inoffensive, and, at the same time, the most useful of all the Lizard tribe. It is fond of basking in the sun; but, unable to bear excessive heat, in the hottest weather it seeks for shelter. In spring, during fine weather, it may, sometimes, be seen, luxuriously extended on a sloping green bank, or on a wall exposed to the sun. In these situations, it enjoys the full effects of the reviving warmth; expressing its delight by gently

waving its slender tail; and its lively and brilliant eyes are animated with pleasure. Should any of the small insects, on which it feeds, appear, it springs upon them with the quickness of thought; and, if any danger occurs, the little creature itself seeks a more secure retreat, with equal rapidity. On the least noise, it turns suddenly round, drops down, and seems, for a moment, perfectly stupified by its fall: or else it suddenly shoots away among the bushes or thick grass. This wonderful rapidity is chiefly to be observed in warm countries, for, in milder regions, its motions are much more languid.

This gentle and peaceful animal excites no sensations of terror; and, when taken into the hand, makes not the smallest attempt either to bite or offend. In some countries, children use it as a play-thing; and, in consequence of its natural gentleness of disposition, it becomes, in a great measure, tame and familiar. In Carolina, so familiar does it become, that it will enter the rooms of houses, without fear, and in pursuit of insects, mount the tables, whilst people are eating, and even leap after them on person's clothes. They are so cleanly and beautiful, that they are suffered to run over the tables and plates, without exciting the smallest disgust.

The tail is nearly twice the length of the body, and tapers from the root to the extremity, where it ends in a sharp point. This, from the weakness of the joint, is so brittle as often to snap off

on the least roughness in handling. In this case, it is, however, sometimes reproduced. The whole length of the animal, from the tip of the nose to the point of the tail, is about six inches and a half. The back and tail are variously striped and spotted, with light brown, black, white, and dark brown.

For the purpose of seizing the insects on which it feeds, the Nimble Lizard darts out, with astonishing velocity, its forked tongue. This is of a reddish colour, and has a roughness which is scarcely sensible to the sight, but, which assists very materially in catching its winged prey.—Like other animals of the Lizard tribe, it is capable of existing a long time without food. Some of them have been kept in bottles, without any nourishment, for upwards of six months.

In the southern countries of Europe, the Nimble Lizard revives, very early in the spring, from the torpid state in which it had passed the cold weather of the winter; and, recovering its activity, begins its sportive movements. In the beginning of May, the female deposits her eggs, which are nearly round, and about the third of an inch in diameter, in some warm situation; as, for instance, at the foot of a wall fronting the south. Here they are hatched by the heat of the sun.

Previously to laying the eggs, both male and female change their skins, which they again do about the beginning of winter.—They pass that

season in a state of torpor, more or less complete, according to the rigour of the climate, either in holes of trees, in walls, or in subterraneous places.

This little animal seems occasionally to lay aside its natural gentleness and innocence of disposition; still, however, no further than for the purpose of obtaining food. Mr. Edwards once surprised a Nimble Lizard in the act of fighting with a small bird, as she sat on her nest in a vine against the wall, with newly-hatched young. He supposed the Lizard would have made them a prey, could he but have driven the old bird from her nest. He watched the contest for some time; but, on his near approach, the Lizard dropped to the ground, and the bird flew off.

The GREEN LIZARD is only another variety of the same kind we have been describing; chiefly distinguished from it, by attaining, oftentimes, the size of two feet or upwards. Unlike the former, it is not found in England, but, in the warmer parts of Europe, it is seen in great numbers, about warm walls, sunny banks, and old buildings. None of the Lizard tribe, it may be observed, are to be seen in Ireland. In its manners it is equally mild and gentle with the Nimble Lizard; and, if taken young, may, to a certain degree, be tamed. On this account, and from its extremely beautiful appearance, it is usually considered a favourite animal. In

Sweden and Kamtschatka, however, it is looked upon by the inhabitants with such horror, that they cut it to pieces whenever they meet with it.

Notwithstanding the generally peaceful disposition of the Green Lizards, they sometimes contend with serpents, but rarely with success, generally falling a victim to the unequal combat. When driven to extremity, it will sometimes defend itself even against the attacks of dogs. It springs instantly at the muzzle of the assailant, where it often fixes itself so obstinately, that it will allow itself to be carried off, and even killed, rather than quit its hold. It is not, however, to be considered a dangerous reptile; notwithstanding, some people have groundlessly attributed to it, the property of giving pernicious, if not mortal bites. This fact has been ascertained by numerous and well authenticated experiments.

It feeds principally on insects and earthworms; and is, in every respect, a most active animal, pursuing, with wonderful celerity, its insect prey, and escaping, with great readiness, from pursuit, when disturbed. It devours the eggs of small birds, for which purpose, it climbs with agility into the highest branches of trees.

It runs with great swiftness; and its first motions, when it springs from among bushes or dry leaves, are often so rapid, as to excite sensations of surprise, or even of fear.

THE SALAMANDER.

NO animal of the Lizard tribe, except the Crocodile, has excited so much notice as the Salamander. Whilst even the hardest bodies are unable to resist the action of heat, the generality of mankind have given full credit to the ridiculous stories that have, for ages, been related of this little Lizard, not only being able to withstand the effects of fire, but even to extinguish it. For a long time it was believed that, if one of these small Lizards was thrown upon the most violent flame, its progress would be instantly checked. Far, however, from remaining uninjured by the fire, the Salamander is as certainly destroyed by it, as any other animal. When heat has reached its body, indeed, it appears covered with a sort of milky fluid, which comes through all the pores of its skin; but, it need scarcely be added, that this would not be sufficient to quench even the smallest fire. In addition to this, the Salamander was esteemed a poisonous reptile, and, as such, has been generally held in terror; but, this opinion also has been refuted by numerous experiments.

Shady woods, high mountains, or the banks of unfrequented rivulets, are the usual retreats of these animals and, they are not often seen, except during wet weather. In the winter, they lie concealed in hollows about the roots of

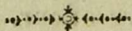
old trees, in subterraneous recesses, or the cavities of old walls, where several of them have been sometimes discovered, collected, and twisted together. They are frequently to be seen in the water, where they are able to live as well as on land. Their principal food consists of insects, snails, and worms. Their pace is slow, and their manners sluggish.

When the Salamander is at rest, it very often rolls itself into a spiral form, like a serpent. Whenever it is handled, it covers itself suddenly over with its milky fluid; and when crushed, or even when squeezed, it emits a very peculiar and offensive odour. When struck, it erects its tail, and becomes, for some time, altogether motionless.

It is extremely tenacious of life, and is not to be killed by blows or wounds without much difficulty; but if wetted with vinegar, or sprinkled with powdered salt, it soon dies in convulsions. This is the case likewise with some other Lizards, and with most worms. It is able to continue under water for a considerable length of time. Some individuals have been kept in water for more than six months, without any other food than what they could collect from that element. The animals often raise their nostrils above the surface, for the purpose of breathing. Whilst kept in water, they occasionally throw off a thin skin, of a greenish ash colour.

The females are generally supposed to pro-

duce their young ones into the world alive, hatched from eggs within their own bodies, in the same manner as vipers. M. de Maupertuis, in one female that he opened, counted forty-two, and in another forty-four. When first hatched, they are nearly black, and almost without any yellow spots; they are deposited in the water, and furnished with a kind of fins on each side of the neck, which always drop off as soon as the animals become perfected.



THE WATER-EFT OR NEWT.

THE Salamander, as we have already mentioned, was long fabulously supposed to be capable of living in the midst of fire.—The Eft, on the contrary, has really the property of remaining alive in the midst of ice. It is sometimes caught by the sudden formation of ice in the ditches or ponds that it inhabits; here it remains in a torpid state, till, on the return of spring, its prison becomes melted, when it recovers its liberty and its powers of motion. Sometimes, even in summer, Efts have been found enveloped in lumps of ice taken from ice-houses, in which they must have remained without either food or motion, from the commencement of the frost.

The Common Water Newt seldom exceeds four inches in length, and is entirely covered, except on the belly, with small warts. Its food consists of worms and water insects, and the prey is often contended for with great obstinacy. Dr. Townson kept some of them in a jar, and fed them with worms; the greatest possible quietness prevailed frequently amongst the little creatures, before the food was given them; but the moment the worm was dropped into the water, all was bustle and confusion, each attacking its neighbour furiously, and seizing it by the head, foot, or tail. These battles were the more singular, as the object of their strife, lay for some time unnoticed, at the bottom of the jar.

Almost all the animals of the Lizard tribe, change their skins once or twice a year, but the Elts do this much more frequently, and the manner in which the operation is performed, is so curious, as to deserve a particular description. Mr. Baker informs us, that for a day or two before the change, the animal always appeared more inactive than usual, taking no notice of the worms that were given to it, which, at other times, it greedily devoured. It began the operation of casting the skin, by loosening that part about the jaws. It then pushed it backward gradually, till it was able to slip out first one leg and then the other. With these legs, it proceeded to thrust the skin as far backward as they

could reach. 'This done, it was under the necessity of rubbing its body against the gravel at the bottom of the water, till it was more than half freed from the skin, which appeared doubled back, covering the hinder part of the body and the tail. The animal now bent back its head, taking the skin in its mouth, and setting its feet upon it, for firmer hold, by degrees drew it entirely off, the hind-legs being dragged out in the same manner that the fore-ones were before.—On examining the skin, it was, in every instance, found to be turned inside out, but without any breach except at the jaws. 'These creatures do not, however, like some of the snakes, put off the coverings of the eyes along with the skin; for two round holes always appear where the eyes have been.—'This operation sometimes occupies nearly half an hour; and, after it is finished, the Lizard appears full of life and vigour. If the skin is not taken away very shortly after it is cast, the animal usually swallows it. Sometimes it begins with the head part first; and the tail, being filled with air and water, becomes like a blown bladder, and proves so unmanageable, that it is very curious to see the pains it costs to reduce it to a condition to pass down the throat.

'The water newt deposits her eggs at the bottom of the water, they are enclosed in a gluey substance which connects them together like beads upon a string. 'Through this gluey substance the

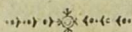
young efts may be distinctly perceived, coiled up within a transparent membrane, which lies in the middle. When the young have increased in size, and worked a passage out of their confinement, their shoulders are furnished with fringed tufts, like feathers, which serve the purpose of fins, but gradually disappear as the animals grow longer.



NATURAL HISTORY

OF

S E R P E N T S.



THE RATTLE SNAKE.

THIS animal, the most dreaded of all serpents, grows to the length of five or six feet. Its colour is yellowish-brown, above, marked with broad transverse bars of black. Both the jaws are furnished with small, sharp teeth, and the upper one has four large and pointed fangs. At the base of each there is a round orifice, opening into a hollow, which runs through the whole length in the form of a small channel: these teeth may be raised or compressed. When the animals are in the act of biting, they force out of a bag, on which the roots of the teeth rest, the fatal juice: this is received into the round orifice of the teeth, and conveyed through the tube or channel, into the wound. Their tail is composed of hollow, bony cells, jointed,

and lying one within another, like a set of cups; they annually increase in number, till they amount to about forty. It is found both in North and South America. Providence has given to mankind a security against its bite; for it generally warns the passenger of its approach by the rattling of its tail. In fine weather, the notice is always given, but not always in rainy weather: this inspires the Indians with a dread of travelling among the woods in wet seasons. In addition to this circumstance, the colour of the Rattle-snake is so extremely fetid, that when it basks in the sun, or is irritated, it is often discovered by the scent, before it is either seen or heard. Horses and cattle frequently discover it by the scent, and escape at a distance; but when the serpent happens to be to leeward of their course, they sometimes run into great danger.

The Rattle-snake usually moves with its head on the ground; but, if alarmed, throws its body into a circle, coiling itself with its head in the centre erect, and with its eyes flaming in a most terrific manner. Happily, it may be easily avoided; it is slow in pursuit, and has not the power of springing at its assailants.

Its tongue is frequently darted out and retracted with great agility. Besides the fangs with which the Rattle-snakes kill their prey, there is another kind of teeth much smaller, and situated in both jaws, which serve for catching and re-

taining it. There are no grinders: for they do not chew their food, but always swallow it whole.

It is not very uncommon for this creature to come into houses; but the moment any of the domestic animals see or hear it, they take alarm, and unite in giving notice of its presence. Mr. Catesby says, that in a gentleman's house in Carolina, as the servant was making the bed, on the ground floor, that he had himself left but a few minutes before, he discovered a Rattle-snake lying coiled between the sheets in the middle of the bed. Some time after this, one of these reptiles was sliding into the same gentleman's house, where he would, probably, have concealed himself, if the family had not been alarmed by the repeated outcries of the hogs, dogs, and poultry, who, says Catesby, seemed all united in their hatred against him, showing their terror by erecting their bristles and feathers; they carefully, however, kept their distance, while he regardless of their threats, moved slowly along.

When the Rattle-snake has been irritated, or the weather is exceedingly hot, its poison, on being inserted into a wound, often proves fatal in a very short time.

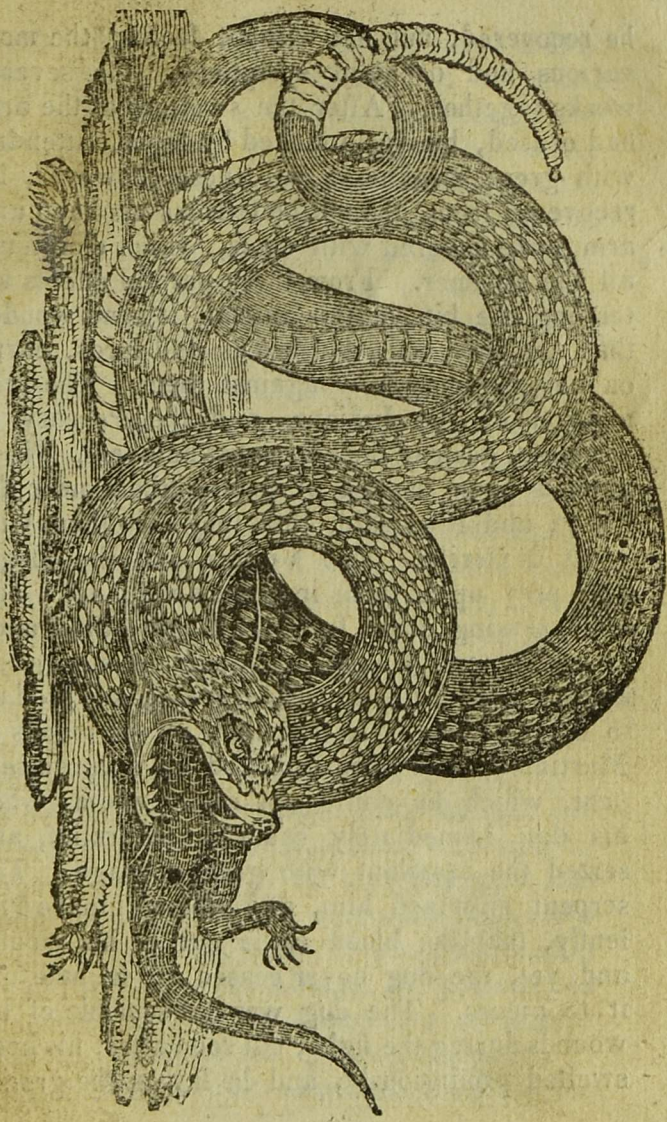
We are told, by an intelligent American writer, that a farmer was one day mowing with his negroes, when he by chance trod on a Rattle-snake, that immediately turned upon him,

and bit his boot. At night, when he went to bed, he was attacked with sickness: he swelled, and before a physician could be called in, he died. All his neighbours were surprised at this sudden death, but the body was interred without examination. A few days afterwards, one of the sons put on his father's boots, and at night when he pulled them off, he was seized with the same symptoms, and died on the following morning. The medical man arrived, but unable to divine the cause of so singular a disorder, being a very ignorant man, and unwilling to confess his own want of skill, he seriously pronounced both the father and the son to have been bewitched. At the sale of the effects, a neighbour purchased the boots, and on putting them on, experienced the like dreadful symptoms with the father and son. A skilful physician, however, being sent for, who had heard of the preceding affair, suspected the cause, and, by applying proper remedies, recovered his patient. The fatal boots were now carefully examined, and the two fangs of the Snake were discovered to have been left in the leather, with the poison-bladders adhering to them.—They had penetrated entirely through, and both the father and the son had imperceptibly scratched themselves with their points in pulling off the boots.

