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THE
BOOK
OF
REPTILES.

(CLASS REPTILIA.)

WITH SOME ACCOUNT OF
THE FOSSIL REMAINS OF ANIMALS

WHOSE SPECIES HAVE BECOME EXTINCT.

PUBLISHED UNDER THE DIRECTION OF
THE COMMITTEE OF GENERAL LITERATURE AND EDUCATION,
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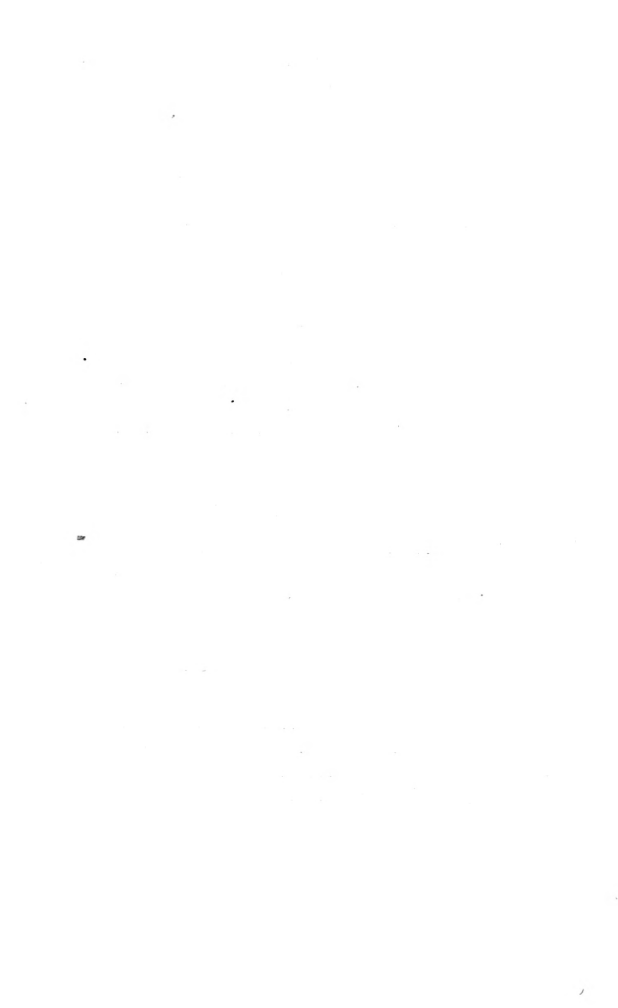
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BOOK OF REPTILES.

INTRODUCTORY CHAPTER.

MOST of the animals which will be described in this little book have been regarded, by the majority of mankind, with terror or disgust. They have been dreaded (in many cases) for their supposed malignity, despised for their dulness, or hated for their deformity. In the mythology of nations unblest with the light of Christianity, they have usually been the emblems of the terrific and revolting. At times, indeed, they were the subjects of a kind of worship; but the feelings by which their adorers were moved, were those of fear, not love. The poets have contributed their aid to perpetuate and extend these impressions; discord, envy, and almost every other evil passion, having been symbolized by these proscribed beings, until, at length, the name of *reptile* itself passed into a proverb for all that was base and contemptible. Notwithstanding all this, there are few animals more worthy of the attention of a reflecting mind, than the Reptiles. Indeed, what worse than presumption is it not, to stigmatize any of the works of God as revolting, or beneath the attention of man? HIS divine power is as much manifested in these objects of fastidious animadversion, as in the races which he has decked with greater beauty, or destined more directly to minister to our necessities.

The Reptiles are remarkable in their forms, curious

in the diversities of their colours, some of them wonderful in their metamorphoses, and all interesting in their habits. Contrary to vulgar prejudice, by far the smaller portion of this class is venomous; many of the species furnish wholesome food, and useful productions in the arts; and some, among even the fiercest of them, have been tamed. Such is the domination granted to man, over the lower animals, by the Author of his being.

The class *Reptilia* contains Frogs, Tortoises, Lizards, and Serpents; and they are all, with but a trifling limitation of the meaning of the word, produced from eggs.

The name Reptile, which implies a crawling creature, is as suitable to the first three groups as to the last; for though they have feet, they can scarcely be said to use them except in creeping. This is the case with Tortoises, Lizards, Frogs, Toads, and Salamanders; and though the last three generally live, and swim well in the water, they can also subsist on land.

Reptiles, in their perfect state, breathe by lungs, but their respiration is not so active, nor, consequently, their circulation so energetic, as those of birds and quadrupeds: hence they are ranked, like the fishes, among *cold-blooded* animals. In general they appear rather to vegetate than live, and to be almost insensible to pain; when wounded, or even cut into pieces, they have the faculty of renewing several parts, such as the tail or the toes, and even the eyes; and their tenacity of life is most surprising. A Tortoise has lived for eighteen days after the brain was removed; a Salamander for several months, though almost decapitated by a cord tightened round the neck; and the heart of a viper will beat and contract for many hours after it has been taken out of the body. Reptiles are exceedingly sensible of the ap-

proach of storms, and to an electric state of the atmosphere; and they seem to foresee, or rather, to feel in anticipation, the changes of the weather. This feeling is indicated by the croaking of Frogs on the approach of rain, &c.

Reptiles are more limited in intelligence than birds or quadrupeds; and although, as said before, capable of being tamed, it is difficult, if not impossible, to teach them any action that does not depend entirely on the appetite for food.

Respiration may remain suspended for some time in Reptiles, without death being produced, or the circulation of the blood interrupted. Frogs, Salamanders, and Turtles, will dive under water, or bury themselves in mud for entire days together. In cold weather, these animals can remain thus submersed for a longer time, without having occasion to breathe the air, for they are then in a half-torpid state; but in warm weather, they enjoy a more active existence, and are obliged more frequently to breathe the atmospheric air. In consequence of the construction of their breathing organs and heart, the vital air combines with the blood only in a small quantity; from this proceeds the small degree of heat possessed by this fluid, in the same manner as we have seen that rapidity of breathing in the Birds, produces a corresponding degree of heat*.

This natural coldness of constitution in reptiles will account for their almost total disappearance from the Polar regions, and the colder latitudes of the North, while they abound between the Tropics, where the external heat atones for the sluggishness of their circulation.

Another consequence of this feeble circulation is, that

* See *Book of Birds*, p. 10.

the life of reptiles is less rapidly worn out and exhausted. Life, in general, is longer in proportion as it is less active, unless sudden maladies or accident should intervene to abridge it. The creatures belonging to this Class are therefore supposed to be very long-lived. The Crocodile, they say, grows almost as long as it lives,—a certain mark of longevity; for the cessation of growth is the indication of approaching age; and Serpents seem to grow young every year, by casting their old skin. Reptiles, however, have many enemies, otherwise they would soon overrun the earth; for they are not only long-lived, but exceedingly fruitful.

Reptiles eat but little, and digest their food slowly,—another consequence of the inactivity of their respiration and circulation. This is another cause of the slowness of their growth. Their senses are also inactive; that of feeling is obtuse, from the thickness and hardness of their skin; their sense of taste must be dull, for the tongue is either of a substance like gristle, or covered with a thick and clammy humour; their organs of smell are very small, which would seem to prove the weakness of that sense; but hearing is more perfect, though the ear is destitute of many useful parts found in other animals. Sight is the most perfect sense with Reptiles, though some few have exceedingly small eyes. The brain is remarkably small, and does not fill the cavity of the skull, though that itself is not large.

Shady and moist tracts of land, and slimy marshes, are, in our climates, the usual habitations of Reptiles. In the New World, they inhabit the lakes, savannahs, and stagnant and miry waters, which result from the overflow of such immense rivers as the Amazon, La Plata, and Oronoco, and abound in the immense masses

of aquatic vegetation produced in the neighbourhood of these waters. In this intermediate sort of situation, between land and water, the Reptiles resemble, in habits, neither perfect quadrupeds, like the Mammalia, which frequent the solid earth, nor true Fishes, like the inhabitants of the seas.