Dr. Brickell says, he was witness to an encounter between a dog, and a Rattle-snake, which was fastened to the ground by a tolerably

long string. The snake coiled up, and rattled its tail; and the dog being let loose, seized, and attempted to shake it out at full length, but from the weight was prevented from doing this, and in consequence it bit him in the ear. He seemed somewhat stunned, and left the place, but returned on being encouraged by the company. In the second encounter, he received a bite in his lip, after which the Snake bit himself. The dog from that moment appeared senseless of every thing around him; even the caresses of his brutal master had now no effect, and in less than half an hour, both the animals were found dead. The following instance, however, will shew that their poison, though very terrible in its effects, is not always certain death. A gentleman in Virginia, accidentally trod upon a Rattle-snake, which so enraged the animal, that it bit him in the hand. The gentleman, though aware of his danger, and the necessity of immediate assistance, stopped to kill the snake, which he carried home, and throwing it upon the ground, told his family that he was killed, and the snake was his murderer. In such an extremity, no time was to be lost, and olive oil, the remedy nearest at hand, was immediately applied. His arm, which was beginning to swell, was tied up near the shoulder, and the wound, well rubbed with the oil. A stop was thus put to the progress of the infection, and his constitution so far got the better of the poison, that

A RATTLE SNAKE SWALLOWING A LIZARD.



he recovered, but not without feeling the most various and dreadful symptoms, for several weeks together. After the swelling of the arm had ceased, he was attacked by fever, attended with great weakness; all these, however, he recovered from, though he tells us his hand and arm were covered with spots, which continued all the summer. From these painful effects attending the bite of this animal, it is no wonder that not only man, but beasts and birds, carry on an unceasing war against them. The Ichneumon of the Indians, and the Peccary of America, destroy them in great numbers. These animals have the art of seizing them near the head; and it is said, that they skin them with great dexterity. The Vulture and the Eagle also prey upon them in great abundance; and often sousing down from the clouds, drop upon a long serpent, which they snatch up, struggling and writhing in the air. Dogs, also, are bred up to oppose them. A traveller, in the woods of Martinico, was once attacked by a large serpent, which he could not easily avoid, when his dog immediately came to his relief, and seized the assailant with great courage. The serpent entwined him, and pressed him so violently, that the blood came out of his mouth, and yet, the dog never ceased till he had torn it to pieces. The dog was not sensible of his wounds during the fight; but soon after, his head swelled prodigiously, and he lay on the ground

as dead. But his master having found a Banana tree near the spot, he applied its juice, mixed with treacle, to the wounds, which recovered the dog, and quickly healed his sores.

The Indians sometimes succeed in slight cases, by sucking the wound; they consider this method as very successful; but they also carry in their pockets, a small root, a portion of which they chew, and having swallowed some of the juice, apply the rest to the wound. The effect, however, says Catesby, which they usually attributed to these remedies, was owing more to the strength of a good constitution, or the slightness of the bite. "The person thus bitten," he adds, "I have known to survive without any assistance, for many hours; but when a Rattle-snake with full force pricks a vein or an artery, inevitable death ensues; and that, as I have afterwards seen, in less than two minutes. The Indians know their danger the moment they are bitten; and when they perceive it mortal, apply no remedy, concluding all efforts vain."

If they are not provoked, these animals are perfectly inoffensive to mankind; although the account already given of the traveller, who was assailed by one of them, may seem an exception, the fact is, they are so much alarmed at the sight of men, as always, if possible, to avoid them, and never themselves commence an attack. Though the poison, therefore, be justly terrible to us when it has entered the blood,

it has been given for very good purposes, for the animal's own proper support and defence. Without this, serpents, of all other animals, would be the most exposed and defenceless; without feet for escaping a pursuit; without teeth capable of inflicting a dangerous wound, or without strength for resistance; incapable, from their size, of finding security in very small retreats like the earth-worm, and disgusting all from their deformity, nothing was left for them but a speedy extirpation. But furnished as they are with powerful poison, every rank of animals approaches them with dread, and never seizes them but at an advantage. Nor is this all the advantage they derive from it. The malignity of a few serves for the protection of all. Though not above a tenth of their number are actually venomous, yet the similitude they all bear to each other, excites a general terror of the whole tribe; and the uncertainty of their enemies, in which the poison chiefly resides, makes even the most harmless formidable. Thus Providence has acted with double precaution; it has given some of them poison for the general defence of a tribe naturally feeble; but it has thinned the number of those which are venomous, lest they should become too powerful for the rest of animated nature.

In the cold season, the negroes seize the Rattle-Snake by the head; and at that time, it has not sufficient strength either to defend itself, or

to endeavour to escape. The Wild Hogs which are said to feed on it without inconvenience, probably seize it in such a manner as to evade its fangs. The moment one of these hogs smells a rattle-snake, it erects its bristles and rushes upon it with eagerness. The hog, besides the caution which it uses in laying hold of its enemy, is, probably, defended from the effects of the venom, at least, in certain parts of its body, by the thickness of its hair, the hardness of its skin, and the depth of its fat.

Mr. St. John once saw a tamed Rattle-snake, as gentle as it is possible to conceive a reptile to be. It went to the water and swam whenever it pleased; and when the boys, to whom it belonged, called it back, their summons was readily obeyed. It had been deprived of its fangs. They often stroked it with a soft brush; and this friction seemed to cause the most pleasing sensations, for it would turn on its back to enjoy it, as a cat does before the fire.

Rattle-snakes are viviparous, producing their offspring, generally about twelve in number, in the month of June; and by September, these acquire the length of twelve inches. It has been well attested that they adopt the same mode of preserving their young ones from danger, as that attributed to the European viper, receiving them into their mouth and swallowing them.—M. de Beauvois declares, that he was an eye-witness to the process. He saw a large Rattle-

snake, which he had disturbed in his walks; it immediately coiled itself up, opened its jaws, and in an instant, five small ones that were lying by it, rushed into its mouth. He retired in order to watch the snake, and in a quarter of an hour saw her again discharge them. He then approached a second time, when the young ones rushed into its mouth more quickly than before, and the animal immediately moved off and escaped.

The Rattle-snake is known to devour several of the smaller species of animals, and by many persons, is considered to be endowed with the power of fascinating its prey, until they even run into its jaws. Mr. Pennant, from Kalm, says, that this snake will frequently lie at the bottom of a tree on which a squirrel is seated. He fixes his eyes upon the little animal, and from that moment, it cannot escape: it begins a doleful outcry, which is so well known, that a person passing by, on hearing it, immediately knows that a snake is present. The squirrel runs up the tree a little way, comes down again, then goes up, and afterwards comes still lower. The snake continues at the bottom of the tree, with its eyes fixed upon the squirrel; and his attention is so entirely taken up, that a person accidentally approaching, may make a considerable noise, without so much as the snake's turning about. The squirrel comes lower, and at last leaps down to the snake, whose mouth is

already wide open for its reception. The poor little animal then, with a piteous cry, runs into his jaws, and is swallowed.

Some colour is given to this account by M. Le Vaillant, who says that he saw, on the branch of a tree, a species of shrike, trembling as if in convulsions, and at the distance of nearly four feet, on another branch, a large species of snake, that was lying with outstretched neck, and fiery eyes, gazing steadily at the poor animal. The agony of the bird was so great, that it was deprived of the power of moving away; and when one of the party killed the snake, it was found dead upon the spot—and that entirely from fear—for on examination, it appeared not to have received the slightest wound.

The same gentleman informs us, that a short time afterwards, he observed a small mouse, in similar agonizing convulsions, about two yards distant from a snake, whose eyes were intently fixed upon it; and on frightening away the reptile, and taking up the mouse, it expired in his hand.

A remarkable instance of the fascinating power of snakes, is given in Lichtenstein's travels in Southern Africa. In rambling in the fields near Cape Town, he saw, at the brink of a ditch, a large snake in pursuit of a field mouse. The poor animal was just at its hole, when it seemed in a moment to stop, as if unable to proceed, and, without being touched by

the snake, to be palsied with terror. The snake had raised its head over him, had opened its mouth, and seemed to fix his eyes stedfastly upon him. Both remained still a while ; but as soon as the mouse made a motion, as if to flee, the head of the snake instantly followed the movement, as if to stop his way. This lasted four or five minutes, till the author's approach put an end to it : the snake then snapped up his prey hastily, and glided away with it into a neighbouring bush. "As I had," he observes, "heard a great deal of this magic power in the snake over smaller animals, it was very interesting to me to see a specimen of it. I think it may be made a question, however, whether the poisonous breath of the reptile might not really have had the effect of paralysing the limbs of the mouse, rather than that its inability to move, proceeded either from the fixed eye of the snake, or the apprehension of inevitable death. It is remarkable, and very certain, that serpents will sport with their prey, as cats do, before they kill it."

Dr. Barton of Philadelphia, however, after having examined, with some care, into the subject, is of opinion, that the report of this fascinating property has had its rise in nothing more than the fears and cries of birds, and other animals, in the protection of their nests and young.

In summer, the Rattle-snakes are generally

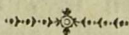
found in pairs : in winter, they collect in multitudes, and retire into the ground, beyond the reach of the frost. Tempted by the warmth of a spring day, they are often observed to creep out in a weak and languid state. Mr. Pennant mentions, that a person has seen a piece of ground covered with them, and that he killed, with a rod, between sixty and seventy ; till, overpowered with the stench, he was compelled to retire.

The American Indians often regale on the Rattle-snake—When they find these animals asleep, they put a small forked stick over their necks, which they keep immovably fixed to the ground, giving the snake a piece of leather to bite ; and this they pull back several times with great force, until they observe that the poisonous fangs are torn out. They then cut off the head, skin the body, and cook it as we do eels ; and the flesh is said to be extremely white and good.

The following are the remarks, with which Buffon concludes his account of this justly dreaded animal.

Favoured inhabitants of our temperate regions ! how happy are we in being placed at a distance from those countries, where heat and moisture exert so powerful an influence. Here we have no dreadful serpent to infect, with its venom, the water in which it swims with facility—the trees whose boughs it glides over with

agility—the earth whose caverns it fills—and the solitary woods, where it exercises the same cruel sway, as the tiger in its burning deserts. Let us not regret the natural beauties of their warmer climates, their more shady and majestic trees, their more verdant foliage, their more beautiful flowers, which yield a richer perfume: These flowers and trees with all their gay foliage, often conceal the Rattle-snake beneath their deceitful beauties.



THE GREAT BOA.

THE ground colour of the great Boa is yellowish-gray, on which is distributed along the back, a chain of large reddish-brown, and sometimes red variegations, with other smaller and more irregular marks and spots.

It is the largest of all the serpent tribe, is frequently from thirty to forty feet in length, and of a proportionate thickness. Carli describes it making its track through the tall grass, like mowers in a summer's day. He could not without terror, behold whole lines of grass lying levelled under the sweep of its tail. In this manner, it moved forward with great rapidity, until it found a proper situation frequen-

ted by its prey: there it continued to lurk, in patient expectation, and would have remained for weeks together, had it not been disturbed by the natives.

As the body is long, slender, and capable of bending in every direction, the number of joints in the back bone, are numerous beyond what one would imagine. In the generality of quadrupeds, they amount to not above thirty or forty; in all animals of the serpent kind, as well as in this, they amount to an hundred and forty five from the head to the vent, and twenty five more from that to the tail. They serve to give the back-bone a surprising degree of pliancy; but this still is encreased, by the manner in which each of these are locked into the other. In man and quadrupeds, the flat surfaces of the bones are laid one against the other, and bound tight by sinews; but in serpents, the bones play one within the other like a ball and socket, so that they have full motion upon each other in every direction. Thus if a man were to form a machine composed of so many joints as are found in the back of a serpent, he would find it no easy matter to give it such strength and pliancy at the same time. The chain of a watch is but a bungling piece of workmanship in comparison.

Though the number of joints in the back bone is great, yet that of the ribs is still greater; for there are two hundred and ninety in all.

These ribs are furnished with muscles; four in number; which being inserted into the head, run along to the end of the tail, and give the animal great strength and agility in all its motions.

There is much geometrical neatness in the disposal of the serpent's scales, for assisting the animal's sinuous motion. As the edges of the foremost scales lie over the ends of their following scales, so those edges, when the scales are erected, which the animal has a power of doing in a small degree, catch in the ground, and so promote and facilitate the animals progressive motion. The erecting of these scales, is by means of a multitude of distinct muscles, with which each is supplied, and one end of which is tacked each to the middle of the foregoing.

As a proof of the great size at which these animals arrive, a gentleman, who had some large concerns in America, informs us, that he one day sent out a soldier, with an Indian, to kill some wild-fowl; and in pursuing their game, the Indian, who generally went before, sat down upon what he supposed to be the fallen trunk of a tree. But the monster beginning to move, the poor fellow perceived what it was that he had thus approached, and dropped down in an agony. The soldier, who at some distance saw what had happened, levelled his piece at the serpent's head, and, by a lucky aim,

shot it dead ; and, going to the relief of his companion, found that he was also dead from his fright. On his return, he related what had happened ; the animal was ordered to be brought, and it was found to be thirty-six feet long. The skin was stuffed, and sent to the cabinet of the Prince of Orange.

The Boa however is not confined to America, it is also a native of the larger Indian Islands, and of the burning deserts of Africa. In those countries where the sun dries up every brook, and that which had the appearance of a great river in the rainy season, becomes, in summer, one dreary bed of sand ; a lake that is never dry, is considered by every animal as the greatest convenience of nature. As to food, the country supplies that in sufficient abundance, or else they are furnished by nature with a wonderful capacity for enduring hunger ; it is the want of water that all animals endeavour to remove. When they have discovered this, no dangers can deter them from attempting to slake their thirst. Thus the neighbourhood of a rivulet, in the tropical countries, is generally the place where all the hostile tribes of nature draw up for the engagement. On the banks, thousands of animals of various kinds are seen venturing to quench their thirst, or preparing to seize their prey. The elephants are perceived in a long line, marching from the darker parts of the forest ; the buffaloes are

there depending upon numbers for security; the gazelles relying solely upon their swiftness, the lion and tiger waiting a proper opportunity to seize; but chiefly the larger serpents are upon guard there, and defend the accesses of the lake. Not an hour passes without some dreadful combat; but the serpent, defended by its scales, and naturally capable of sustaining a multitude of wounds, is of all others, the most formidable. It is the most wakeful also; for the whole tribe sleep with their eyes open, and are, consequently, for ever upon the watch: so that, till their rapacity is satisfied, few other animals will venture to approach their station.

In the island of Java, we are assured, that one of these monsters has been known to kill and devour a buffalo. In a letter printed in the German Ephemerides, we have an account, by a person who assures us that he was himself a spectator, of a combat between an enormous serpent and a buffalo. The serpent had, for some time, been waiting, near the brink of a pool, in expectation of its prey; when a buffalo was the first animal that appeared. Having darted upon the affrighted beast, it instantly began to wrap him round with its voluminous twisting; and at every twist, the bones of the buffalo were heard to crack almost as loud as the report of a gun. It was in vain that the animal struggled and bellowed; its enormous enemy entwined it



THE GREAT POA.

so closely, that at length all its bones were crushed to pieces, and the whole body was reduced to one uniform mass: the serpent then untwined its folds, in order to swallow its prey at leisure, To prepare for this, and also to make it slip down the throat, the more smoothly, it was seen to lick the whole body over, and thus cover it with a mucilaginous substance. It then began to swallow it at the end that afforded the least resistance; and in the act, the throat suffered so great a dilatation, that it took in, at once, a substance that was thrice its own thickness.

It was in all probability, an enormous specimen of the Boa that once spread so violent a terror amongst the Roman soldiers, and threw the whole army into confusion. The circumstances are thus told by a Historian, and are so curious as to deserve being related.