Being comparatively without defence, sometimes even without limbs, and, in most cases, moving with difficulty, it was necessary that they should be protected by their prudence, and live in comparative darkness and obscurity, in order to escape the persecution of their foes. The Tortoise is protected by its bony covering; the more active Lizard flies into some hole or cavern. The Serpent, from want of limbs, would find more difficulty in evading its enemies; but the Great Author of Nature has provided some of the slower species with a fatal weapon, namely, a deadly poison, to repel aggression. It is a mistake to suppose that Serpents generally commence an attack; on the contrary, they are rather timid than fierce, more subtle than daring; and have hence been considered as emblems of prudence, and instanced for their wisdom, even by our Divine Teacher himself. They seldom employ their venom, except when they despair of escape, or are pressed by the urgent calls of hunger. The larger species of Serpents, such as the Boa, have no poison, being sufficiently protected by their size and strength.

Some smaller Reptiles, such as Toads, distil from their skin a pungent and stinking humour; which, however, (contrary to popular opinion,) constitutes a very harmless sort of defence, merely preventing them from being seized and sacrificed to the general disgust which they excite. In general, indeed, all Reptiles, however

hideous and disgusting to view, occasion more horror or apprehension than real evil,

The object of their existence, as far as we may presume to conjecture, is to clear the impure recesses which they inhabit from a multitude of worms, insects, and other vermin, which would otherwise render such places still more unwholesome and infectious. They themselves, again, are prevented from becoming too numerous, by quadrupeds which feed upon them, such as the Ichneumon and the Swine, and the long-legged water-birds. Thus the Ibis, in the slimy deposits left by the Nile in Egypt, the Stork in the marshes and stagnant waters of Holland, and the Cranes in various other places, prevent the undue increase of Reptiles.

It is in warm climates that they multiply most, and arrive at an immense size, and that the poison of the venomous kinds becomes most active and pernicious.

The mammalia are more or less covered with hair, birds with feathers or down, but nothing similar is ever found among Reptiles. In Frogs and Salamanders the skin is naked; in Lizards and Serpents, scaly; Tortoises and Turtles are, in most instances, covered with a horny condensed skin or covering. Those Reptiles which have a naked skin absorb a great deal of water through its pores; this is a substitute for drink, of which they never partake.

The Toads and Salamanders, as we have already noticed, possess certain glands upon the skin, from which a pungent and virulent humour is distilled. A very dangerous fluid, of a similar kind, comes from the feet of the Lizards called *Geckos*; a musky odour exhales from certain parts of the Crocodile; and a nauseous humour exudes from beneath the scales of Adders and

Serpents when these creatures are frightened by being handled.

Some species of Reptiles have the property of changing colour, under the influence of passion or affection. Of these the Chameleon is most popularly known; but the Common Frog, the Green Lizard, and many others, are liable to similar changes of colour, though not in so great a degree.

The skin of almost all Snakes and Lizards is furnished with shining scales, which reflect a metallic brilliancy, like brass or steel, relieved with gold and silver, intermixed with the most brilliant colours. These colours are more particularly splendid in spring, after the animals have cast their old skins; with the thick-skinned Reptiles this change takes place but once a year. The cast skin of Serpents preserves the form of the animal; but the skins of Frogs, &c., are detached in shreds. The naked-skinned Reptiles are also closed up in this covering, as in a sack, the skin adhering only towards the extremities.

All Reptiles, except Tortoises, which have sharp and long gums, are furnished with teeth; those of the Crocodile are very numerous. Venomous Serpents have *fangs*, or poison-teeth, which we shall describe in the proper place. The teeth of Frogs, Toads, &c., are very short.

Almost all Reptiles, except some Tortoises, or Turtles, which feed on sea-weeds, &c., live on animal substances; Frogs, and most Lizards, feed on insects and worms; the larger species, such as Crocodiles, swallow other animals. Serpents prey on animals of all species which are not too large for them.

The voices, or sounds, uttered by Reptiles, vary considerably. The Crocodiles, and the American Alligators

or *Caymans*, are said to howl loudly; the hissing of Serpents, and the croaking of Frogs, are well known; the black Toads, towards the desert shores of the Caspian and the Volga, make a noise like an assembly of human beings laughing loudly; the sounds of some American species are like the tolling of a bell in the night, and those of others resemble the noise of cymbals.

Reptiles do not sit upon their eggs, yet they are not altogether destitute of maternal feeling. The female Crocodile is said to lay its eggs on a bed of rushes and sand, and to cover them over with one or two similar beds, to conceal them: the Serpents place their eggs in some hole exposed to the sun; small Lizards have been observed to transfer theirs from a cold to some warmer place, more suitable for hatching the young; but when the latter come forth, they experience no more attention from the mother.

The obscure recesses inhabited by the majority of the Reptile tribes, are far from being thoroughly explored. How many of these still unknown beings may lie concealed in the depth of inland waters, of vast and desert marshes, and of impervious wilds of vegetation! How many may creep yet unheeded amidst the gorges of the Alpine Mountains, of the Alleghanies, and of the Andes!

According to the arrangement of Cuvier, the great naturalist whose system we are illustrating, the Reptiles are divided into four ORDERS, namely:—

1. CHELONIA, or *Tortoises* and *Turtles*.
2. SAURIA, or *Crocodiles*, *Lizards*, &c.
3. OPHIDIA, or *Serpents*.
4. BATRACHIA, or *Frogs*, *Toads*, and *Salamanders*.

Under these heads we shall treat separately of the principal and most interesting animals which each contains.

CLASS REPTILIA.

OF TURTLES AND TORTOISES.

(Order CHELONIA.)

THE Tortoises in general are very remarkably formed ; usually possessed of little activity, or means of offence, the Author of Nature has clad them in a strong defensive armour. The body is protected by a back-plate and breast-plate, and there is no skin except on the sides between these plates, and on the extremities of the body ; this skin is covered with scales, and the whole is so solid that the sharpest instruments can scarcely pierce it.

The eyes of Tortoises* are generally small, and it would appear that their sight is not very acute ; neither is their hearing ; they cannot, however, be deaf, for they possess that part of the ear called the drum, and an accompanying small internal bone, though it is concealed by skin. The opening to their nose consists of two oblong holes, and their sense of smell is said to be feeble, but this assertion is not borne out by observation ; their tongue appears to possess some degree of sensibility, from the numerous papillæ, or small prominences, with which it is covered.

The neck of the Tortoise can be stretched out very far, and is generally covered with small hard scales ; it is, however, the most vulnerable part of the animal ; we therefore find that the Tortoise very seldom puts it forth

* In our general observations we use the word *Tortoise* to signify all the animals of this order, whether belonging to the land, to the sea, or the fresh water, though the term is only strictly applicable to the first. The other two are called *marine* and *fresh-water Tortoises*, or *Turtles* ; but the constant repetition of these names would be tiresome.

from the shell, and withdraws it to so great an extent on the slightest appearance of danger, that it can scarcely be seen.

The feet of Tortoises are protected by scales, and many can draw them completely within the shell. The shortness of their limbs prevents them from turning themselves when they are laid on their backs. Though their walk is proverbially slow, yet some species can run tolerably fast: the fresh-water and marine Tortoises, or Turtles, swim very well.

Like other animals with lungs, the Tortoises are capable of producing sounds from the throat; some, chiefly the Marine Tortoises, send forth hissings, and cries more or less sharp. They are also said to snore when asleep.

The circulation of the blood in these animals is very slow, and they remain in a state of lethargy during the winter; but this is merely a diminution of the vital energy, and not a suspension of the faculties, as is the case with some other animals that grow torpid in winter. They can fast for a long time, with scarcely any loss of substance.