In the mean time, Regulus every where victorious, led his army into the country, watered by the river Bagra-da, near which an unlooked for misfortune awaited them, and at once caused the Romans considerable loss, for a Serpent of prodigious size attacked the soldiers, who were sent for water, and while they were unable to offer any resistance, swallowed several of them in his enormous mouth, and killed others by twisting round them with his folds, and bruising them with the strokes of his tail. It caused so

much trouble to Regulus, that he found it necessary to contest the possession of the river with it, by employing the whole force of his army; during which, a considerable number of soldiers were lost, while the Serpent could be neither vanquished nor wounded, the strong armour of its scales, easily repelling the force of all the weapons that could be brought against it. Upon which, recourse was had to battering engines, with which, the animal was attacked in the manner of a fortified city, and was thus, at length, overpowered. Several discharges were made against it, without success, till its back being broken by an immense stone, the formidable monster began to lose its powers, and was, though with difficulty, destroyed: after having caused such fear amongst the army, that they confessed they would rather attack Carthage itself than such another monster. A most mortifying humiliation to human pride. The general ordered the skin of the snake to be taken off and sent to the city—it is said to have measured one hundred and twenty feet, and remained for a long time hung up in one of the temples.

According to the Bombay Courier of August 31, 1799, a Malay prow was making for the port of Amboyna; but the pilot, finding she could not enter it before dark, brought her to anchor

for the night, close under the island of Celebes. One of the crew went on shore in quest of betel nut in the woods, and on his return, lay down, as it is supposed, to sleep on the beach. In the course of the night, he was heard, by his comrades, to scream out for assistance. They immediately went on shore, but it was too late; for an immense snake of this species, had crushed him to death. The attention of the monster being entirely occupied by its prey, the people went boldly up to it, cut off its head, and took both it and the body of the man on board their boat. The snake seized the poor fellow by the right wrist, where the marks of the fangs were very distinct; and the mangled corpse bore evident signs of having been crushed by the monster's twisting itself round the head, neck, breast, and thigh. The length of the snake was about thirty feet, and its thickness equal to that of a moderate sized man.

Sometimes the Boa is brought over to these countries alive, to be exhibited to the curious; and though the climate is too cold for their nature, they are found to thrive very well, by laying a blanket in the cage where they were kept, in the folds of which they nestle, and also by keeping the room moderately heated. In Mr. Polito's collection of wild animals which is now [1821] exhibiting in Dublin—there is one about nine feet long, which is fed on live rabbits, ducks,

and other small animals; these he instant dispatches, by coiling his body two or three times round them, and squeezing them to death; after which, by strong and repeated gulps, he gradually sucks the body of each in whole, till it is completely swallowed.

To this account we shall subjoin that of one, which was brought to Europe, in the vessel which carried Lord Amherst home from India, and on the passage, was given a goat to feed on: He was somewhat small of his kind, being only about sixteen feet long, and about eighteen inches in circumference. He was brought on board, shut up in a wooden crib or cage, the bars of which were sufficiently close to prevent his escape; and it had a sliding door, for the purpose of admitting the articles on which he was to subsist; the dimensions of the crib were about four feet high, and five feet square; a space sufficiently large to allow him to coil himself round with ease. At an early period of the voyage, the sliding door being opened, a goat was thrust in, for him to feed upon, and the door of the cage shut. The poor goat, as if instantly aware of all the horrors of its perilous situation, immediately began to utter the most piercing and distressing cries, butting instinctively at the same time, with its head towards the serpent, in self-defence.

The snake, which, at first, appeared scarcely to notice the poor animal, soon began to stir a little, and, turning his head in the direction of the goat, he, at length, fixed his eye on the victim, whose agony and terror seemed to increase. The first operation was that of darting out his forked tongue, and, at the same time, rearing a little with his head; then suddenly seizing the goat by the fore-leg, with his mouth, and throwing it down, it was encircled in an instant in his folds. So quick, indeed, was the act, that it was impossible for the eye to follow the rapid motion of his long body, as he wound it round the animal. During this time, he continued to grasp with his fangs, though it appeared an unnecessary precaution, that part of the animal which he had first seized. The poor goat, in the mean time, continued its feeble cries a short time, but they soon became more and more faint, and at last it expired. The snake, however, retained it for a considerable time in his grasp, after it was apparently motionless. He then slowly and cautiously unfolded himself, and began to prepare himself for swallowing it. Placing his mouth in front of the head of the dead animal, he commenced by covering it over with his saliva; and then taking its muzzle into his mouth, he sucked it in, as far as the horns would allow. These opposed some little difficulty, not so much from their extent, as from their points; however, they also, in a very short time, dis-

appeared; that is to say, externally; but their progress was still to be traced very distinctly on the outside, threatening every moment to protrude through the skin.

The whole operation of completely gorging the goat, occupied about two hours and twenty minutes: at the end of which time, the tumefaction was confined to the middle part of the body, or stomach, the superior parts, which had been so much stretched, having resumed their natural dimensions. He now coiled himself up again, and lay quietly in his usual torpid state, for about three weeks or a month, till his last meal appearing to be completely digested and dissolved, he was ready for other food, which he devoured with equal facility.

As the vessel approached the Cape of Good Hope, this animal began to droop, as was then supposed, from the increasing coldness of the weather, (which may probably have had its influence.) and he refused to kill some fowls which were offered to him. Between the Cape and St. Helena, he was found dead in his cage; and, on dissection, the coats of the stomach were discovered to be excoriated and perforated by worms. Nothing remained of the goat except one of the horns, every other part being dissolved.

Dr. M'Leod also mentions, that, during a captivity of some months, in the kingdom of Dahomey, on the coast of Africa, he had opportunities of observing snakes more than double the

size of this one just described. They killed their prey, precisely in a similar manner; and, from their superior bulk, were capable of swallowing animals much larger than goats or sheep. Governor Abson, who had, for thirty-seven years, resided at Fort William, (one of the African Company's settlements there,) described some desperate struggles which he had either seen, or had come to his knowledge, between the snakes and wild beasts, as well as the smaller cattle, in which the former were always victorious. A negro herdsman belonging to Mr. Abson (who afterwards limped for many years about the fort) had been seized by one of these monsters by the thigh; but from his situation in a wood, the serpent, in attempting to throw himself around him, got entangled with a tree; and the man, being thus preserved from a state of compression, which would have instantly rendered him quite powerless, had presence of mind enough to cut with a large knife, which he carried about with him, deep gashes in the neck and throat of his antagonist, thereby killing him, and disengaging himself from his alarming situation. He never afterwards, however, recovered the use of that limb, which sustained considerable injury from his fangs, and the mere force of his jaws.

It is happy for mankind that their rapacity is often their own punishment; for, whenever they have gorged themselves in this manner, they become torpid, and may be approached and des-

troyed with safety. Patient of hunger to a surprising degree, whenever they seize and swallow their prey, they seem, like surfeited gluttons, unwieldy, stupid, helpless, and sleepy. They at that time seek for some retreat, where they may lurk for several days together, and digest their meal in safety. The smallest effort then will destroy them; they scarcely can make any resistance; and equally unqualified for flight or opposition, even the naked Indians do not fear to assail them. But it is otherwise when this sleeping interval of digestion is over; they then issue, with famished appetites, from their retreats, while every animal of the forest flies from their presence.

When Captain Stedman was on board one of his boats, on the river Cottica in Surinam, he was informed, by one of his slaves, that a large snake was lying among the brush-wood, on the beach, not far distant; and, after some persuasion, was induced to land, in order to shoot it. At the first shot, the ball missing the head, went through the body: when the animal struck round, and with such astonishing force, as to cut away all the underwood around him, with the facility of a scythe mowing grass; and, by flouncing his tail, caused the mud and dirt in which he lay, to fly over the men's heads that were with him, to a considerable distance. They started back some way, but the snake was quiet again in a few minutes. Captain Stedman

again fired, but with no better success than before; and the animal sent up such a cloud of dust and dirt, as he had never seen but in a whirlwind; which caused them once more suddenly to retreat. After some persuasions, the Captain was induced, though much against his inclination, being exceedingly weak from illness, to make a third attempt. Having, therefore, once more, discovered the snake, they discharged their pieces at once, and shot him through the head. The negro brought a boat-rope to drag him to the canoe, which was lying on the bank of the river. This proved no easy undertaking, since the huge creature, notwithstanding his been mortally wounded, still continued to writhe about in such a manner, as to render it dangerous for any person to approach him. The negro made a running noose on the rope, and after some fruitless attempts, threw it on his head with much dexterity; and now, all taking hold of the rope, they dragged him to the beach, and tied him to the stern of the canoe to take him in tow. Being, however, still alive, he there kept swimming like an eel, His length was more than twenty-two feet.

When they came to one of their stations, they hauled him on shore, in order to skin him and take out the oil. To effect this purpose, one of the negroes, having climbed up the tree with the end of the rope, let it down over a strong forked branch, and the others hoisted up the snake,

and suspended him from the tree. This done, the former negro, with a sharp knife between his teeth, left the branch, and clung fast upon the monster, which was still writhing, and began his operations by ripping it up, and stripping down the skin as he descended. "Though I perceived (says the captain) that the animal was no longer able to do him any injury, I confess I could not, without emotion, see a man stark-naked, black and bloody, clinging with his arms and legs round the slimy and yet living monster." The negroes cut the animal in pieces, and would have eaten it, had they not been refused the use of the kettle to boil it in.—The bite of this snake is not venomous; nor is it believed to bite all from any other impulse than that of hunger.

The following is a curious account, of the capture of a large serpent in Egypt, many hundred years ago :

Encouraged by the munificence of Ptolemy, King of Egypt, says the narrator, the huntsmen resolved to carry one of the largest serpents to the King at Alexandria. The one they pitched upon was forty-five feet long, and frequented the borders of a lake, where it usually lay on the ground motionless and coiled up in a circle, but whenever any animal came near it, it attacked it suddenly, seizing it with its teeth, or surrounding it in the folds of its body.

The huntsmen having discovered the serpent

at some distance imagined they should easily catch it in a noose, and meant then to secure it with chains. They advanced at first very courageously, but on a nearer approach, were very much frightened by its furious and terrible aspect: they drew near however, with great caution, and endeavoured to catch its tail in the noose they had prepared, but the moment the serpent felt the rope, it turned about with fury, killing two of the hunters with a stroke of its tail, and causing all the rest to take to flight. The remaining hunters urged on by the prospect of reward, made a new attempt by means of a net, formed of very strong ropes. Taking advantage of the absence of the serpent from its hole, they stopped up the entrance with stones, and placed their net in the passage. On its return to its hiding place, they suddenly surrounded it at some distance, with a number of men, some on horseback, some armed with bows and slings, and others making a great noise with trumpets and other loud instruments. The serpent erecting itself in a menacing posture, terrified the surrounding multitude with its frightful hissings—but, alarmed at the number of its assailants, and by the barking of dogs, and the noise of warlike instruments, it endeavoured to gain its retreat, and fell into the net which was too strong for all its efforts—being thus caught and secured with a number of chains, it was carried to Alexandria alive, when its natural ferocity was greatly lessened by long fasting.

THE VIPER.

VIPERS are found in many parts of England ; but the dry, stony, and, in particular, the chalky countries abound with them. This animal seldom grows to a greater length than two feet ; though, sometimes, they are found above three. The ground colour of their bodies is a dirty yellow ; that of the female is deeper. The back is marked the whole length, with a series of square black spots, touching each other at the points ; the sides with triangular ones, the belly entirely black. It is chiefly distinguished from the common black snake by the colour, which, in the latter, is more beautifully mottled, as well as by the head, which is thicker than the body ; but particularly by the tail, which, in the viper, though it ends in a point, does not run tapering to so great a length as in the other. When, therefore, other distinctions fail, the difference of the tail can be discerned at a single glance.

When angry, the Viper opens its formidable mouth, armed with poison fangs, and throws out its tongue, composed of two fleshy forked extremities : This tongue is moved with such velocity, that it seems even to sparkle. Anciently, the tongue of the viper was considered as a species of dart, with which it was able to wound its prey—it was believed, that the venom was

situated at its double tip, which was then compared to a poisonous arrow. This error, probably, had its rise from its being remarked, that the viper always darts out its tongue rapidly when about to bite. The tongue is contained in a kind of sheath—in which there is no venom whatever, and its principal use is to catch insects, which form part of the food of vipers.

The apparatus of poison in the Viper, is very similar to that of the rattle-snake, and all the other poisonous serpents. The symptoms that follow the bite, are an acute pain in the wounded part, with a swelling, at first red, but afterwards lived, which, by degrees, spreads to the adjoining parts; with great faintness, and a quick, though low, and sometimes interrupted pulse; sickness at the stomach, with bilious, convulsive vomitings, cold sweats, and sometimes pain about the navel. The most esteemed remedy is common salad-oil, thoroughly rubbed on the wounded part. In this country, the Viper is not known, in England, though its bite, produces a painful and troublesome swelling, it is rarely attended with any other bad consequences.

The poison, according to Dr. Mead, when diluted with a little warm water, and applied to the tip of the tongue, is sharp and fiery, a sensation taking place, as though the tongue was struck through with something scalding or burning. This, he says, goes off in two or three

hours. One person, mentioned by Dr. Mead, tried a large drop of it undiluted; in consequence of which, his tongue swelled with a little inflammation; and the soreness lasted two days. Other persons, on the contrary, assert it to have no particular acrimony of taste, but that, in this respect, it rather resembles oil or gum. Contradictions nearly equal have taken place relative to the effect of viperian poison taken into the stomach. Boerhaave affirms it to produce no ill effect whatever; and the Abbe Fontana, that it is not to be swallowed with impunity—although he is one of those who assert its being devoid of any thing unpleasant to the taste. We are told, however, that in the presence of the Grand Duke of Tuscany, while the philosophers were making elaborate dissertations on the danger of the poison taken inwardly, a viper-catcher, who happened to be present, requested that a quantity of it might be put into a vessel, and then with the utmost confidence, and to the astonishment of the whole company, drank it off in their presencx. Every one expected the man instantly to drop down dead; but they soon perceived their mistake, says the relator of the story, and found that taken inwardly, the poison was as harmless as water.

The viper differs from most other serpents, in being much slower, as also in excluding its young completely formed, and bringing them forth alive. The kindness of Providence seems

exerted, not only in diminishing the speed, but also the fertility, of this dangerous creature. They are supposed to be about three months before they bring forth, and they have seldom above eleven eggs at a time. These are of the size of a blackbird's eggs, and chained together in the womb, like a string of beads. Each egg contains from one to four young ones; so that the whole of a brood may amount to about twenty or thirty. They continue in the womb till they come to such perfection as to be able to burst from the shell; and they are said, by their own efforts, to creep from their confinement into the open air, where they continue for several days without taking any food whatsoever. "We have been often assured," says Mr. Pennant, "by intelligent people, of the truth of a fact, that the young of the viper, when terrified, will run down the throat of the parent, and seek shelter in its belly in the same manner as the young of the Opossum and of the Rattle-snake, are said to retire into the ventral pouch of the old one. From this," continues he, "some have imagined, that the viper is so unnatural as to devour its own young; but this deserves no credit, as these animals live upon frogs, toads, lizards, and young birds, which they swallow whole, though the morsel is often three times as thick as their own body."

The viper is capable of supporting very long abstinence, it being known, that some have been

kept in a box six months without food ; yet, during the whole time, they did not abate of their vivacity. They feed only a small part of the year, but, never during their confinement ; for, if mice, their favourite diet, should, at that time, be thrown into their box, though they will kill, yet, they will never eat them. When at liberty, they remain torpid throughout the winter ; yet, when confined, they have never been observed to take their annual repose. Their poison, however, encreases in proportion to the length of their confinement.

The Common Viper does not avoid other individuals of the same species, but rather seems, at certain seasons of the year, to seek society. During winter, several vipers are often found rolled up together under heaps of stones or in the hollows of old walls, and it is probable, they thus collect together in order to increase their natural heat, and thereby to put off, as long as possible, the season of torpidity.