Some marine Tortoises, or Turtles, in the West Indies, and in the Gallipago islands, in the South Seas, are so large that fourteen men may stand at once upon their backs. A Turtle of this size would be sufficient for the repast of a hundred men.

It is believed, and with much appearance of reason, that Tortoises live for a very long time. The differences which may exist in this respect, between land, fresh-water, and Sea Tortoises is not accurately known.

When marine and fresh-water Tortoises have been out of the water for some time, they find difficulty in

plunging in again. This is owing to their lungs being inflated with an unusual quantity of air, and their having lost, by the drying of their shell, at least one-sixth of their weight. They are then obliged to discharge, in bubbles, from the mouth and nostrils, the superfluous air, before they can sink to the bottom.

The brain of these animals is very small, and appears to be scarcely necessary to their existence. Redi removed the brain from a land Tortoise, which, nevertheless, lived six months afterwards. The Tortoises, in point of intelligence, must rank very low indeed. Their sensations and perceptions do not seem to extend beyond what is absolutely requisite for the purposes of self-preservation, and the continuance of the species. They never attempt to bite or scratch, until they feel the utmost degree of pain. When this, however, is the case, they bite tremendously, and there are no means of making them let go their hold; even if killed, the jaws for a time continue their action. If presented with a piece of wood, they will bite it, and this will prevent them from making any attempt to revenge themselves.

Tortoises, as we have already hinted, can remain a very long time without eating, and appear, after very long abstinence, to have lost little of their vital powers. A Tortoise, after a voyage of six hundred miles, will exist for several days though its head has been removed.

Marine Tortoises, or Turtles, have been kept on board ship for many months, without food. Blasius, a medical writer, tells us of a Tortoise that remained at his house ten months, without eating. All those which inhabit countries north of the line, remain buried in marshes or sand-hills, for four or six months of the year; and, of course, eat nothing. They make (like other animals

that grow torpid in winter,) an immense quantity of fat in summer, which supports the body until the return of fine weather.

Children in India and America are fond of mounting on the backs of Tortoises; some of which will carry a great number of them, without slackening their pace. Their gait, however, is far from pleasant, for they cannot lift a foot without raising the corresponding part of the shell, and the kind of jolt which results is very apt to overturn the riders.

We are told by Pliny, and other ancient writers, that some nations made use of the shells of marine Tortoises for the formation of boats, roofs of huts, &c. At the present day they are similarly employed in many countries, and in our colonies they are used as vessels for various purposes.

THE LAND TORTOISE TRIBE.

In this tribe the shell of the back is very strong, arched, and extremely solid; and the toes are united nearly to their extremities.

THE COMMON TORTOISE.

(*Testudo Græca*, L.)

THE common Tortoise has been sometimes called the *Greek* Tortoise, and is very common in all the southern parts of Europe. It was well known to the ancient Greeks, and placed by Phidias at the foot of the statue of Venus, as the emblem of gentleness. It is distinguished by black and yellow spots, or circles, on the back; by its shell, very convex above and flat under-

neath; and by its small head, not unlike that of a serpent. Its general length is about six or eight inches, and it seldom weighs above three pounds.

This Tortoise is frequently reared in Italy, in gardens, where it multiplies, and may live for forty years and upwards; but Shaw informs us that there have been well-attested instances of Tortoises having lived more than a century. In the year 1663 one was placed in the garden of Lambeth Palace, which died in 1753, apparently from neglect, and not from age. It is still preserved in the library of the palace.

At the end of October, the common Tortoise buries itself in the ground, and does not come forth until April. As it does this in the warmer climates, such as Barbary, it cannot be merely cold which causes its lethargy.

This animal prefers woods and high grounds for its habitual resort. It feeds on roots, fruits, insects, worms, snails, &c., is gentle and easily domesticated, and useful in gardens, where it destroys a number of pernicious vermin.

The common Tortoise lays four or five eggs towards the end of June, which are white, and about the size of those of a pigeon. They are deposited in a hole, covered with sand, and the young, then no larger than a walnut, come forth towards the end of September.

Mr. White, of Selborne, gives us the following pleasing account of a domesticated land Tortoise: "When it first appears in spring, it discovers little inclination for food; but in summer, grows voracious; and then, as summer declines, its appetite declines, scarcely eating at all in the last weeks of autumn. Milky plants, such as lettuces, dandelions, &c., are its principal food. It begins to form its winter-retreat in November, scratches out the ground with its fore-feet, and throws it over its

back with the hind ; but the motion of its legs is ridiculously slow, little exceeding the hour-hand of a clock. Nothing can be more assiduous than this creature, scooping the earth night and day, and forcing its great body into the cavity : but as the noons of that season when I observed it proved unusually warm, it was continually interrupted, and the work remained unfinished on the 13th of November.

“ No part of its behaviour struck me more than the extreme timidity which it expresses with regard to rain ; for though it has a shell which would secure it against the wheel of a loaded cart, yet does it discover as much solicitude about rain, as a lady dressed in her best attire ; shuffling away on the first sprinkling, and running its head up in a corner. If attended to, it becomes an excellent weather-glass ; for as soon as it walks elate, and, as it were, on tip-toe, feeding with great earnestness in a morning, so sure will it rain before night. It never stirs out after dark.

“ I was much taken with its sagacity in discerning those that do it kind offices ; for as soon as the old lady, who has waited on it for more than thirty years, comes in sight, it hobbles towards its benefactress with awkward alacrity, but remains inattentive to strangers. This creature not only burrows in winter, but sleeps great part of the summer, for it goes to bed in the longest days at four in the afternoon, and often does not stir in the morning until late ; besides, it retires to rest for every shower, and does not move at all in wet days.

“ Though he loves warm weather, he avoids the hot sun, because his thick shell, when once heated, would, as the poet says of solid armour, ‘ scald with safety.’ He therefore spends the more sultry hours under the

umbrella of a large cabbage-leaf, or amidst the waving forests of an asparagus-bed. But as he avoids heat in the summer, so in the decline of the year he improves the faint autumnal beams by getting within the reflection of a fruit-tree wall; and, though he has never read that planes inclining to the horizon receive a greater share of warmth, he inclines his shell by setting it against the wall, to collect and admit every feeble ray."

THE INDIAN TORTOISE, (*Test. Indica*, Lin.)

THIS is a very large land species; a specimen taken on the coast of Coromandel measured four feet and a half from nose to tail, and its height was fourteen inches; the general colour is deep brown. It seems to be the largest of the land Tortoises.

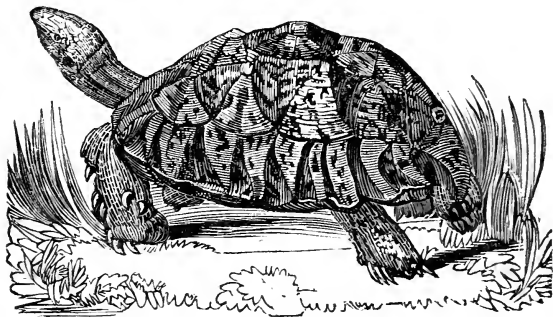
The Dutch navigator, Dampier, saw some Tortoises on the Gallipagos Islands that would appear to belong to this species. Some of these animals weighed a hundred and fifty and two hundred pounds, and their flesh was of a fine and delicate flavour. Leguat, at the island of Rodriguez, in 1692, observed land Tortoises, which also probably belong to this species; they weighed about a hundred pounds each. They were also seen by the astronomer Lacaille, in 1761, who adds that these animals assemble in large bodies of from two to three thousand individuals, and that they are so close together that their back-plates touch, and form a kind of pavement nearly a hundred paces in extent.

THE LEOPARD TORTOISE,

(*Testudo pardalis*.)

THIS pretty specimen of a land Tortoise is a native of the Cape of Good Hope; its colour is yellowish, with

black spots. The neck of this species is much longer than usual, sufficiently so to allow the head to be raised above the level of the back, and thus enable the animal to look round on all sides by merely turning it.