When the skin of the viper becomes, in the smallest degree, injured, it immediately ceases to be supplied with nourishment, and a new skin begins to form below the old one. On this account it is, that almost all vipers, when taken, are found to have two skins, the old skin which is more or less injured or decayed, and the new skin which is proportionably advanced in growth. They throw off their old skin in the fair weather of spring ; and the new

skin, when first discovered, is far more lively in its colours than the old. It frequently happens, that this new skin becomes injured, by some means or other, during the summer; in which case, it dries and becomes shrivelled, and falls off about the end of autumn, being replaced by another new skin, which has grown during summer. Thus, sometimes, the viper changes its coat twice in one year.

They are usually taken with wooden tongs, by the end of the tail, which may be done without danger; for, while held in that position, they are unable to wind themselves up to hurt their enemy: yet, notwithstanding this precaution, the viper-catchers are frequently bit by them: but, by the application of salad oil, the bite is effectually cured.

One William Oliver, a viper-catcher, at Bath, was the first who discovered this admirable remedy. On the first of June, 1735, in the presence of a great number of persons, he suffered himself to be bit by an old black viper, brought by one of the company, upon the wrist and joint of the thumb of the right hand, so that the drops of blood came out of the wounds: he immediately felt a violent pain, both at the top of his thumb and up his arm, even before the viper was loosened from his hand; soon after he felt a pain, resembling that of burning, trickle up his arm; in a few minutes, his eyes began to look red and fiery, and to water much;

in less than an hour, he perceived the venom seize his heart, with a pricking pain, which was attended with faintness, shortness of breath, and cold sweats ; in a few minutes after this, his belly began to swell, with great gripings, and pains in his back, which were attended with vomitings and purgings : during the violence of these symptoms, his sight was gone for several minutes, but he could hear all the while. He said, that in his former experiments, he had never deferred making use of his remedy longer than he perceived the effects of the venom reaching his heart ; but this time, being willing to satisfy the company thoroughly, and trusting to the speedy effects of his remedy, which was nothing more than olive-oil, he forbore to apply any thing, till he found himself exceedingly ill, and quite giddy. About an hour and a quarter after the first of his being bit, a chaffing-dish of glowing charcoal was brought in, and his naked arm was held over it, as near as he could bear, while his wife rubbed in the oil with her hand, turning his arm continually round, as if she would have roasted it over the coals : he said, the poison soon abated, but the swelling did not diminish much. Most violent purgings and vomitings soon ensued ; and his pulse became so low, and so often interrupted, that it was thought proper to order him a repetition of cordial potions ; he said, he was not sensible of any great relief from these ; but, a glass or two of olive-oil

which he drank, seemed to give him ease. Continuing in this dangerous condition, he was put to bed, where his arm was again bathed over a pan of charcoal, and rubbed with salad oil, heated in a ladle over the charcoal. by Dr. Mortimer's direction, who was the physician that drew up the account. From this last operation, he declared that he found immediate ease, as though by some charm: he soon after fell into a profound sleep, and after about nine hours sound rest, awaked about six the next morning, and found himself very well; but in the afternoon, and after drinking some rum and strong beer, so as to be almost intoxicated, the swelling returned, with much pain and cold sweats, which abated soon, on bathing the arm, as before, and wrapping it up in brown paper, soaked in the oil.

Perhaps the most effectual remedy yet employed against the bite of venomous serpents, is some strong volatile substance, as spirits of hartshorn, given in water, as strong as it can be drunk, and frequently repeated, for a considerable time; besides applying the same to the wounded part. The same cure has been found effectual in stings from bees or wasps in the inside of the throat; which sometimes happen in cyder countries, on drinking new cyder, in which, there happen to be half-drowned bees or wasps.

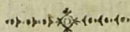
The same William Oliver, presented to the Royal Society, a small Viper, big with young,

which was kept alive in common green moss, in a box, with a glass cover. She brought forth several young ones, who cast their skins about six weeks after their birth. Mr. White also surprised a large female Viper which seemed very heavy and bloated, as it lay on the grass basking in the sun. When he came to cut it up, he found within fifteen young ones, the shortest of which measured full seven inches, and were about the size of a full grown earth-worm. This little fry issued into the world with the true Viper spirit about them; the moment they were disengaged from the body of the dam, they twisted and twirled about, set themselves up, and gaped very wide, when touched with a knife, shewing manifest tokens of defiance, and malignity, though as yet they had no manner of fangs.

The Viper catchers in England no longer receive that encouragement from the faculty, which they did when Vipers flesh was considered strengthening diet, while the fat was supposed to possess many virtues. The French, also, placed great faith in Viper broth, and Viper wine. It has now, however, lost all its ancient credit and is never prescribed by practitioners.

The Common Viper is found in most countries of the ancient world. In the East Indies, it is to be met with, with only very slight variation from the individuals of Europe. It is even able to support the severity of cold cli-

mates, being found in Sweden, where its bite is nearly as dangerous as in the warmer countries. It is likewise found in Russia, and in several parts of Siberia, where it is very numerous. The people ignorantly believing that some great disaster would follow any attempt to destroy them.



THE WATER-VIPER.

THIS serpent, says Catesby, is called, in Carolina, the Water Rattle-snake; not that it hath a rattle, but it is a large snake not unlike the rattle snake in colour, and the bite is said to be as mortal. This snake frequents the water, and is never seen at any great distance from it: the back and head are brown, the belly transversely marked with black and yellow alternately—the head is large and armed with the like destructive weapons as the rattle-snake; it is very nimble, and particularly dexterous in catching fish. In summer, great numbers are seen lying on the branches of trees, hanging over rivers—from which, at the approach of a boat, they drop into the water, and often in to the boat on the men's heads: they lie in this manner to surprise either birds or fish, after which last, they plunge and pursue them with great swiftness,

and catch some of large size, which they carry on shore and swallow whole. One of these I surprised swimming ashore with a large cat-fish in its mouth. The tail is small towards the end, and terminates in a blunt horny point, which, though perfectly harmless, was, for a long time, considered as capable, not only of killing men and other animals, but even of destroying a tree, by wounding it with it—the tree withering, turning black, and dying.



THE GREAT VIPER OF MARTINIQUE.

THIS animal is peculiar to the Islands of Martinique, St. Lucie, and Beconia, and has never been traced to the American continent. On account of its triangular head, resembling that of a spear, it has been named by the French naturalists, *Trigonocephalus*: when full grown, it is nearly eight feet in length. Its agility is, as well as its mode of darting, very remarkable: it rolls the body in four circles, one upon another, the folds of which incline all at once at the will of the animal, so as to throw the whole mass forward five or six feet. After the manner of the crested or hooded snake, it can raise itself vertically on its tail, and thus attain the height of a

man; at the same time that, by means of large scales, laid over each other, with which the belly is covered, this serpent, like the adder, can climb large trees, and creep among the branches, in order to reach the birds' nests, whose young he devours, and in which he has often been found coiled up.

The Martinique Viper, is also, from its form, called the cane shaped viper, and is one of the most venomous that we know. When it means to attack any animal, it rolls itself up in a spiral form; and, using its tail as a fixed point, springs with the rapidity of an arrow, but is seldom able to leap to any considerable distance. It has by no means the activity of other serpents; but especially when the weather is the least cool, it remains very much in a torpid state, concealed among leaves, or decayed trees, or in holes in the earth. It very seldom comes into houses or huts in the country, and is never seen in towers, but is often found in corn grounds, where it feeds on rats. It never assails mankind, except when attacked, or irritated, and never bites till it has worked itself into a kind of rage. Its approach is easily discovered by a strong fetid smell which it emits, and by the cries of birds, particularly one called the white neck by the planters. When any person is surprised by this serpent, its attention is easily occupied by presenting a bunch of leaves to it, or a twig; until the person can get some offensive weapon.

One single blow is generally sufficient to kill it. After cutting off its head, the body continues to move somewhat like a worm, for a considerable time.

This serpent feeds on lizards, rats, poultry, game, and even on cats. Its mouth and throat are capable of such vast distension, that it has been known to swallow a sucking pig. When any prey that it has seized escapes, it follows its footsteps slowly and with difficulty, yet being very quick of sight and smelling, it seldom fails to succeed at last, especially as the animal it pursues, soon drops in consequence of the envenomed wound. In swallowing any animal it always begins by the head; and when its morsel happens to be large, it remains a long while on the spot, stretched out in a state of stupefaction, until digestion is somewhat advanced. Its digestion is very slow, and when one of them is killed some time after a good meal, the fetid smell from its body is quite insupportable.

Notwithstanding the disgust which this animal must naturally excite, some negroes and even whites have ventured to eat it, and have found its flesh good.

Different opinions are entertained respecting the activity of the venom of this serpent. Our author says, that there is no instance of any one escaping, who has been bitten by the Martinique or Lance-shaped Viper; that all died in great agony, and some within six hours after the bite.

It is, indeed, melancholy to read of the many remedies which have been unsuccessfully applied to save the lives of those who have been bitten by this serpent, and that in most cases, except when assistance was immediately obtained, all that could be accomplished was merely to assuage the pain of the sufferers, who generally expired a few hours after being wounded.



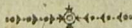
THE LADY-VIPER.

THIS, which is a native of the East Indies, is one of the most beautiful and most harmless of serpents.—Its proportions are more delicate than in most others, its motions are nimble though moderate, and the colours of its skin beautifully mixed together; these however, are only two, a fine black and a pure white, but they are so agreeably contrasted, and so bright from the high polish of the scales, that they please the eye more than the more rich and brilliant colours of other species, which are often too dazzling.

The general colour of the whole body is white, with rings of black on the whole upper surface, these latter are irregular and somewhat festooned, which adds much to the elegance and variety of the ornament; the top of its small

head is beautifully marked with black and white, the former colour prevailing. The eyes are very small, and surrounded with black which augments their lustre.

This species is very familiar, and never attempts to escape from mankind, nor does it ever shew any signs of fear when approached. It seems remarkably sensible to the degree of cold, which sometimes prevails in hot climates; on which account, it seeks for warm situations; and the smallness of its size, the beauty of its colours, the gentleness of its movements, and its harmless disposition, inspire a fondness for it in the Indians: even the females, far from having any fear of it, take it in their hands, caress and cherish it. The ladies in Malabar, where it is very common, and in many other parts of India, are careful to warm this delicate little serpent, when it appears languid, during the cool weather of the rainy season. They place it in their bosoms, without any dread, and it seems perfectly sensible of their kindness; during the hot season, also, these ladies are equally fond of this viper, which they fondle, for the purpose, in their turn, of being refreshed by the touch of its skin, which is so smooth as always to feel cool.



THE CERASTES.

THIS venomous serpent is a native of Egypt, as well as of Syria and Arabia. It is at once distinguished from other snakes, by two small pointed and arched horns, situated over the eyes; these give the animal a very terrific appearance, though they are not offensive weapons. Billon compares these horns or excrescences to grains of barley, and it is probably this fancied resemblance, which has occasioned some ancient authors to relate, that the Cerastes conceals itself entirely under fallen leaves and grass, leaving only its horns exposed, as a bait for birds, on which, by this contrivance, it preys.

The usual length of the Cerastes is from *twelve* to *fifteen* inches, though they occasionally grow to *two feet*. The colour on the back is yellowish, with spots of a deeper shade, the under surface of the body is a pale lead colour.

Most writers of antiquity and of the middle ages, considered this as one of the most noble species of serpents, and capable of turning and twisting its body, in every direction, with the greatest facility, insomuch that it never advances straight forwards, but always in curves and winding from side to side, and always making a sort of low hissing or rustling noise, by the motion of its hard scales on each other. Yet however nimble may be its motions, it can very

difficultly escape from eagles and other large birds of prey, which pounce upon it with great swiftness—on this account, these birds were always held in great reverence by the Egyptians.

If we may depend on the report of travellers, the Cerastes is able to endure a much longer fast, than any of its kind. An apothecary, at Venice, who had resided for some years at Cairo, is said to have kept *two* Cerastes in a well closed bottle, for *five* years, without any food; a little sand was put into the bottle, in which they burrowed, and at the end of that long period, they seemed as full of vigour as if but lately taken.

Mr. Bruce informs us, that the Cerastes are so fond of heat, that when he and his companions made a fire at night, in order to dress their victuals, they were generally visited by more than half a dozen of these creatures, who burnt themselves to death by approaching too near the embers. The following account of the Cerastes is nearly in his own words:—

“The Cerastes moves with great rapidity, and in all directions, forward, backward, and sideways. When he is inclined to surprize any one who is too far from him, he creeps with his side towards the person, and his head averted, till judging his distance, he turns round, springs upon him, and fastens upon the part next to him; for it is not true what is said, that the Cerastes does not leap or spring. I saw one of

them at Cairo, crawl up the side of a box, in which there were many, and there lie still as if hiding himself, till one of the people who brought them to us, came near him, when he leaped nearly the distance of three feet, and fastened between the man's fore-finger and thumb, so as to bring the blood. The man showed no sign either of pain or uneasiness, and remained full *four* hours without applying any sort of remedy. We were afterwards assured that the animal had not been previously deprived of his fangs, but was in its perfect state, for he shortly after bit a large pelican in the thigh, which caused its death in *thirteen* minutes.

This, however, is not surprizing, when we are told that the inhabitants of the East will handle venomous reptiles, with a freedom which a European will hardly credit. For the sake of a livelihood, the Hindoos carry them about in baskets, to show the multitude, and make them gradually uncoil themselves to the sound of their rough music. "I have myself," says Bruce, "seen the inhabitants of Africa, take the *Cerastes* in their hands, at all times, put them in their bosoms and throw them at one another, as children do apples or balls, without their being even so irritated by this usage as to bite." They acquire this protection, [he thinks,] by chewing a certain root, and washing themselves with an infusion of certain plants in water. One day, while he was sitting with one of the

chief people, a servant of his brought a Cerastes which he had just taken out of a hole, and was using with every sort of familiarity. Bruce suspected that the teeth had been drawn, but he was assured they had not, and to convince him, the serpent was sent home to him, when it bit a chicken by the neck, which, in consequence, died immediately; he concludes with saying, that he was, at different times, exceedingly anxious to try the efficacy of the herbs they made use of, by washing himself with an infusion of them, but his heart always failed him, as he was about to try the experiment.

A man who came from above the catacombs, where the pits of the mummy birds are kept, who has taken, says Mr. B. a Cerastes with his naked hand, from a number of others lying at the bottom of a tub, has put it upon his bare head, covered it with the common red cap he wears, then taken it out, put it on his breast, and tied it about his neck like a necklace; after which it has been applied to a hen, and bit it, which has died in a few minutes; and, to complete the experiment, the man has taken it by the neck, and, beginning at the tail, has eaten it, as one would do a carrot, or a stock of oelery, without any seeming repugnance.

However lively the snake may have been before, when he is seized by any of these barbarians, he seems as if taken with sickness and

feebleness, frequently shuts his eyes, and never turns his mouth towards the arm of the person who holds him.

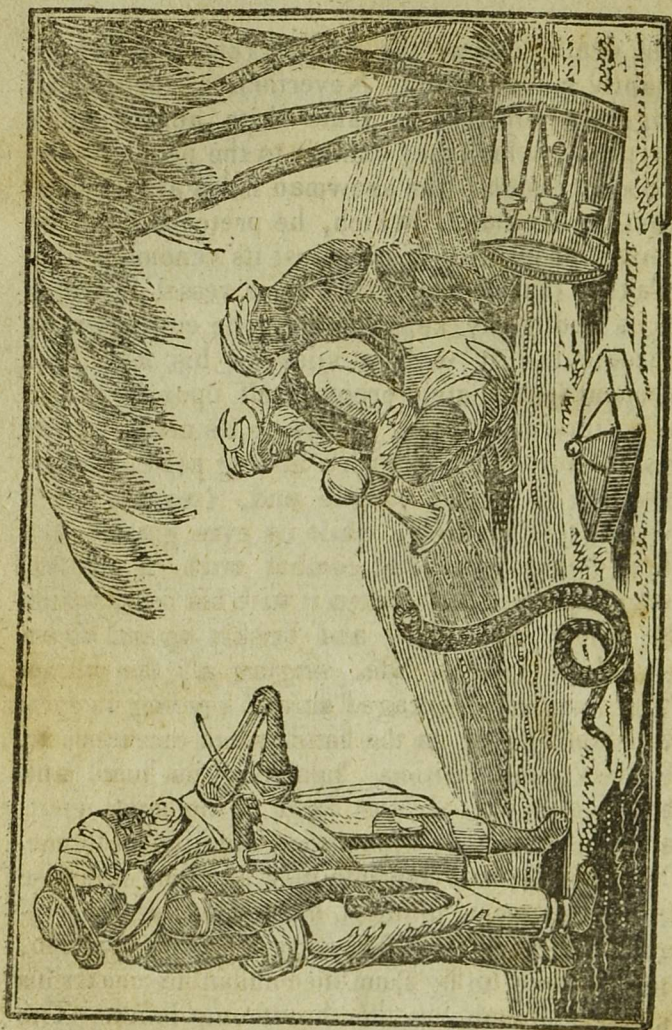


THE HOODED OR SPECTACLE SNAKE.