THE LEOPARD TORTOISE.

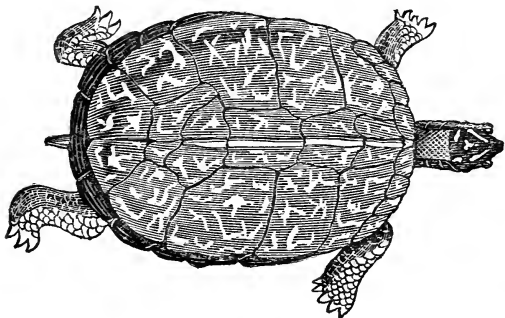
A living specimen of this Tortoise was in the possession of Mr. Bell, for the whole of one summer, during which time it had the range of a small orchard, and fed heartily on grass, which it plucked with a movement similar to that of a Goose. It is as much as two feet in length over the curvature of the upper shell.

THE FRESH-WATER TORTOISE TRIBE.

THESE differ from the Land Tortoises by having the toes more separated, and the claws longer. The shell with which they are covered is also much flatter. Among these we find a singular genus, the Box Tortoises.

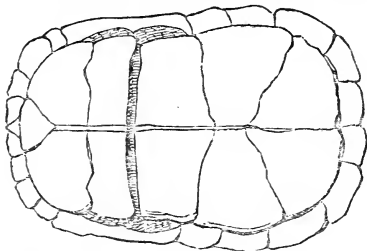
THE BOX TORTOISE, (*Testudo Indica*.)

THE peculiarity of the Box Tortoise consists in having the breast-plate divided into two lids by a moveable articulation, which, when the head and limbs are drawn



THE BOX TORTOISE. .

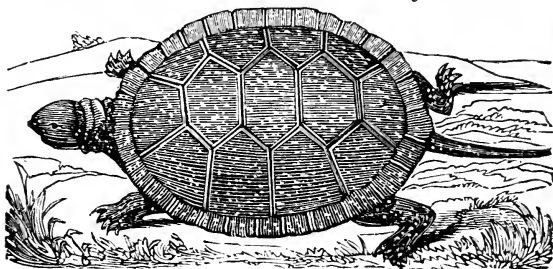
in, can entirely close the opening and conceal those members. In some species, however, although the



UNDERNEATH VIEW OF THE SHELL, SHOWING ITS HINGE.

same contrivance exists in the shell, the head and limbs are too large to be drawn completely in.

THE GREEN TORTOISE, (*Chelys viridis*.)



THE GREEN TORTOISE.

THIS Tortoise is a native of the Brazils, and belongs to the same division of fresh-water Tortoises as the last individual.

THE FRESH-WATER TORTOISE OF EUROPE, (*Emys Europæus*. Shaw.)

THE European Tortoise is seldom more than four or five inches in length. The shell is oval, blackish, and marked with small yellow specks; the skin of the neck and breast is also spotted in a similar manner; the feet are scaly, and half-webbed.

This is a very elegant-looking animal, and is a species very much extended. It is to be found in all the south and east of Europe, as Italy, Sardinia, Prussia, Poland, and Hungary; we are also told that it is to be found in America, and on Ascension Island.

It lives in muddy waters and marshes, feeding upon insects, molluscæ, small fish, and plants. Its flesh is esteemed as food, and in some places, especially in Ger-

many, it is sold in the markets. This animal is also occasionally kept in ponds, and fed with lettuce-leaves, bread, &c.; it may be even conveniently kept in a cellar and fed on oats, which being scattered on the floor, take root there, and as they begin to sprout up, afford a wholesome nutriment to this Reptile. We are told by Wolff that the Prussian peasants keep these animals in troughs, for a year or two, and fatten them up.

The eggs of this Tortoise are about the size of pigeons'-eggs, but longer: they are deposited in sandy and sunny places, in the beginning of spring, and, according to some writers, take a year to be hatched. The fresh-water Tortoise grows very slowly, and the colour seems to vary a little, according to the nature of the climate which it inhabits.

THE PAINTED TORTOISE, (*Emys picta*.)

THE remarkable colours which decorate the shells of this Tortoise, easily distinguish it from all others of the tribe. It is five inches and a half in length, four in breadth, and one and a half in thickness; the feet and tail are covered with scales, and the former are partly webbed.

The general colour of the shell is chestnut-brown, varying a little in the shades; the scales into which the back-plate is divided are bordered with yellow, so that it appears marked above with broad bands which cross each other; the side-plates, or scales, are yellowish, with irregular and blackish circles; the breast-plate is yellowish-gray; some spots of yellow are visible on the sides of the head and jaws, and the tail is blackish, and marked on each side with yellow streaks.

This fresh-water Tortoise inhabits the rivers of North America; it delights in deep and slow streams, and

solitary situations. These animals, in clear, sunny weather, are reported to assemble in great multitudes, and sit upon the fallen trunks of trees, and rocks, in the neighbourhood of the water, into which they plunge on the slightest disturbance. They swim with considerable rapidity, but are bad walkers, and they can continue for several hours under water, but will not survive long if taken out of it. They are extremely voracious, seizing young ducks by the feet, and dragging them under water to devour them: their flesh is generally regarded by the Americans as a wholesome and delicate food. After the month of October they conceal themselves in marshy places, where they pass the winter.

THE SNAKE TORTOISE, (*Emys serpentina.*)

THE Snake Tortoise weighs about fifteen or twenty pounds, and its general colour is a dull chestnut-brown, lighter, or paler, underneath. It is about four feet long, and the back is not unlike that of a Lizard. The neck is very long, and from this circumstance, and a hissing sound which it utters, its name is derived. In Carolina it is also called the *Alligator Tortoise*, from the length of its tail, which is armed on the upper part with a sort of toothed or notched ridge.

This species is also an inhabitant of the rivers of North America. It is rare, and in great esteem for the excellence of its flesh. It is a most mischievous and voracious animal, destroying young ducks and fishes, and it does not even hesitate to attack individuals of its own species. Concealing itself in muddy waters, and leaving out only a part of its back, which looks like a stone, or some other inanimate object, it deceives its victims by its appearance, on the nearer approach of

which it suddenly rises on its hind-legs, and stretches out its neck with great rapidity. When irritated, it is said to bite with so much violence, that it is scarcely possible to make it let go its hold. It will occasionally remove to a considerable distance from the water; Schœpff, who was the first to give a figure of this species, brought up a number of individuals belonging to it in a chamber. They always sought the most obscure corners, and hid themselves among the ashes of the fire-place, or wherever else they could find any rubbish.

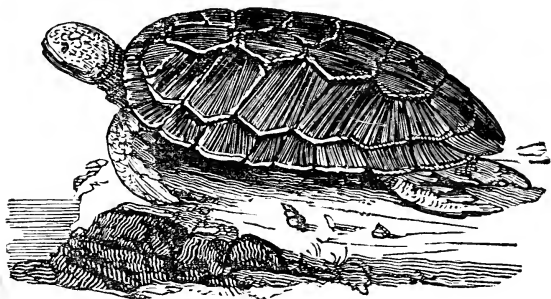
THE SEA TORTOISE TRIBE. (TURTLES.)

WE now come to the *Marine Tortoises*, or *Turtles*. These are all natives of the seas of warm climates, inhabiting the Torrid Zone, and as far as the fifteenth degree of latitude. There is a single species, belonging to Japan, that lives in the fresh water.

THE GREEN TURTLE, (*Testudo Mydas*.)

THIS celebrated species is so named, according to Dr. Shaw, from the green tinge of its fat when in the highest state of perfection. This is supposed to be caused by the vegetable substances on which the animal feeds, and more especially by the plant called *Turtle-grass*, of which it is remarkably fond. This name, however, may arise from the colour which the back-plate assumes when in the water, namely, a dark-green: out of the water, their colour is a dull palish-brown, more or less variegated with waves of a deeper hue. "This

Turtle," says Dr. Cloquet, "exceeds all others in size and weight, being six or seven feet long, and weighing seven or eight hundred pounds." There is another species, however, which appears to be larger, the *Loggerhead*.



THE GREEN TURTLE.

We are told by Lemaire, in his *Voyage to the Canary Islands*, that the Turtles are so large, that the back-plate is not less than fifteen feet in circumference, and that the flesh of one of them would suffice for thirty men.

The green Turtles are abundant on the low, dry, and sandy shores of both the old and new continents, but are never caught far northwards, unless driven thither by tempests. Some of these wanderers have been taken towards the mouth of the Loire, and even near Dieppe, in Normandy. They generally frequent the neighbourhood of islands, and deserted coasts, seldom coming to land, and remaining there but a very short time; at certain periods they quit the deep seas, and repair in multitudes towards the mouths of rivers.

In the month of April the females deposit their eggs on the shore, in a dry situation. They quit the water very cautiously, after sun-set, to find out a convenient place, but return directly, on the slightest alarm. Should no disturbance take place, they go beyond the highest tide, hollow out the sand with their feet, and deposit their eggs in the hole which they have made, sometimes as many as one hundred in a single night. While engaged in this operation, they may be turned over and caught with great facility. In this manner, at intervals of two or three weeks, they lay three sets of eggs successively, and having covered them with sand, return to the ocean. On the coast of Africa, one of these Turtles, it is said, will lay two hundred and fifty eggs, and more. These eggs are round, like tennis-balls, and covered with a skin like parchment; they are cooked like those of a hen, being excellent eating, and in high request.

The little Turtles, when they come forth from the egg, rush headlong into the sea. Their pace is much quicker at this age, than when they have increased in bulk; but many of them are devoured by the larger sea-fowl, sharks, and other inhabitants of the deep.

The English market is chiefly supplied with the Green Turtles from the West India Islands, particularly Jamaica, where they are preserved at times in parks; and although so expensive a luxury in this country, they are sold in shops at a less price than beef or mutton.

The inhabitants of the Bahama Islands, by frequent practice, are very expert at catching Turtles, particularly the Green Turtles. In April they go in little boats to Cuba, and other neighbouring islands, where, in the evening, and especially on moonlight nights,

they watch the going and returning of the Turtle to and from their nests, at which time they turn them on their back, and leave them for a time, without fear of their escape, for they cannot get on their feet again when once turned, and some are so large that it requires three men to turn them.

The method of taking the Turtle commonly resorted to in the Bahama Islands, is by striking them with a small iron peg of two inches long, fixed in a socket at the end of a staff twelve feet long. Two men usually set out for this work in a small light boat or canoe, one to row or gently steer the boat, while the other stands at the end of it with his striker. The Turtle are sometimes discovered by their swimming with their head and back out of the water, but they are more frequently seen lying at the bottom, a fathom or more deep. If a Turtle finds he is discovered, he starts up to make his escape; the men in the boat pursuing him, endeavour to keep sight of him, which they often lose, but recover again by the Turtle putting his nose out of the water to breathe; thus they pursue him, one paddling and rowing, and the other standing ready with his striker. It is sometimes half an hour before he is tired, he then sinks at once to the bottom, which gives them an opportunity of striking him, when he is pierced by the iron peg which slips out of the socket, but is fastened by a string to the pole. If he is spent and tired by a long pursuit, he tamely submits, when struck, to be taken into the boat or hauled ashore.

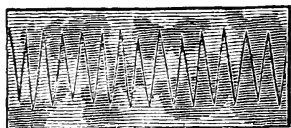
Turtle seems to have been first introduced into England as a luxury about the middle of the eighteenth century.

THE IMBRICATED TURTLE, (*Testudo imbricata.*)

THIS species seldom attains the size of the Green Turtle, and as an article of food it is useless, its flesh being disagreeable and unwholesome; its eggs, however, are considered excellent eating. It is a native of the American, and also of the Asiatic seas, and has at times been found in the Mediterranean. But if this species is useless as food, it amply recompenses us by producing that beautiful article of commerce and art, tortoiseshell. This production of the imbricated Turtle was known and highly valued by the ancients, who employed it to a great extent in the decoration of all their most costly furniture. At present, we all know the use to which it is applied in the lining of cabinet-work, but more particularly in the formation of those beautiful combs which decorate the head-dress of females. The shell is not considered of much value unless taken from a large Turtle, weighing at least one hundred and fifty pounds. The ancients, although they employed tortoiseshell to a great extent, were ignorant of the means of separating the different layers of shell from each other, so that the only plan adopted by them was that of sawing the plates into thin leaves or *veneers*; the modern method of separating these plates is by applying heat to the inner part of the shell, when they start from each other, and are easily detached from the bone.

Necessity, it is said, is the mother of invention; and it is curious to see the plan employed in the manufacture of Combs, for the purpose of economizing this valuable product. It would be naturally supposed that to form a comb six inches in length and one inch in

width, it would be necessary to have a piece of shell of the same dimensions ; and if one comb only were made that would really be the case ; but by adopting the following simple plan, a piece of shell only very little larger is sufficient to make two combs of the same size instead of one. The annexed diagram will illustrate this subject. A circular saw is used to cut the



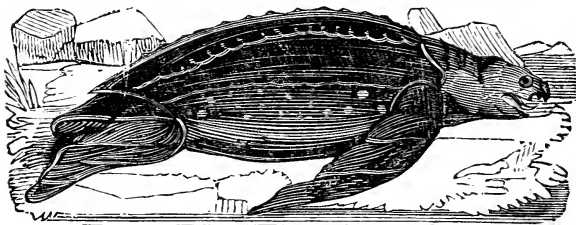
shell, as represented, in the zigzag lines, so that when the sawing is completed it can be pulled in two ; the teeth of the combs will thus be cut

out of each other, and the solid extremities remain to form the backs.

THE CORIACEOUS TURTLE,

(*Testudo coriaceus.*)

THE Coriaceous (*leathery*) Turtle is so called from its covering, instead of being a solid or horny substance,



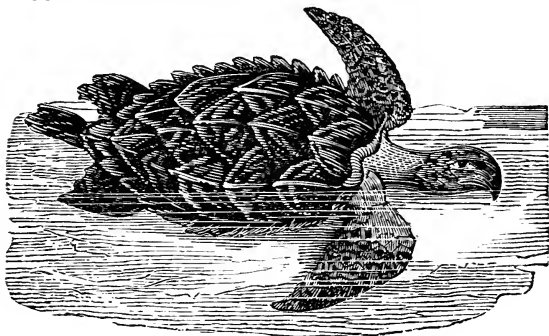
THE CORIACEOUS TURTLE.

resembling leather. It is a large species of its tribe, and a native of the Mediterranean Sea, although it

has at times wandered so far as to have been taken on the Cornish coast, where one weighing eight hundred pounds, and measuring six feet in length, was captured in July 1756. Its flesh is eatable, but considered coarse and unpleasant.