THIS most poisonous of serpents, derives its Portuguese name of *Cobra de Capello*, or Hooded Snake, from a custom which it has when irritated, of swelling out the skin of its neck, and drawing in its head, so as to produce, in some degree, a resemblance to a hood. It is from *three* to *eight* feet long, with two large fangs hanging out of the upper jaw. It has also a mark of dark brown on the forehead, which when viewed frontwise, looks like a pair of spectacles: it is also known by the appellation of the Spectacle Snake. The eyes are fierce and full of fire, and the bite so deadly, that it is said to be incurable, the patient dying in about an hour after the wound; the whole frame being dissolved into one putrid mass of corruption.

The Hooded Snake is a native of India, where it is much dreaded for the malignity of its poison. The Indians who travel in the woods with naked feet, are justly afraid of it, as it springs upon them with great agility, and its bite we have already remarked, produces inevita-

ble death, unless the proper remedies are instantly made use of. Nevertheless, the Indian jugglers contrive to tame them among other serpents, which they exhibit to the people. - On these occasions, the showman holds a particular root in his hand, which, he pretends, has the power of insuring him against its venomous bite. Taking the serpent from a close vessel in which it is ordinarily kept confined, he enrages it by threatening it with a stick or his fist. The serpent immediately erects itself upon its tail in a posture of defence, blows up its neck, opens its dreadful mouth with a hissing noise, thrusting out its forked tongue and, (moving itself with great vivacity, while its eyes glance like fire) begins a kind of combat with its master, who continues to threaten it with his fists, which he moves continually and briskly up and down and from side to side, singing all the while. The terrified or enraged animal keeping its eyes constantly fixed on the hand which threatens it, follows every motion, balancing its head and body on its tail always fixed in the same spot, and thus gives the appearance of a kind of dance. The reptile can continue this kind of exercise for about seven minutes, but whenever the juggler perceives that his serpent grows wearied, and is about to fly from the combat he ceases his song, and removes the threatening hand. The snake now ceases its seeming dance, and extends itself on the ground, when the master seizes it by the neck and replaces it in his box or jar.



THE HOODED OR SPECTACLE SNAKE.

Shaw informs us, that he was assured of there being forty thousand person in Cairo and its surrounding villages, who lived on lizards and serpents without other food; from which circumstances, they have the distinguished honour of walking next in procession to some rich banners, embroidered in black silk, which are, on a particular day in the year, taken from the castle of Cairo, and carried through the streets with great pomp.

From the observations of a traveller who resided a long time in India, we have the following account of the method which these showmen use, to train up their serpents to the dance. When an Indian has procured a Hooded snake for this purpose, he turns it out of the jar in which it is kept, and prevents its escape with a stick, which he uses to provoke it to fight, holding the stick in one hand and the empty jar in the other. Whenever the snake attempts to bite, it is presented with the jar, against which it hurts its nose, and is obliged to start back. This exercise is continued, till the animal, always foiled in its attack, and hurt against the jar, every turn it attempts to bite, is obliged to give up the unequal combat; but constantly keeps its eyes fixed on the hard body which is presented to it, and follows every motion. Thus by repeated lessons, the serpent is at length trained to the task, and as it no longer attempts to bite, the showman ventures to threaten it

with his hand and always, accompanies this exercise with a kind of music, from whence it has been named a dance.

We are also told, that not only these snakes are carried about, in the manner above-mentioned, but also serpents of larger dimensions, indeed the jugglers are frequently observed to carry a large snake in a basket, which uncoiled itself at the command of its master, and was conveyed round to the spectators on the shoulders of men.

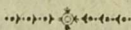
This then, sufficiently explains the influence which the showmen appear to exercise over the Hooded snakes. As in other fierce animals, it is produced by education—but it still remains a matter of wonder, to what we are to ascribe the power which music has, upon even those who have never been taught to fear a master. It is a well known fact, that when a house is infested with those snakes, musicians are sent for, who by playing a low and monotonous kind of tune upon their flute, draw the animals from their hiding places, and destroy them; for no sooner do they hear the music, than they glide softly from their retreats, and are easily taken.

Nothing can afford a stronger proof of this fact, than the following circumstance, which is stated, upon respectable authority, to have occurred at the house of a gentleman, for a long time resident in India.

At this person's residence, a large company were assembled, and were seated at dinner, when a hooded snake, which had glided in unobserved, and doubtless remained concealed under the table, was seen to twine itself round the frame of a chair on which a lady sat, and gradually mount till it had brought its head and neck on a level with hers. The alarm of every one present may well be conceived; they feared to make the slightest attempt at affording assistance, lest the effort might irritate the animal, who could inflict its bite with a quickness greater than they could prevent. At last it was suggested, that the musicians should be sent for: they were at some distance and the lady herself was intreated not to exhibit any alarm, which could rouse the anger of the Serpent, who all the time continued to move about near her person, without offering her any violence. After half an hour of suspense, the music was at last heard, but so faint from distance, that it was the snake itself which gave the first intimation of its arrival. It suddenly erected its head, in the attitude of listening, and gradually, as the sounds became more distinct, uncoiled itself, glided down the frame of the chair, and out of the room, where the musicians were prepared to seize him.

Mr. Forbes informs us, that when the music ceases, the snakes appear motionless; but if not immediately covered up in a basket, the spectators are liable to fatal accidents. He

mentions having had one exhibited before him, which danced for an hour on his table, and which he frequently handled during that time, not doubting but its fangs had been previously extracted. The first day, however, its master was showing it in the market place, and entertaining with its dance the country people who sat round, when either from the music stopping too suddenly, or from some other cause irritating the vicious reptile, it darted at the throat of a young woman, and inflicted a wound, of which she died in about half an hour.



THE COMMON OR RINGED SNAKE.

THE Common or Ringed snakes are well-known inhabitants of moist and warm woods in England, on the dry banks of which they are often seen during the summer, either sleeping or basking themselves. They are likewise found in bushes in moist places, and are often seen to take the water, as they swim perfectly well.—In the Viper, the young are excluded alive, as we have mentioned, this is not the case with the Common snake, which deposits her eggs from fourteen to twenty in number, either in a hole with a warm aspect, or in dunghills, where they remain till the following spring before they

are hatched. They are harmless and inoffensive animals, being totally destitute of every means of injuring mankind.

In winter, these snakes conceal themselves, and become nearly torpid; re-appearing in spring, when they uniformly cast their skins. This is a process which they also seem to undergo in the autumn. Mr. White says, "About the middle of this month, (September) we found in a field, near a hedge, the slough of a large snake, which seemed to have been newly cast. From circumstances, it appeared as if turned wrong side outward, and as if it had been drawn off backward, like a stocking or woman's glove. Not only the whole skin, but the scales from the very eyes were peeled off, and appeared in the head of the slough like a pair of spectacles. The reptile, at the time of changing his coat, had entangled himself intricately in the grass and weeds; in order that the friction of the stalks and blades might promote this curious shifting of the exuviae."

It would be a most entertaining sight, could a person be an eye-witness to such a feat, and see the snake in the act of changing its garment. As the convexity of the eyes in the slough is not inward, that circumstance alone is a proof that the skin has been turned. Thus it appears, from what has been said, that snakes crawl out of the mouth of their own sloughs, and quit the tail-part last, just as eels are skinned by a cook-

maid.—While the scales of the eyes are becoming loose, and a new skin is forming, the creature, in appearance, must be blind, and feel itself in a very awkward and uneasy situation.

Several instances have occurred of the Common Snake being, in some degree, domesticated. Mr. White says, that he knew a gentleman who had one in his house quite tame. Though this was usually as sweet in its person as any other animal, yet, whenever a stranger, or a dog or a cat entered, it would begin to hiss, and soon fill the room with an effluvia so nauseous, as to render it almost insupportable. In Sardinia, the country people are very partial to these snakes, frequently keeping them with great care, and putting their food which they have prepared for them, into their mouths.

A friend of Mr. Bingley's had a Common Snake in his rooms at Cambridge, nearly three months. He kept it in a box of bran; and, during all that time, he never could discover that it ate any thing, although he frequently put both eggs and frogs, the favourite food of this species, into the box. Whenever he was in the room, he used to let the animal out of its prison: it would first crawl several times round the floor, apparently with a desire to escape; and, when it found its attempts fruitless, would climb up the tables and chairs, and not unfrequently even up the chair of its owner, as he sat at table. At length, it became so familiar,

as to lie in a serpentine form on the upper bar of his chair : it would crawl through his fingers, if held at a little distance before its head, or lie at full length upon his table, while he was writing or reading, for an hour or more at a time. When first brought into the room, it used to hiss and dart out its forked tongue ; but in no instance emitted any unpleasant vapour. In all its actions it was remarkably cleanly. Sometimes it was indulged with a run upon the grass, in the court of the college ; and sometimes with a swim in a large bason of water, which it seemed to enjoy very much. When this gentleman left the University, he gave his bedmaker orders to turn it out into the fields ; which, he believes, was done.

These animals prey on frogs, insects, worms, and mice ; for the former of which they often go into the water, where they swim with great elegance. After a snake has devoured a tolerably large frog, or a small bird, its prey will be seen to form a knot in its body ; and it then becomes so stupid and inactive as easily to be caught.—The Common Snakes are said to be particularly fond of milk, so much so, that they will occasionally creep into dairies to drink the milk from the vessels. It is even said that they will twine themselves round the legs of cows, in order to reach their udders, and they will sometimes suck them till the blood follows !

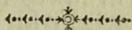
The Americans are said to encourage these reptiles, on account of their great use in clearing the houses of rats, which they will pursue with amazing agility, and even chase them to the roofs of the barns and outhouses. The farmer's wives, however, have no cause to rejoice in their inmates, since they not only skim the milk-pans of the cream, but rob the hen-roosts of the eggs. Catesby tells us, they have been found coiled up in a nest under a sitting hen; they are so very active, and pass along the ground with such speed, that it is almost impossible for the person to escape, when they are determined to overtake him; the only way to get rid of the creature, is to face it boldly and strike it with a stick.

It was a variety of this snake, which had been so completely tamed by a lady, as to come to her whenever she called it, follow her in her walks, wind itself round her, and sleep in her bosom. One day, when this lady went in a boat to some distance up a large river, she threw the snake into the water, imagining that it could easily recover the boat by swimming; but the current proving unusually strong at this time, owing to the advance of the tide, the poor animal, in spite of all its efforts to reach the vessel, was unfortunately drowned.—On the approach of winter, this kind of snake, like the common snake, retires into some underground retreat, and passes that season in a state of tor-

pidity, from which it recovers in the spring, when it casts its skin and appears in its highest beauty.

Very few of these snakes which take the water, have fangs, or are in any degree venomous. In the Guzerat lakes in India, says Mr. Forbes, they are of beautiful colours, and their mode of pursuing their prey is extremely curious; they watch the frogs, lizards, young ducks, and other animals, when reposing on the margin of the lake, and at a favourable opportunity, swallow them whole, though oftentimes thicker than themselves: These snakes in their turn, become food to the larger water fowl which frequent the lakes, who also swallow them and their contents entire; thus it sometimes happens, that a large duck not only gulps down the living serpent, but also one of its brood, which was still existing in its maw—Barrow relates a very curious fact, respecting living serpents in the stomach of a secretary bird after its death, which puts the matter beyond doubt. An English gentleman at the Cape of Good Hope, killed a secretary bird, which he carried home with the intention of having an accurate drawing made from it. He threw it on the floor of the balcony near the house; where after it had remained some time, and been examined and tossed about, one of the company observed the head of a large snake pushing open the bill, out of which it speedily crawled, in perfect vigour

and free from any injury; on the supposition that others might be still in the stomach, the bird was suspended by the legs, and presently a second made its appearance as large and as lively as the first.



THE BLACK SNAKE.

THE Black Snake is a North American Serpent that grows to a great length. It is very smooth and slender, black on the upper parts, and of a pale blue beneath, except the throat, which is white.

The activity of these animals is astonishing, since, in speed, they will sometimes equal a horse. Their different motions are very diverting: they will, at times, climb the trees in quest of tree-frogs; or, for other prey, glide at full length along the ground. On some occasions, they present themselves half erect, and in this posture, their eyes and their heads appear to great advantage. The former display a fiery brightness, by means of which, we are told, they are able to fascinate birds. and the smaller quadrupeds, in a manner similar to the rattle-snake. Their body is said to be so brittle, that if, when pursued, they get their head into a hole, and a person seizes hold of the tail, this will often twist itself to pieces.

The Black Snake is sometimes bold enough to attack a man, but may be driven off by a smart stroke from a stick, or whatever other weapon he may chance to have in his hand. When it overtakes a person, who has endeavoured to escape (not having had courage to oppose it,) it is said to wind itself round his legs in such a manner as to throw him down, and then to bite him several times in the leg, or wherever it can lay hold of, and run off again.

During Professor Kalm's residence at New York, Doctor Colden told him that in the spring of 1748, he had several workmen at his country-seat, and among them, one just arrived from Europe, who, of course, knew but little of the qualities of the Black Snake. The other workmen, who observed a male and female lying together, engaged their new companion to kill one of them. He accordingly approached them with a stick in his hand: this the male observed, and made towards him. The man little expected to find such courage in the reptile, and flinging away his stick, ran off as fast as he was able. The Snake pursued, overtook him, and twisting several times round his legs, threw him down, and almost frightened the poor fellow out of his senses. He could not rid himself of the animal, without cutting it through, in two or three places, with a knife. The other workmen laughed heartily at the incident, without once offering to help their companion,

considering the whole affair, only as a scene of the highest amusement.

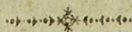
This Snake, which is altogether innoxious, is very greedy of milk. and it is difficult to keep it out, when once it is accustomed to get into a cellar where milk is kept. It has been seen taking out of the same dish with children, without biting them, though they often gave it blows with their spoons upon the head, when it was too greedy.