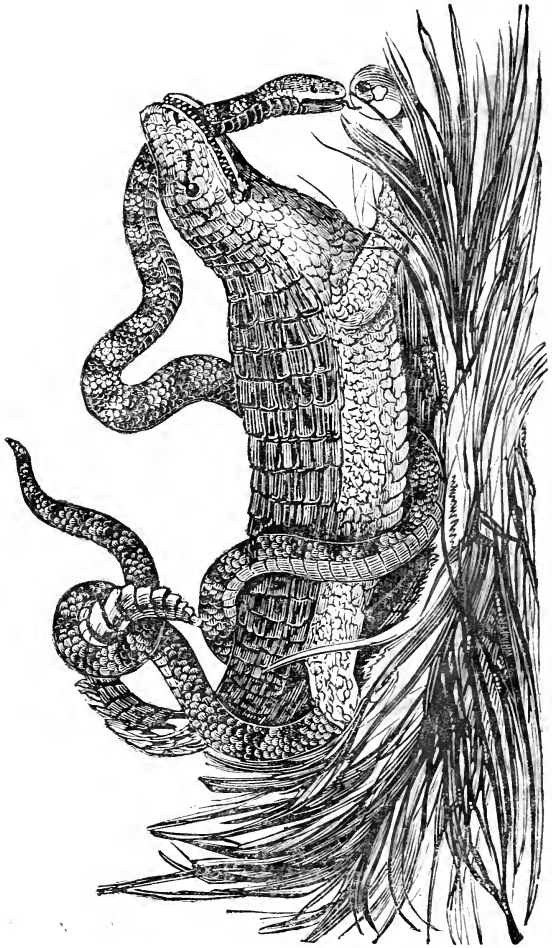
THE LOGGERHEAD, OR HAWK'SBILL TURTLE, (*Testudo caretta.*)

THE habits and haunts of this species are nearly the same as those of the Green Turtle, but its flesh appears to be of no value, and its shell is equally useless. The Loggerhead Turtles are said to be the boldest and



THE LOGGERHEAD TURTLE.

most voracious of all other kinds. Their flesh is rank, and therefore little sought for; this occasions them to be more numerous than any other kind. They range the ocean over; and feed mostly on shell-fish, the strength of their beaks enabling them to break very large shells.



AN ALLIGATOR DESTROYING A SNAKE WHICH HAD DEVoured ITS EGGS.

THE SAURIAN REPTILES. (Order SAURIA.)

THE Saurians may be popularly divided into Crocodiles and Lizards. The different tribes vary much in form and habits; some are extremely slow in their movements, while others move with great agility. Some frequent the waters, and always remain in their neighbourhood, while others, such as the Common Lizard, are found basking in the sun on barren heaths, near some friendly stone, under which they dart for shelter on the approach of danger. They all, without exception, have teeth of some description, and toes provided with claws.

THE CROCODILE TRIBE.

NATURE, says Lacépède, has granted to the Eagle the higher regions of the atmosphere; has given to the Lion for his domain the boundless deserts of the hot climates of the world, and has abandoned to the Crocodile the shores of the sea, and the mighty rivers of the torrid zones. These enormous animals, living equally upon the inhabitants of the sea, and on those which the earth nourishes, exceed in size every other creature of their own order. They divide their prey neither with the Vulture like the Eagle, nor with the Tiger as the Lion, but exercise a domination greater than that of either of those formidable creatures. Their empire also is more enduring, since from the circumstance of their habits inducing them to frequent equally the land and water, they can the more readily avoid any snares that may be laid for them. The low temperature of their blood renders less nourishment necessary, and as they can endure hunger for a considerable length of

time, they are not so frequently under the necessity of braving danger for the sake of satisfying their appetite. The Crocodiles of the same species vary so much in their distinctive marks, as to render their arrangement doubtful: they may, however, be popularly arranged in three tribes; the Gavial of India, the Crocodile of Africa, and the Alligator of America.

THE GAVIAL, (*Crodilus Gangeticus.*)

THE Gavial inhabits the borders of the Ganges; it differs from the Crocodiles of Egypt by having the jaws much narrower, and much more lengthened, so as to appear, considering the size of the head, very much like a beak; the teeth also are much smaller, and more numerous; like the rest of its genus, it sometimes attains a very large size, as much, it is said, as thirty feet. Much has been said of the ferocity and tenacity of life of these Reptiles, but, according to Tavernier, little difficulty was experienced in destroying several, of this species at least. This traveller perceived, on the borders of the Ganges, a very great number of these animals lying on the shore; he fired his musket among them, and the shot took effect in the jaws of a very large one; the blood flowed from the wound, but the animal itself retired into the river. The next day Tavernier, still descending the Ganges, saw another group in the same situation; he fired twice at two of these creatures, his gun being loaded with bullets, they immediately turned on their backs, opened their mouths, and expired.

The Gavial is, notwithstanding this, a very formidable brute, and, at times, commits great havoc among the

natives, who come from considerable distances to bathe in, what they conceive to be, the sacred waters of the Ganges. It is the custom also to commit the bodies of their deceased relatives to the stream, and on these the Gavials are in the habit of feeding; this fact is alluded to by a recent traveller.

“A beautiful specimen of a Gavial's head was given by Mr. Alexander to Lord Combermere. He was rather a distinguished monster, having carried off, on different occasions, six or eight brace of men from an indigo-factory in the neighbourhood. A native, who had long laid wait for him, at length succeeded in slaying him with poisoned arrows. One of those notoriously ghaut-frequenting creatures is well-nigh as rich a prize to the poor native who is fortunate enough to capture him, as a Spanish galleon is to a British frigate; for, on ripping open his stomach, and overhauling its freight, it is not unfrequently found to contain a choice assortment, as the Calcutta advertisers have it, of gold, silver, or brass, bangles and anklets, which have not been so expeditiously digested as their fair owners, victims of the monster's voracity. Horrific legends, such as the above, together with a great deal of valuable advice on the subject, were quite thrown away upon me; for 90° of Fahrenheit, and the enticing blueness of the water, generally betrayed me into a plunge every evening during my Gangetic voyage.”

The hunting, or rather attacking and destroying, the Gavial, (or Asiatic Alligator,) seems to be a favourite sport in the island of Ceylon: the following spirited description is abridged from the works of Captain Basil Hall. The hunt was got up for the amusement of the Admiral, Sir S. Hood, and performed by a corps of Malays in the British service.

Very early in the morning, the party were summoned from their beds, to set forth on the expedition, and the day had scarcely begun to dawn, when we all cantered up to the scene of action.

The ground lay as flat as a marsh for many leagues, and was spotted with small stagnant lakes, connected by sluggish streams, scarcely moving over beds of mud, between banks fringed with a rank crop of draggled weeds. The whole regiment had stripped off their uniform, and every other stitch of clothing, save a pair of short trousers, and a kind of sandal. In place of a firelock, each man bore in his hand a slender pole, about six feet in length, to the extremity of which was attached the bayonet of his musket. His only other weapon was the formidable Malay crease, a sort of dagger, or small two-edged sword.

The regiment was divided into two main parties, and a body of reserves. The principal columns, facing, one to the right, the other to the left, proceeded to occupy different points in one of the sluggish canals, connecting the pools scattered over the plain. These detachments being stationed about a mile from one another, enclosed an interval where, from some peculiar circumstances known only to the Malays, who are passionately fond of the sport, the Alligators were sure to be found in great numbers. The troops formed themselves across the canals, in three parallel lines, ten or twelve feet apart; but the men in each line stood side by side, merely leaving room enough to wield their pikes. The canal may have been about four or five feet deep, in the middle of the stream, if stream it can be called, which scarcely moved at all.

On every thing being reported ready, the soldiers

planted their pikes before them in the mud, each man crossing his neighbour's weapon, and at the word "March," away they all started in full cry, sending forth a shout, or war-whoop, sufficient to curdle the blood of those on land, whatever effect it may have had on the inhabitants of the deep. As the two divisions of the invading army gradually approached each other in pretty close column, screaming, and yelling, and striking their pikes deep in the slime before them, the startled animals naturally retired towards the unoccupied centre. Generally speaking, they had sense enough to turn their long tails upon their assailants, and to scuttle off, as fast as they could, towards the middle part of the canal. But every now and then, one of the terrified monsters floundered backwards, and, by retreating in the wrong direction, broke through the first, second, and even third line of pikes. This was the perfection of sport to the delighted Malays. A double circle of soldiers was speedily formed round the wretched aquatic who had presumed to pass the barrier. By means of well-directed thrusts with numberless bayonets, and the pressure of some dozens of feet, the poor brute was often fairly driven beneath his native mud. When once there, his enemies half-choked and half-spitted him, till at last, they put an end to his miserable days, in regions quite out of sight, and in a manner as inglorious as can well be conceived.