The following description of a contest between the Black Snake, and a Serpent of another species, is extracted from the Letters of an American farmer : “ One of my constant walks when I am at leisure (says this gentleman) is in my lowlands, where I have the pleasure of seeing my cattle, horses, and colts. Exuberant grass replenishes all my fields, the best representative of our wealth. In the middle of that tract, I have cut a ditch eight feet wide. On each side of this, I carefully sow, every year, some grains of hemp, the plants from which rise to the height of fifteen feet, so strong and full of limbs as to resemble young trees. These produce natural arbours, rendered often still more compact by the assistance of an annual creeping plant, which we call a vine, that never fails to entwine itself among the branches, and always produces a very desirable shade. As I was one day sitting solitary and pensive; in this primitive arbour, my attention was engaged by a strange sort of

rustling noise, at some paces' distance. I looked all around without distinguishing any thing, until I climbed up one of my great hemp-stalks; when, to my astonishment, I beheld two snakes of considerable length, the one pursuing the other, with great celerity, through a hemp stubble field. The aggressor was of the black kind, six feet long; the fugitive was a Water Snake, nearly of equal dimensions. They soon met, and, in the fury of their first encounter, appeared in an instant firmly twisted together; and, whilst their united tails beat the ground, they mutually tried, with open jaws, to lacerate each other. What a fell aspect did they present! Their heads were compressed to a very small size; their eyes flashed fire; and after this conflict had lasted about five minutes, the second found means to disengage itself from the first, and hurried towards the ditch. Its antagonist instantly assumed a new posture, and half creeping, half erect, with a majestic mien, overtook and attacked the other again, which placed itself in a similar attitude, and prepared to resist. The scene was uncommon, for thus opposed, they fought with their jaws, biting each other with the utmost rage; but, notwithstanding this appearance of mutual courage and fury, the water-snake still seemed desirous of retreating towards the ditch, its natural element. This was no sooner perceived by the keen-eyed black one, than twisting its tail twice

round a stalk of hemp. and seizing its adversary by the throat, not by means of its jaws, but by twisting its own neck twice round that of the water snake, it pulled him back from the ditch. To prevent a defeat, the latter took hold likewise of a stalk on the bank, and, by the acquisition of that point of resistance, became a match for his fierce antagonist. Strange was this to behold: two great snakes strongly adhering to the ground, mutually fastened together by means of the writhings which lashed them to each other, and stretched at their full length: they pulled, but pulled in vain; and, in the moments of greatest exertion, that part of their bodies which was entwined, seemed extremely small, while the rest appeared inflated, and now and then convulsed with strong undulations, rapidly following each other. Their eyes appeared on fire, and ready to start out of their heads. At one time, the conflict seemed decided; the water-snake bent itself into great folds, and by that operation rendered the other more than commonly outstretched; the next minute the new struggles of the black one gained an unexpected superiority, it acquired two great folds likewise, which necessarily extended the body of its adversary, in proportion as it had contracted its own. These efforts were alternate, victory seemed doubtful, inclining sometimes to one side, sometimes to the other; until, at last, the stalk to which the black snake was fastened,

suddenly gave way, and, in consequence of this accident, they both plunged into the ditch. The water did not extinguish their vindictive rage, for by their agitations, I could still trace, though I could not distinguish, their attacks. They soon re-appeared on the surface, twisted together, as in their first onset: but the black snake seemed to retain its wonted superiority; for its head was exactly fixed above that of the other, which it incessantly pressed down under the water, until it was stifled, and sunk. The victor no sooner perceived its enemy incapable of further resistance, than, abandoning it to the current, it returned to the shore and disappeared."

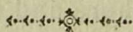


THE WHIP SNAKE.

This animal, which is a native of the east, is about five feet long, yet not much thicker than the thong of a coachman's whip. It is exceedingly venomous, and its bite is said to kill in about six hours. One of the missionaries, happening to enter into an Indian pagoda, saw what he took to be a whip-cord lying on the floor, and stooped to take it up; but, upon handling it, what was his surprize to find that it was animated, and no other than the whip-snake, of which he had heard such formidable accounts: Providentially however, he grasped the animal by the head, so that it had no power to bite

him, and only twisted its folds up his arm. In this manner he held it, till it was killed by those who came to his assistance.

The Corican, says Mr. Forbes in his *Oriental Memoirs*, abounds with this kind of serpent.— This animal conceals itself among the branches of trees, from whence it darts rapidly on the cattle grazing below, generally at the eye. One of them, near the hot wells, flew at a bull; and wounding him in the eye, threw him into a violent agony; he tore up the ground in a furious manner, and foaming at the mouth, died in about half an hour.



THE SEA SERPENT.

The existence of this Marine prodigy on the coast of North America, has been placed beyond a doubt, by the multiplied evidences procured by the Linnæan Society of New England, established at Boston. Their enquiries were founded on the rumours currently spread, on various authorities, that in the month of August, 1817, an animal of a very singular appearance had been repeatedly seen in the harbour of Gloucester, Cape Ann, about thirty miles from Boston. It was said to resemble a serpent in its general form and motions, to be of immense size, and to move with wonderful rapidity; to appear on the surface of the water in calm and

bright weather only; and to seem jointed, or like a number of buoys or casks following each other in a line. The following is a brief abstract of the evidences taken on oath, in support of these rumours. The depositions were made before Lonson Nash, Esq. a magistrate of Gloucester, by whose own account of the animal, of which he had a distinct view, it may not be improper to preface the various evidences adduced.

Mr. Nash saw the serpent at the distance of about two hundred and fifty yards. It was so long, that the two extremes were not visible at one view, with a telescope. He therefore judged it to be seventy, or, perhaps, a hundred feet in length. He perceived eight distinct portions, or bunches, apparently caused by the vertical motion of the animal, which he conjectures to be straight. In this vertical motion all the testimonies agree, as well as in the apparent bunches. The track made in the water was visible for half a mile, and the progress of the animal, when on its surface, a mile in four minutes; but when immersed, by the motion of the water, which could be often traced, he appeared to move a mile in two minutes, or in three minutes at the most. His body was of the size of a half barrel, apparently rough, and of a very dark colour, in which latter particular, all the accounts coincide.

A ship-master, and two of his men, being in a boat, approached this monstrous animal to

within the short distance of thirty feet. They describe it as being of the serpent form, its head resembling that of a land snake, and very large, of the size of a ten gallon-keg. It darted out its tongue, the extremity of which resembled a fisherman's harpoon, to the extent of two feet, raising it perpendicularly, and again letting it fall. Over each of the eyes, which were very bright, was a bunch. Its body was apparently about two feet and a half in circumference. Its motion was at the rate of twelve or fourteen miles in an hour, much swifter than that of a whale, or any other fish, and vertical, but steady.

Another ship-master attests that he saw the serpent three times, twenty or thirty persons being present, at the distance of about 150 yards. Its apparent length was 80 or 90 feet, and its size that of a half barrel. It had joints, or bunches, from head to tail; its head, which was raised two feet above the water, resembled that of a rattlesnake, and was of the size of a horse's head. Its mouth was open about ten inches. Its body was of a dark chocolate colour, and rough and scaly. In turning short and quick, the first part of the curve it made, resembled the link of a chain; but when the head came parallel with the tail, they appeared near together; when on the surface of the water, its motion was slow, the animal at times playing about in circles, and at others, moving nearly straight

forward. In disappearing, it apparently sunk directly down.

The other depositions were seven in number, three by merchants, one by a ship-master, one by a ship-carpenter, and two by marines. One of them describes the tongue of the animal as resembling a prong, or spear, elevated about twelve inches, six inches in circumference, and terminating in a small point. The body appeared to be jointed, round, and about the size of that of a man. The other accounts agree in the foregoing particulars, (all testifying the enormous length of the animal, which in some instances they estimate at 70 feet;) and also in the extreme rapidity of its motion through the water. This motion was vertical, like that of the caterpillar. The ship-carpenter, Mathew Gafney, being in a boat on the 14th of August, and within thirty feet of the animal, discharged his piece, carrying a large ball, at its head, which he thought he struck. The creature turned immediately towards the boat, as if to approach it; but sunk down, and went directly under it, again making its appearance at about one hundred yards distance. It did not turn down like a fish, but appeared to settle directly down like a rock.

The society having been informed that an animal resembling the above, had been seen at Plymouth, a sea-port belonging to the United States, two or three years before, procured the

following testimony on oath from a ship-master residing there.

On the 20th of June, 1815, this deponent, Elkanah Finney, was suddenly called to witness a strange appearance in the cove, next his house. By the aid of his glass, he was satisfied in a moment that he was some aquatic animal, with the form, motion, and appearance of which, he had been hitherto unacquainted. It moved, at the distance of a quarter of a mile from the shore, with great rapidity towards the north, being then apparently about thirty feet in length; but in again making towards the cove, it displayed a much greater length, not less, in the deponent's opinion, than a hundred feet. It approached him, in a southerly direction very rapidly, until it came in a line with him, when it stopped, and lay entirely still on the surface of the water. "I had then," observes the deponent, "a good view of the animal, through my glass, at the distance of a quarter of a mile. His appearance in this situation was like a string of buoys. I saw perhaps thirty or forty protuberances or bunches, which were about the size of a barrel. The head which tapered off to the size of a horse's head, appeared to be about six or eight feet long, and where it was connected with the body, was a little larger than the latter. I could not discern any mouth; but what I supposed to be his under-jaw had a white stripe extending the whole length of his head, just above the water. While

he lay in this situation, he appeared to be about a hundred or a hundred and twenty feet long. The body appeared to be of a uniform size. I saw no part of the animal which I suppose to be a tail, and thought, therefore, that he did not discover to me his whole length. His colour was a deep brown or black. I could not discover any eyes, mane, gills, or breathing holes. I did not see any fins or legs. The animal did not utter any sound, and did not appear to notice any thing, but remained still and motionless, for five minutes or more. The wind was light, with a clear sky, and the water quite smooth. He then moved to the southward, but not with so rapid a motion as before. The next morning, about eight o'clock, it being quite calm, I again saw the animal about a mile to the northward of my house, down the beach: he did not display so great a length as the night before, perhaps not more than twenty or thirty feet. He often disappeared, and was gone five or ten minutes under water. I thought he was diving or fishing for food. He remained nearly in the same situation, and thus employed, for nearly two hours. I then saw him move off, in a northern direction, towards the light-house. I could not determine whether his motion was up and down, or to the right and left; but his quickest motion was very rapid; I should suppose at the rate of fifteen or twenty miles an hour. Mackarel, herrings, and other bait fish, abound in the cove where the animal was seen."

This deposition is considered as impartial and unbiassed, it agreeing uniformly with the deponent's first declarations in 1815. When made, he had not perused the testimonials procured at Cape Ann; and having been engaged from his youth in foreign voyages, and frequently seen whales, and almost every species of fish, his testimony must be allowed to have weight.

In corroboration of the existence of the Sea Serpent on the coast of North America, the testimony of the Rev. Mr. Cummings, a clergyman employed in the Missions of the district Maine, is adduced by the Society. His relation, made in the month of June, 1809, was taken down in writing by a friend. It states that in Penobscot bay, a Sea Serpent, supposed to be about sixty feet in length, and of the size of a sloop's mast, had been occasionally seen within the last thirty years. Mr. Cummings being with a party, in a boat twenty three feet in length, the animal approached to within fifteen rods, and was judged to be about three times that length. He held his head, which resembled that of a common snake, flattened, and about the size of a pail, five feet out of the water. About the head and neck, the colour was a bluish green; but the tint of the body could not be determined, on account of the rippling of the water. The British, Mr. Cummings observed, saw him in their expedition to Bagaduse, and estimated his length at three hundred feet, which he thought an exaggeration.

He added that this animal had been frequently seen by the inhabitants of Fox and Long Islands, Mount Desert, &c.

In communication to the Society from which the above extract is made, there are two other testimonies. that of Captain Lillis, who observed that he had seen off the coast, in 1809, a very singular fish, about forty feet in length, which appeared more like an ordinary serpent than a fish, holding his head erect, without a mane;— and that of a resident of one of the Islands in the Bay of Penobscot, who declared that he had often seen a marine monster of this description, which was as large as a sloop's boom, and about sixty or seventy feet long. He asserted that about the year 1780, as a schooner was lying at the mouth of the river, or in the bay, one of these enormous creatures leaped over it between the masts; the man ran into the hold for fright, and the weight of the serpent sunk the vessel, which was of eighteen tons burden, 'one streak,' or plank.

Extracts are given by the society, from the Natural History of Norway, by Pontoppidan, Bishop of Bergen, to shew how much his account of the Sea Serpent on the Norwegian coast agrees with the above depositions and statements. The following passage will suffice to evince this, with the difference, however, that the Norwegian Serpent is much longer, and of a proportionate bulk. "Though one cannot," says the

Bishop, "have an opportunity to take the exact dimensions of this creature, yet all who have seen it are unanimous in affirming, as far as they can judge at a distance, that it appears to be the length of a cable, i. e. one hundred fathoms, or six hundred English feet; that it lies on the surface of the water, when it is very calm, in many folds; and that there are, in a line with the head, some small parts of the back to be seen above the surface of the water, when it moves or bends. These at a distance appear like so many casks or hogsheads floating in a line, with a considerable distance between them. Mr. Tuchsén, of Herce, is the only one of the many correspondents I have, who informs me that he has observed the difference between the body and the tail of this creature, as to thickness. It appears that it does not, like the eel or land snake, taper gradually to a point, but that the body, which looks to be as big as two hogsheads, grows remarkably small at once where the tail begins. The head in all the kinds has a high and broad forehead, but in some a pointed snout, though in others that is flat, like that of a cow or horse, with large nostrils, and several stiff hairs standing out on each side, like whiskers. The accounts add, that the eyes of this creature are very large, of a blue colour, but speckled and variegated with light streaks or spots, which shine like tortoise shell. Some say it sheds its skin like a land snake. The wind is so destruc-

tive to this creature, that it never is seen on the surface of the water but in the greatest calm; and the least gust of wind drives it immediately to the bottom again. It shoots through the water, like an arrow from the bow, seeking constantly the coldest places. I have been informed by some of our seafaring men, that a cable would not be long enough to measure the length of them, when they are observed on the surface of the water in an even line. They say those round lumps or folds sometimes lie one after another, as far as a man can see."

The report of the Committee of the Linnæan Society adds: "We have seen and heard sundry other statements, of various authority, relating to similar animals, said to have been seen at sea by different persons; but do not insert them in our report, because we consider the foregoing testimony sufficient to place the existence of the animal beyond a doubt; and because they do not appear so minute and so well authenticated as the preceding documents."

About four weeks after the depositions, the substance of which has been given above, had been received, a young serpent of a remarkable appearance, was brought from Gloucester to Boston, and exhibited as the progeny of the Great Sea Serpent. It had been killed in a meadow situated on the eastern shore of Cape Anne, within 150 paces of high water mark, by a man, who with a pitchfork, confined the animal

against some loose rocks. He exhibited the most violent rage, biting himself twice, holding on, and shaking (to use the planter's expression) as one dog shakes another in fighting. His tail seemed likewise a weapon of defence; for he struck the end of it against the handle of the fork several times. His progressive movement was vertical, but slow, and was produced, first by contracting, and then by extending the body. When contracted, the animal was not more than a foot and a half in length; and the protuberances on his back were then, at least three times as large as when he was extended.

A postscript contains a communication from Long Island, stating that, on the 5th of October, 1817, the Sea Serpent had been seen in the Sound. At the distance of half a mile from the shore, a long, rough, dark-looking body was observed, making a rapid progress towards New York, against a brisk breeze, and a strong ebb tide. The observers were soon convinced that it was a living animal. His head did not at first appear more elevated above the water than the ridges or humps on his back; but when he was afterwards seen, nearly in the middle of the Sound, his body, owing to the increased velocity with which he moved, became more depressed, and his head greatly elevated. He was distinctly seen for ten minutes, during which short space, it was estimated that his progress was not less than six or

seven miles. His back, forty or fifty feet of which appeared above the surface of the water, was irregular, uneven, and deeply indented. The general description of the animal, in this statement, agrees with those already given; but it is said, that the extreme rapidity with which he moved, created a swell not unlike that of a boat towed rapidly at the stern of a vessel.



APPENDIX.

NATURAL HISTORY OF WORMS.

THE EARTH WORM.

THE class of animated creation which comes next to be described, is animals of the worm kind, which being, like serpents, entirely destitute of feet, trail themselves along upon the ground, and find themselves a retreat under the earth, in the water, or shut up in the bodies of other living beings. But though they have the same creeping motion as serpents, there are other marks which sufficiently distinguish them from each other. The serpent, as has been said, having a back bone, which it is incapable of contracting, bends its body into the form of a bow, and then shoots forward from the tail; but it is very different with the worm, which has a power of shortening or lengthening itself at will. There is a screw shaped musele, that runs round its

whole body, from the head to the tail, somewhat resembling a wire wound round a walking-cane, which when slipped off, and one end extended and held fast, will bring the other nearer to it; in this manner it moves onward, not without great effort, but the occasions for progressive motion are few.

As the earth worm is designed for living under the earth, and leading a life of obscurity, so it seems admirably adapted to its situation. Its body is armed with small stiff sharp burrs or prickles, which it can erect or lower at pleasure; under the skin there lies a slimy juice, to be ejected as occasion requires, at certain pores, between the rings of the muscles, to facilitate its passage into the earth; it has breathing-holes along the back, adjoining each ring; but it is without bones, without eyes, and properly without feet. It has a mouth, and also an intestine which runs along to the very point of the tail. This is always filled with a very fine earth, which seems to be the only nourishment these animals are capable of receiving.

The animal is entirely without brain, but near the head is placed the heart, which is seen to beat with a very distinct motion.