The intermediate space was now pretty well crowded with Alligators, swimming about in the utmost terror, at times diving below, and anon showing their noses above the surface of the dirty stream; or occasionally making a furious bolt, in sheer despair, right at the phalanx of Malays. On these occasions, half-a-dozen of the soldiers

were often upset, and their pikes either broken or twisted out of their hands, to the infinite amusement of their companions, who speedily closed up the broken ranks. There were none killed, but many wounded; yet no man flinched in the least.

The perfection of the sport appeared to consist in detaching a single Alligator from the rest, surrounding and attacking him separately, and spearing him till he was almost dead. The Malays, then, by main strength, forked him aloft, over their heads, on the end of a dozen pikes, and, by a sudden jerk, pitched the conquered monster far on the shore. As the Alligators are amphibious, they kept to the water no longer than they found they had an advantage in that element; but on the two columns of their enemy closing up, the monsters lost all discipline, floundered up the weedy banks, scuttling away to the right and left, helter-skelter. "Sauve qui peut!" seemed to be the fatal watch-word for their total rout. That prudent cry would, no doubt, have saved many of them, had not the Malays judiciously placed beforehand their reserve on each side of the river, to receive the distracted fugitives, who, bathed in mud, and half-dead with terror, but still in a prodigious fury, dashed off at right angles from the canal, in hopes of gaining the shelter of a swampy pool, overgrown with reeds and bulrushes, but which most of the poor beasts were never doomed to reach.

The concluding battle between these retreating and desperate Alligators and the Malays of the reserve, was formidable enough. Indeed, had not the one party been fresh, the other exhausted; one confident, the other broken in spirit; it is quite possible that the Crocodiles might have worsted the Malays. It was difficult, indeed,

to say which of the two looked at that moment the more savage; the triumphant natives, or the flying troop of Alligators walloping away from the water. Many on both sides were wounded, and all covered with slime and weeds. There could not have been fewer than thirty or forty Alligators killed. The largest measured ten feet in length, and four feet girth, the head being exactly two feet long. Besides these great fellows, a multitude of little ones, nine inches long, were caught alive, many of which, being carried on board, became great favourites amongst the sailors, who have a queer taste in the choice of pets.

The Editor of the *Oriental Annual* relates the following anecdote; it occurred at Ceylon.

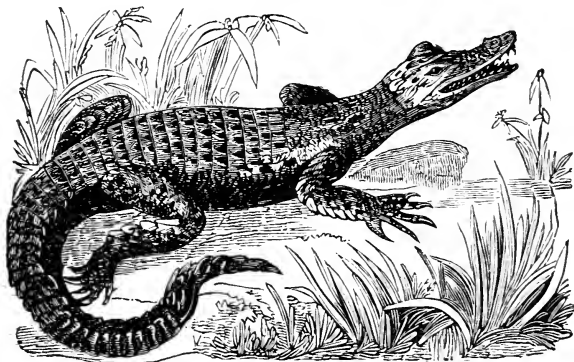
“The morning after our landing, we made the best of our way to Columbo, though our spirit of adventure was somewhat checked by a circumstance which had lately taken place. An English lady sent a messenger a few miles into the interior with a letter, but as he did not return at the time expected, she began to apprehend that some accident had happened to him; she consequently sent a party in quest of the man, but they could obtain no tidings of him. At length, in crossing a stream, on their return from an unsuccessful search, they saw a dead Alligator (*gavial*) up the bank, with its jaws extended, as if it had suffered a violent death. Upon examining the creature more closely, they found that it had been choked, as the throat was considerably distended. This they immediately proceeded to cut open, in order to ascertain the cause of a strangulation so very unusual, when the head of the unfortunate messenger was found completely choking up the passage. The animal had been evidently unable

to swallow it, and had, in consequence, died of suffocation. The turban was still on the man's head, and upon taking off the skull-cap, the answer to the lady's letter was found under it perfectly uninjured. It was presumed that the poor fellow had attempted to swim across the stream, having first deposited the letter under his turban, but was arrested and destroyed by the reptile, before he could reach the opposite shore."

THE DOUBLE-CRESTED CROCODILE,

(*Crocodilus bifurcatus*,)

Is a species of the Gavial kind, and common in all the rivers which lead to the Indian ocean. It is said to be the general opinion at Java, that this animal never



THE DOUBLE-CRESTED CROCODILE.

devours its prey on the spot, but buries it in the mud or sand, where it suffers it to remain untouched for three or four days.

THE COMMON CROCODILE,

(*Crocodilus vulgaris.*)

THIS is the species so well known as frequenting the rivers of Africa, particularly the Nile, and is an extremely formidable creature; but, although so much feared by the larger animals, a little creature, the Ichneumon, about the size and form of a ferret, fearlessly approaches its haunts, discovers its eggs with great dexterity, and destroys them.

In the central parts of Africa the Crocodiles attain a very large size, in many instances being found as much as thirty feet in length. Their principal places of resort are the banks of rivers, swampy grounds overgrown with weeds, and inland lakes; but they never enter the salt water. The natives who inhabit these districts are in constant fear of these enormous creatures, yet although their power of doing mischief is extremely great, their natural timidity, and the low state of their instinctive faculties, allow them, comparatively, but few opportunities of exerting it.

Many strange tales have been told of their peculiarities, which later observations have proved to be unfounded; among other errors, it was supposed that they possessed the faculty, known in no other animal, of moving the upper instead of the lower jaw. The peculiar manner in which the lower jaw is attached to the upper has been the cause of this error. In quadrupeds, the point at which the bones are jointed is always on the *under* part of the skull, but in the crocodile that point is *behind*, and, in consequence of the shortness of its legs, and the great length of its jaw, the reptile is compelled to throw back its head before it can open its mouth; an operation

which produces, in a certain degree, the appearance of moving the upper jaw. Its movements, though, in particular cases, very rapid, are, in others, much limited; in a straight line, it can run with considerable speed; but its power of motion sideways is much restricted, from the little pliability of the joints of the back, and the thickness of its external covering. The swiftness, however, with which the head is turned, is very great; and this, in addition to its sideway movement, would render it rather unsafe to any enemy placed by its side, unless at a considerable distance.

The general opinion respecting these creatures is, that their ferocity and intractability are so great as to render them perfectly untameable; but experience in other classes of the animal creation ought to have taught us that every animal, under proper management, must bend to the mental superiority of man. We have also many instances on record which prove the fact.

The priests of the temple of Memphis, in Egypt, in the celebration of their heathen mysteries, were in the habit of introducing tame Crocodiles, as objects of worship to the deluded multitude. They were fed from the hands of their conductors, and decorated with jewels and wreaths of flowers. It is also reported by the traveller Bruce, that the children in Abyssinia frequently amuse themselves by riding on the backs of these reptiles with perfect impunity. They have been also employed for the purpose of defence. The fortifications of the Dutch, in the island of Java, are surrounded by water; and to prevent the desertion of their soldiers, or the approach of their enemies, they placed Crocodiles in the ditches, to deter either from crossing them.

The age to which Crocodiles live must be very great, from the slowness of their growth, and the large size they attain. The eggs from which they are produced are not larger than those of a goose, which, considering the magnitude of the full-grown animal, is another surprising fact.

The Crocodile swallows its prey whole, and feeds indifferently on fish or small quadrupeds; the upper teeth, instead of resting with their points upon the under when the mouth is closed, enter between them, and thus prevent all chance of escape. It but rarely attacks mankind. On either side of the under part of the lower jaw, a small opening is found, from which the creature can force, at will, a liquid possessing the smell of musk. This property has been lately noticed by Mr. Thomas Bell, in a paper inserted in the *Transactions of the Royal Society of London*, and, in his opinion, the reptile employs it for the purpose of attracting fish into the places it haunts.