When the eggs are laid in the earth, which, in about fourteen days, are hatched into maturity, the young ones come forth very small, but perfectly formed, and suffer no change during their existence: how long their life continues is

not well known, but it certainly holds for more than two or three seasons. During the winter, they bury themselves deeper in the earth, to secure themselves from being frozen, and in spring, on moist or dewy evenings, revive with the rest of nature, and come forth from their retreats, for the universal purpose of continuing their kind. They chiefly live in a light rich and fertile soil, moistened by dews or accidental showers, but avoid those places where the water is apt to lie on the surface of the earth, or where the clay is too stiff for their easy progression under ground.

Helpless as they seem to be formed, yet they are very vigilant in avoiding those animals that chiefly make them their prey; in particular the mole, who feeds entirely upon them beneath the surface, and who seldom ventures, from the dimness of its sight, into the open air; him they avoid, by darting up from the earth, the instant they feel the ground move; and fishermen, who are well acquainted with this, take them in what numbers they choose, by stirring the earth where they expect to find them. They are also driven from their retreats under ground, by pouring on them bitter or sour water, such as that water in which green walnuts have been steeped.

To the incurious, earth worms seem to belong to a most insignificant tribe; and yet they have a weighty influence in the economy of nature;

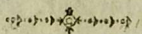
for to say nothing of half the birds and some quadrupeds that are supported by them, worms seem to be the great promoters of vegetation.— This they do by boring, perforating, and loosening the soil, and rendering it open to receive rains and the fibres of plants, by drawing straws and stalks of leaves and twigs into it; and most of all, by throwing up such infinite numbers of lumps, called worm-casts, which form a fine manure for grass and corn.

Gardeners and farmers express their detestation of worms; the former, because they render their walks unsightly, and make them much work; and the latter, because they think worms eat their green corn. But these men would find that the earth without worms would soon become cold, hard-bound, and void of fermentation; and consequently sterile. And besides, in favour of worms, it should be observed, that green corn, plants, and flowers, are not so much injured by them, as by many species of insects in their larva state: and by unnoticed myriads of those small shell-less snails, called slugs, which silently and imperceptibly make amazing havock in the field and garden.

Lands that are subject to frequent inundations are always poor: one great reason of this may probably be, because all the worms are drowned.

Dew-worms make their casts principally in the months of March or April, in mild weather.

In rainy nights they travel about, as appears from their sinuous tracks on a soft, muddy soil, perhaps in search of food. When they appear at night on the turf, although they considerably extend their bodies, they do not quite leave their holes, but keep their tails firmly fixed, so that, on the least alarm, they can precipitately retire under the earth. Whatever food falls within their reach, when thus extended, they seem content with it, such as blades of grass, or fallen leaves.



THE ASCARIS.

THE former species of worm found its retreat under ground, the one we are about to describe is produced and lives in the intestines of very thin persons: there they are most abundant, but sometimes they ascend into the stomach, and even creep out at the mouth and nostrils. When very numerous, they give rise to unpleasant, and sometimes even to fatal disorders.

They are supposed to fix themselves by three little knobs on the extremity of their body, whilst they suck the nutritive juices, on which they are supported, through a small triangular aperture, which is situated in the centre, betwixt these knobs. Their interior organization ap-

pears to consist only of a simple intestine, composed of a fine and very delicate membrane, which is always filled with an orange-coloured liquor.

The motion of these worms is serpentine, in no respect resembling that of the earth-worm, with which they have sometimes been ignorantly confounded. The latter has the power of contracting and extending its body, whilst the length of the *Ascaris* is never diminished. The head is always thrown forward, by the worm curling itself into circles and suddenly extending it with considerable force.

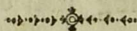
These worms bring forth their young from eggs.

The Vermicular *Ascaris* is very common in the intestines of children. The number in which this animal is produced exceeds all bounds, and they cause a most unpleasant sensation of itching, by piercing the skin in a slight degree, with their awl-shaped tails. Even newly born children are not always free from them.

They bring forth their young alive. The female has, at the distance of about an eighth of an inch from the head, a small aperture, through which the offspring are protruded. Dr. Hooper, in the Memoirs of the Medical Society of London, informs us, that he has seen upwards of a hundred young ones escape through this aper-

ture, all alive, and active several hours after the death¹ of the mother.

The present species are sometimes known by the appellation of the maw or thread-worms.



THE FLUKE-WORM OF THE SHEEP.

THE livers of sheep which have fed in wet and marshy grounds, generally abound with these worms. They are also occasionally found in the stomach and intestines; and, as it has been stated, are sometimes vomited up in brooks where the animals drink. Whilst they are in small numbers, the animal feels, or at least appears to feel, no inconvenience from them; but when they fill the biliary ducts, as they oftentimes do, the parts become swollen, and they become the source of fatal maladies. The disease called the rot, is supposed to be occasioned by them.

These worms are occasionally found in the livers of other quadrupeds besides sheep.



THE TÆNIÆ OR TAPE WORMS.

TÆNIÆ are worms that inhabit the bodies of different animals, where they are destined to feed upon juices already animalized. They are generally found in the alimentary canal, and usually about the upper part of it, where there is the greatest abundance of chyle, which seems to be their natural food.

We are not to suppose that these worms are created for the purpose of producing disease in the animals they inhabit, but rather, that nature has directed, that no situation should be vacant, where the work of multiplying the species of living beings could be carried on. By thus allowing them to exist within each other, the sphere of increase is considerably enlarged. There is, however, little doubt, that worms, and more especially those of the present tribe, do sometimes produce diseases in the bodies they inhabit: but we are, at the same time, very certain, that worms do exist abundantly in many animals, without at all disturbing their functions, or annoying them in the slightest degree: and we ought to consider all these creatures rather as the concomitants than the causes of disease.

The species of Tæniæ are not confined singly

to particular animals: men are subject to several different species, and even the people of particular countries and climates are subject to particular species of them. The people of England have the *Tænia Solium*, or common tape-worm, and rarely any other: the inhabitants of Switzerland the *Tænia lata*, &c.

The mode of increase or propagation of *Tæniæ*, appears to be principally by eggs; and there is reason to believe that these eggs, as well as those of other intestinal worms, are so constructed, as not to be easily destroyed. From this circumstance, we may suppose them to pass along the circulating vessels of other animals. We cannot easily explain the phænomena of worms being found in the eggs of fowls, and in the intestines of a foetus before birth, except by supposing their eggs to have passed through the circulating vessels of the mother, and to have been, by this means, conveyed to the offspring.



THE COMMON TAPE-WORM.

THE head of this animal is furnished with a mouth, and with an apparatus for giving it a fixed situation. The body is composed of a great number of distinct pieces jointed together, each

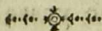
joint having an organ, by means of which it attaches itself to the inner coat of the intestine; and as these joints are sometimes exceedingly numerous, so, of course, will be the different points by which the animal fastens itself to any spot. The joints nearest the head are always small, and they become gradually enlarged as they are further removed from it, except towards the tail, where a few of the last joints become again diminished. The body is terminated by a small semi-circular joint, which has no opening.

The food of the *Tæniæ*, requiring probably very little change before it becomes a part of their body, is taken in at the mouth, and, being thrown into the alimentary canal, is made to visit, in a general way, every part. The central structure of the vessels placed in each joint, seems calculated to absorb the fluid from the alimentary canal, for the purpose of sustaining and repairing the immediately adjacent parts: but there is in their bodies much cellular substance, into which no vessels enter. Such parts of the bodies of these animals, are possibly nourished by transudation of the alimentary fluid into their cells; or this may be affected by the capillary attraction of their fibres.

The length of the present *Tænia* is generally from three to thirty feet; but it has been known to reach sixty feet, and to be composed of several hundred joints.

When these worms produce a diseased state of body, those remedies are supposed to be the most effectual, that operate partly by irritating the external surface of their bodies, so as to make them quit their hold, and partly by violent contractions in the intestines, which may sometimes divide their bodies, or even destroy them by bruising. Electrical shocks, passed frequently through the abdomen, it is supposed, might be beneficial, as the lower orders of animals are in general easily destroyed by electrical shocks.

In injecting these *Tæniæ* with coloured size, in order to preserve them, three feet in length, from the head downwards, has been filled by a single push with a small syringe; but the injection would not pass from below upwards beyond the joint, owing, as it is supposed, to a valvular apparatus, situated in the side canals, immediately below the places where the cross canals are sent off.



THE INDIAN THREAD-WORM.

THIS species is commonly found both in the East and West Indies. It enters the naked feet of the slaves, and occasions very troublesome itchings, and sometimes excites even fever and inflammation. It particularly attacks the muscles of the arms and legs, from whence it is

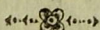
only to be extracted by means of a piece of silk or thread tied round its head. But the greatest caution is necessary in this simple operation, least the animal, by being strained too much, should break; for, if any part remain under the skin, it grows with redoubled vigour, and becomes a cruel and sometimes a fatal enemy.

Dampier tells us, that these worms are no thicker than a large brown thread, but, as he had been informed, are five or six yards long. "If they are broken in drawing out, that part which remains in the flesh will putrify, be very painful, and endanger the patient's life, or at least the use of the limb; and I have known some that have been scarified and cut strangely to take out the worm." He was unfortunate enough to have one of these creatures in his own ankle. "I was (he says) in great torment before it came out: my leg and ankle swelled, and looked very red and angry, and I kept a plaister to bring it to a head. At last, drawing off my plaister, out came about three inches of the worm, and my pain abated presently. Till that time, I was ignorant of my malady, and the gentlewoman at whose house I was, took it for a nerve; but I knew well enough what it was, and presently rolled it up on a small stick. After that I opened the place every morning and evening, and strained it out gently, about two inches at a time, not without some pain, till at length I had got out about

two feet." He afterwards had it entirely destroyed by one of the negroes, who applied to it a kind of rough powder, not unlike tobacco-leaves dried and crumbled very small.

M. D'Obsonville received in his right leg the germ of one of these worms. He observed that its head was of a chesnut colour, and that, to the naked eye, it appeared to terminate in a small black point. On pressing it a little with a pin, and examining it with a common magnifying glass, he fancied he perceived something like a little trund or tongue, capable of being pushed out or contracted. The body was not thicker than a strong thread; but, when the animal was extracted, it was found to be of the length of two or three yards. It appeared to be formed of a series of small rings, united to each other by an exceedingly fine membrane, and a single intestine extended through the body. This worm was extracted in the usual way; and the reason he gives for the injury done by breaking these animals is, that they are full of a whitish sour lymph, which immediately excites inflammation, and not unfrequently produces, afterwards, an abscess or gangrene. A worm in his leg was twice broken, and twice occasioned an abscess. At last, at his own request, the part affected was rubbed with a preparation of mercury: and in eight or ten days the effect surpassed his hopes; for not only the body of the insect came away, but the wound,

which was then more than three inches long, and considerably inflamed, was, in this time, almost entirely healed.



THE INFERNAL FURY.

IN Finland, Bothnia, and the northern provinces of Sweden, the people were often seized with an acute pain, confined to a mere point, in the face, or other exposed part of the body, which afterwards encreased to a most excruciating degree, and sometimes, even within a few hours after its commencement, proved fatal. This disorder was more particularly observed in Finland, especially about marshy places, and always in autumn. At length, it was discovered, that the pain instantly succeeded something which dropped out of the air, and almost in a moment penetrated and buried itself in the flesh. On more accurate attention, the Fury was detected as the cause. It creeps up the stalks of sedge-grass and shrubs in the marshes, whence it is often carried off by the wind; and if naked parts of the skin of any persons happen to be directly in its course, it immediately adheres and buries itself within. The first sensation is said to be like that arising from the prick of a needle. This is succeeded by a violent itching of the part; soon afterwards by acute pain, a

red spot, and gangrene, and at last by inflammatory fever, accompanied with faintings. In the course of two days at the furthest, death follows, unless the worm be extracted immediately; which is very difficult to be done. The Finlanders say, however, that a poultice of curds or cheese, will allay the pain, and entice the animal out. Perhaps the most effectual method is, carefully to dissect between the muscles where it has entered, and thus extract it with the knife.

Linnaeus, as he once was collecting insects, was stung by a Fury in so dreadful a manner, that for a little while there was great doubt whether he would recover,



THE COMMON HAIR-WORM.

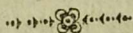
THE popular name of this worm originated in the notion, that it was produced from the hair of horses and other animals; a notion that is even yet prevalent among the lower classes of the people. Its Linnæan name of *Gordius*, originated in the habit that it has of twisting itself in such a peculiar manner, as to resemble a complicated gordian knot. In this state, it often continues for a considerable time, and then slowly disengaging itself, extends its body to the full length.

It is common in our fresh waters, and particularly in such where the bottom is composed of soft clay, through which it passes with the greatest facility.

Sometimes it moves in the water with a tolerably quick undulating motion, like that of a leech; and at other times, its motions are the most slow and languid imaginable. When the water in which it swims, happens to be dried up, it soon loses every appearance of life; the slender body shrivels, and it may be kept in this state for a great length of time. But whenever it is put into the water, its body soon re-assumes its former appearance; in less than half an hour it begins to move, and, in a few minutes more, it is as brisk and active as ever. The Abbé Fontana kept a Hair-worm in a drawer for three years, at the expiration of which time, it was perfectly dry and hard, and exhibited no signs of life; but, on putting it into water, it soon recovered its former vigour. When kept in a vessel of water, it will sometimes appear motionless, and as if dead, for several hours, and afterward will resume its former vigour, and seem as healthy as before.

It is stated, that the bite of this worm has been known to produce the complaint called a *whitlow*. This is mentioned by Linnæus as a popular opinion in Sweden, and, since this time, the fact has been confirmed by various other persons.

The Hair-worm is sometimes found in the earth as well as in water; and particularly in gardens of a clayey soil, after rain.



THE SEA LONG-WORM.

SUCH is the length of this very extraordinary worm, that it is almost impossible to fix any bounds to it. The fishermen of the Devonshire coast in England will say, that they are many fathoms long. Some of the most intelligent, however, assert, that they are upwards of thirty yards in length; but Colonel Montague is of opinion, that as many feet must be the utmost. None of the specimens which he saw appeared to exceed twenty feet.

The largest of these worms are taken by dredging. They are also sometimes found under the stones at low water, but always coiled up or twisted in a most complicated manner.

The expansion and contraction of the Long-worms are very surprising. One which was supposed to be nearly eight feet in length, on being put alive into spirits, instantly contracted to about twelve inches, at the same time increasing to double its preceding bulk. It is very difficult to preserve them perfect without contraction. If suffered to die in their natural

element, one part will decay and become putrid whilst the other remains entire and capable of motion; and the addition of any thing offensive instantly produces contraction.

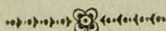
They are found on the coasts of Devon and Cornwall; and are also frequently dredged up by the fishermen in the Frith of Forth, Scotland.—We believe they are not found in Ireland.



NATURAL HISTORY.

OF

CORALS AND SPONGES.



It is very probable that the animals we see and are acquainted with, bear no manner of proportion to those that are concealed from us. Although every leaf and vegetable swarms with animals upon land, yet at sea, they are still more abundant; for the greatest part of what would seem vegetables growing there are in fact nothing but the artificial formation of small animals which they have built for their own habitation.

If we examine the bottom of the sea along some shores, and particularly at the mouths of several rivers, we shall find it has the appearance of a forest of trees under water, millions of plants growing in various directions, with their branches entangled in each other, and sometimes standing so thick as to obstruct navigation. The shores of the Persian gulph, the whole extent of the Red-sea, and the western coasts of America, are so choked up in many

places with these Coraline substances, that though ships force a passage through them, boats and swimmers find it impossible to make their way. These are formed of different substances, and assume various appearances. The coral-plants, as they are called, sometimes shoot out like trees, which in winter are without leaves: they often spread out a broad surface like a fan, and not uncommonly a large bundling head, like a faggot; sometimes they are found to resemble a plant with leaves and flowers; and often the antlers of a stag, with great exactness and regularity. In other parts of the sea are seen sponges of various magnitude, and extraordinary appearances, assuming a variety of fantastic forms like large mushrooms, mitres, fonts and flower-pots. To an attentive spectator, these various productions seem to have their leaves and their flowers, and have been experimentally known to shoot out branches in the compass of a year. This opinion, however, some time after, began to be shaken, by others, who by a more sagacious and diligent enquiry into nature, put it past doubt, that corals and sponges were entirely the work of animals, and that like the honey-comb, which was formed by the bee, the coral was the work of an infinite number of reptiles, whose united labours were thus capable of filling whole tracts of the ocean with those embarrassing tokens of their industry.

Few persons are unacquainted with this production, at least in a wrought state, as forming necklaces or bracelets for the ornament of the female figure. It is, perhaps the most valuable of all the productions of the sea, except pearls; and constitutes a very important article of commerce.

If in our researches after the nature of these plants, we should be induced to break off a branch of the coralline substance, and observe it carefully, we shall perceive its whole surface, which is rugged and irregular, covered with a mucous fluid, and almost in every part studded with little jelly-like drops, which when closely examined, will be found to be no other than reptiles of the polypus kind. These have their arms, their appetites, and the means of producing from their own bodies their durable habitation, but they soon expire when taken out of the sea.

The fishing for Coral is at this day, an object of great importance to the inhabitants of Marseilles, Catalonia, and Corsica; and the principal parts of the Mediterranean from which it is obtained, are the coasts of Tunis and Sardinia, and the mouth of the Adriatic. The fishers employ, for this purpose, a very simple kind of machine, consisting of two strong bars of iron or wood tied across each other. From the centre of the union of these they hang a weight. Each of the arms is loosely surround-

ed, through its whole length, with twisted hemp ; and at the extremity there is a small open purse or net. To use this machine, it is suspended by a rope, and dragged along those rocks where the Coral is most abundant. A considerable part of the Coral which is broken off, either becomes entangled in the hemp, or falls into the nets. This operation is usually carried on in places where the water is from eight to ten fathoms in depth.

The most valuable Coral, however, as being the largest in size, and most compact in substance, is that which is brought from the East.

The common Sponge is well known, from the circumstance of its utility for various domestic purposes. It is an elastic substance, and in every part, it is full of holes. It grows into irregular shapes of a woolly consistence, and is generally fastened by a broad base, to the rocks. A variety of small marine animals pierce and gnaw it into its irregular, winding cavities. These appear on the outside, by large holes, raised higher than the rest. When it is cut perpendicularly, the interior parts are seen to consist of small tubes, which divide into branches as they appear on the surface.

Sponge is an object of commerce in the Mediterranean, and in several of the islands of the Grecian Archipelago, on the submarine rocks in the neighbourhood of which it is found, of large size and in great abundance. As it is chiefly

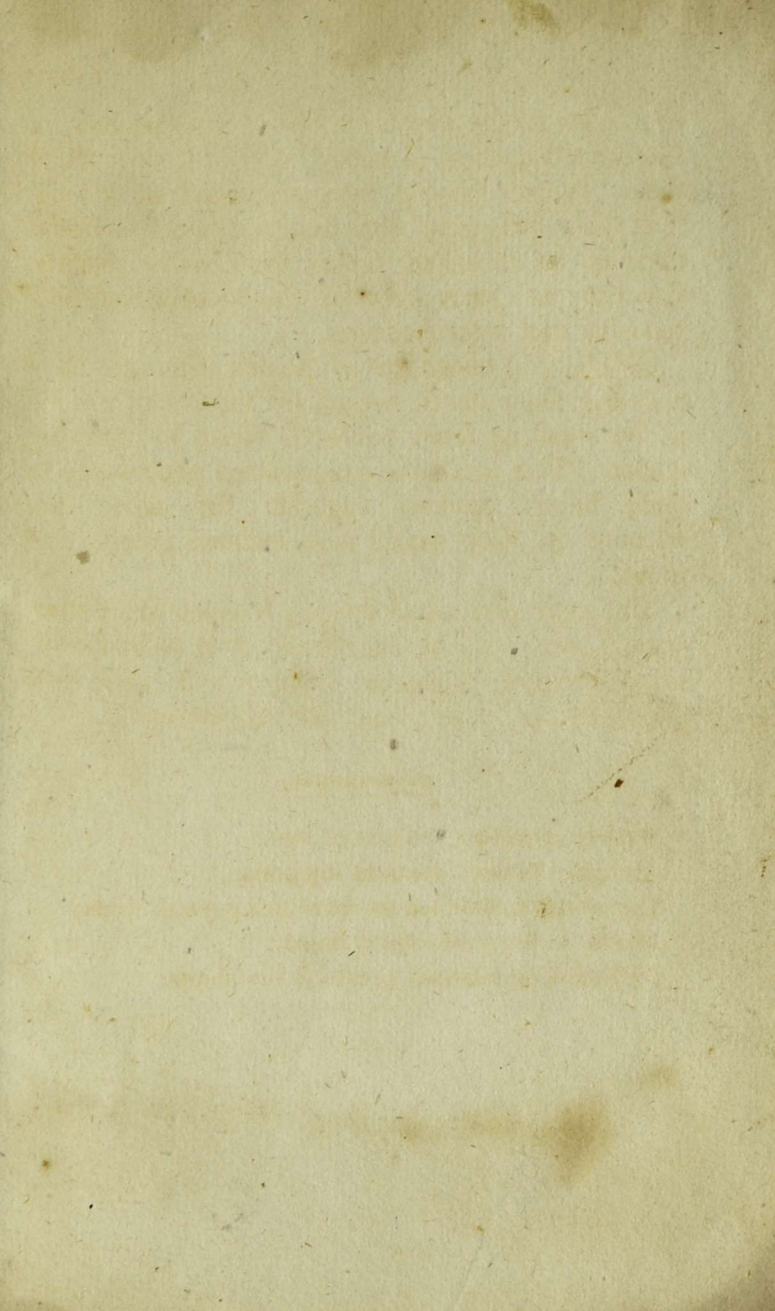
on rocks. at the depth of five or six fathoms, it has been the cause of many of the inhabitants of these islands having become excellent divers. Yet this fatiguing and dangerous employment does not at all enrich them; for Olivier reports, that they are in a state of the most lamentable poverty and wretchedness.

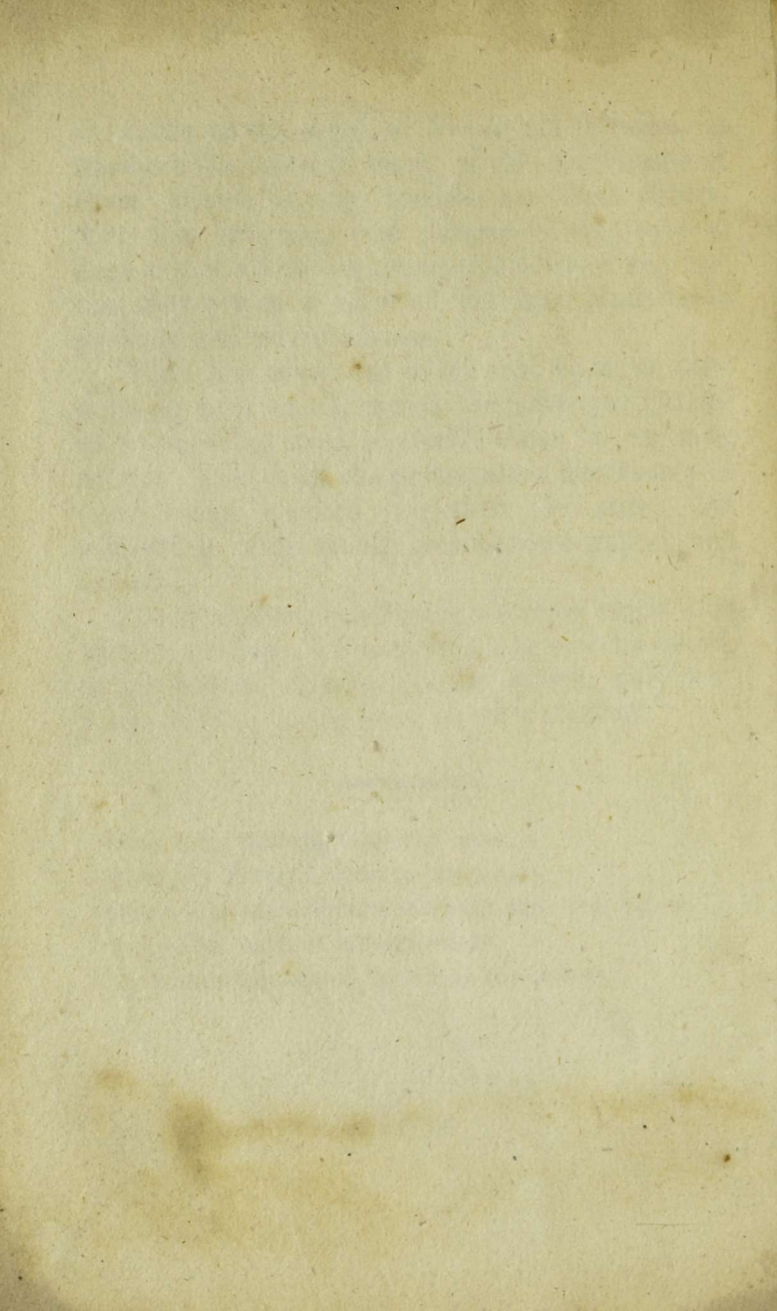
When first taken out of the sea, Sponges have a strong fishy smell, which the fishermen get rid of by washing them perfectly clean in running water. This is all the preparation neccessary to their being packed together for sale; but without it, they would soon become putrid, and perish.

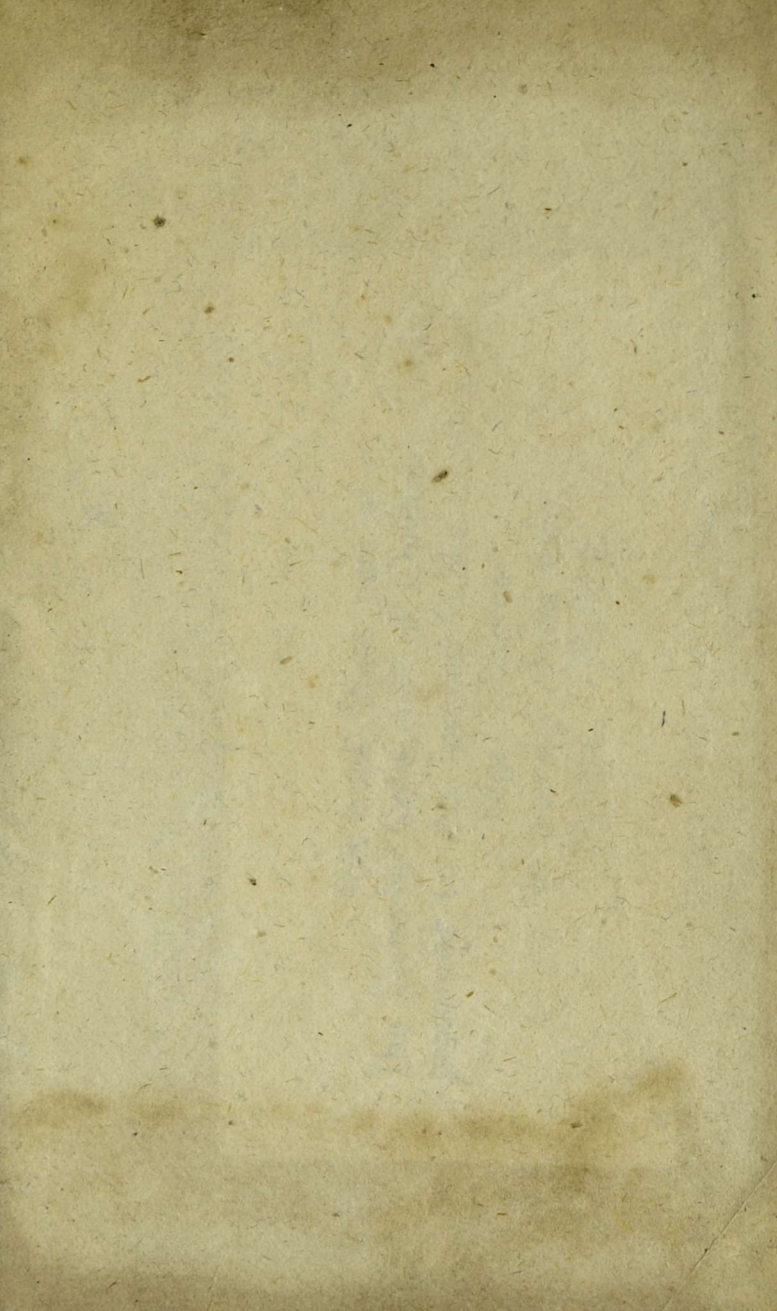
The reproduction of Sponge is more rapid than would, perhaps, be imagined: it is to be found, in perfection, in places, from which, only two years before, it has been entirely cleared.

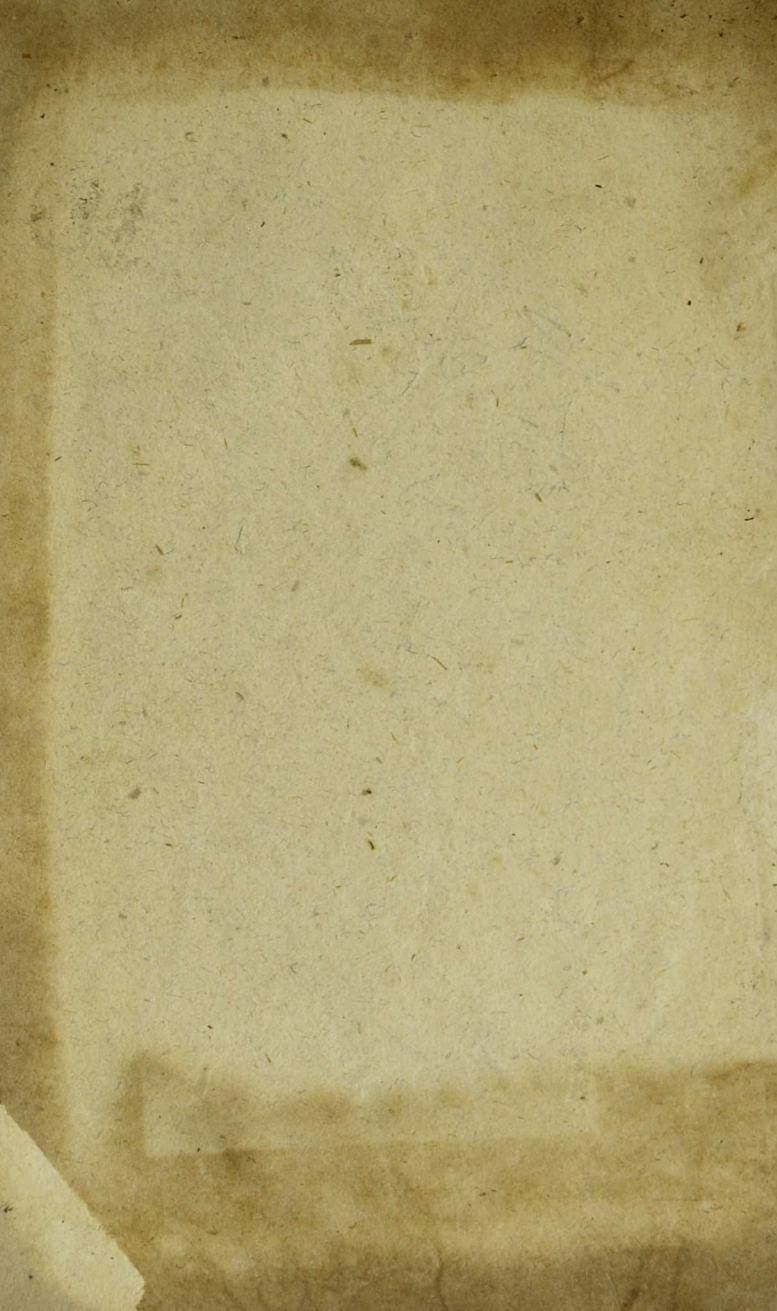
Were ev'ry falt'ring tongue of man,
 Almighty Father! silent in thy praise,
 Thy works themselves would raise a general voice;
 And in the depth of solitary woods,
 By human foot untrod, proclaim thy power:

FINIS.









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