THE ALLIGATOR, (*Crocodylus lucius*, Cuv.)

THE engraving at the beginning of this order, which has been reduced from the original of Madame Merian, the German naturalist, represents this formidable reptile in the act of seizing a serpent engaged in the destruction of the Alligator's eggs. The greatest enemies to the increase of these terrific creatures are serpents of all descriptions, which abound in the hot climates where the Alligator is found, and break and devour great quantities of their eggs. The number of eggs produced by them is so great, that if they were not subject to many casualties, the countries they inhabit would be

completely overrun with them. The Alligator itself is also said to lessen the number of its progeny, by destroying many when very young.

Of the Alligator there are many species which, as yet, are not well known; but the habits of these American Crocodiles have been more attended to than those of Africa and Asia, as they have more frequently come under the observation of Europeans.

In Louisiana, says an American author, all our lagoons, bayous, creeks, ponds, lakes, and rivers, are well stocked with them: they are found wherever there is a sufficient quantity of water to hide them, or to furnish them with food; and they continue thus, in great numbers, as high as the mouth of the Arkansas river, extending east to North Carolina, and as far west as I have penetrated. On the Red River, before it was navigated by steam-vessels, they were so extremely abundant, that to see hundreds at a time along the shores, or on the immense rafts of floating or stranded timber, was quite a common occurrence, the smaller on the backs of the larger, groaning and uttering their bellowing noise, like thousands of irritated bulls about to meet in fight, but all so careless of man, that, unless shot at, or positively disturbed, they remained motionless, suffering boats and canoes to pass within a few yards of them, without noticing them in the least. The shores are yet trampled by them in such a manner, that their large tracks are seen as plentiful as those of sheep in a fold. It was on that river particularly, thousands of large ones were killed, while the mania of having shoes, boots, or saddle-seats, made of their hides, lasted. It had become an article of trade, and many of the squatters and strolling Indians followed for a time no other

business. The discovery that their skins are not sufficiently firm and close-grained to resist water or dampness long, put a stop to their general destruction, which had already become very apparent. The leather prepared from these skins was handsome and very pliant, exhibiting all the regular lozenges of the scales, and susceptible of the highest degree of polish and finishing.

When Alligators are fishing, the flapping of their tails about the water may be heard at the distance of half a mile; but, to describe this in a more graphic way, suffer me to take you along with me, in one of my hunting excursions, accompanied by friends and negroes.

In the immediate neighbourhood of Bayou-Sarah, on the Mississippi, are extensive shallow lakes, and morasses; they are yearly overflowed by the dreadful floods of that river, and supplied with myriads of fishes, of many kinds, amongst which trout are most abundant, white perch, cat-fish, and alligator gars, or devil-fish. Thither, in the early part of autumn, when the heat of a southern sun has evaporated much of the water, the squatter, the planter, the hunter, all go in search of sport. The lakes then are about two feet deep, having a fine sandy bottom; frequently much grass grows in them, bearing crops of seed, for which multitudes of water-fowl resort to those places. The edges of these lakes are deep swamps, muddy for some distance, overgrown with heavy large timber, principally cypress, hung with Spanish beard, and tangled with different vines, creeping plants, and cane, so as to render them almost dark during the day. Here and there in the lakes are small islands, with clusters of the same trees, on which flocks of snake-birds, wood-ducks, and different species of herons, build their nests. Fishing-lines, guns, and

rifles, some salt, and some water, are all the hunters take. Two negroes precede them, the woods are crossed—the scampering deer is seen—the racoon and the opossum cross before you—the black, the gray, and the fox-squirrel, are heard barking. As you proceed further on, the *Hunk, hunk*, of the lesser ibis is heard from different parts, as they rise from the puddles that supply them with crayfishes. At last, the opening of the lake is seen: it has now become necessary to drag oneself along the deep mud, making the best of the way, with the head bent, through the small bushy growth, caring about nought but the lock of your gun.

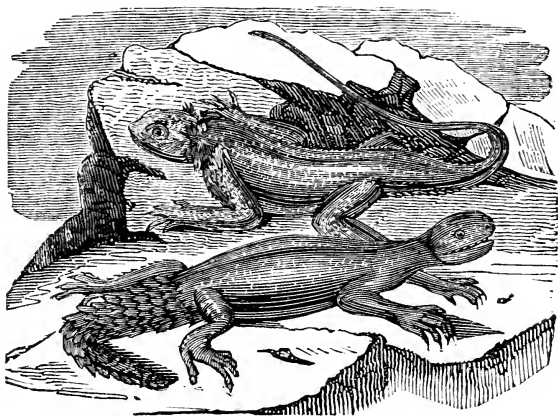
The long narrow Indian canoe, kept to hunt these lakes, and taken into them during the fresh, is soon launched, and the party, seated in the bottom, is paddled or poled in search of water-game. There, on a sudden, hundreds of Alligators are seen dispersed all over the lake, their head and all the upper part of their body floating like a log, and, in many instances, so resembling one, that it requires to be accustomed to see them, to know the distinction. Millions of the large wood-ibis are seen wading through the water, mudding it up, and striking deadly blows with their bills on the fish within. Here are a horde of blue herons, the sand-hill crane rises with hoarse note, the snake-birds are perched here and there on the dead timber of the trees, the cormorants are fishing, buzzards and carrion-crows exhibit a mourning train, patiently waiting for the water to dry and leave food for them, and far in the horizon the eagle overtakes a devoted wood-duck, singled from the clouded flocks that have been bred there. It is then that you see and hear the Alligator at his work; each lake has a spot deeper than the rest, rendered so by those animals

who work at it, and always situated at the lower end of the lake, near the connecting bayous, which, as drainers, pass through all these lakes, and discharge sometimes many miles below where the water had made its entrance above; thereby ensuring themselves water, as long as any will remain. This is called by the hunters, the Alligators' hole. You see them there lying close together. The fish that are already dying by thousands, through the insufferable heat and stench of the water, and the wounds of the different winged enemies constantly in pursuit of them, resort to the Alligators' hole to receive refreshment, with a hope of finding security also, and follow down the little currents, flowing through the connecting sluices: but no! for, as the water recedes in the lake, they are here confined. The Alligators thrash them, and devour them whenever they feel hungry, while the ibis destroys all that make towards the shore.

By looking attentively on this spot, you plainly see the tails of the Alligators moving to and fro, splashing, and now and then, when missing a fish, throwing it up in the air. The hunter, anxious to prove the value of his rifle, marks one of the eyes of the largest Alligator, and as the hair-trigger is touched, the Alligator dies. Should the ball strike one inch astray from the eye, the animal flounces, rolls over and over, beating furiously about him with his tail, frightening all his companions, who sink immediately, whilst the fishes, like blades of burnished metal, leap in all directions out of the water, so terrified are they at this uproar. Another and another receives the shot in the eye, and expires; yet those that do not feel the fatal bullet, pay no attention to the death of their companions, till the hunter

approaches very close, when they hide themselves for a few moments, by sinking backwards.

It is said, that at some points of this dismal river, Crocodiles are so abundant as to add the terror of their attacks to the other sufferings of a dwelling there. We were told a story of a squatter, who, having "located" himself close to the river's edge, proceeded to build his cabin. This operation is soon performed, for social feeling, and the love of whiskey, bring all the scanty neighbourhood round a new comer, to aid him in cutting down trees, and in rolling up the logs, till the mansion is complete. This was done; the wife and five young children were put in possession of their new home, and slept soundly after a long march. Towards day-break the husband and father was awakened by a faint cry, and looking up beheld the relics of three of his children scattered over the floor, and an enormous Crocodile, with several young ones around her, occupied in devouring the remnants of their horrid meal. He looked round for a weapon, but finding none, and aware that unarmed he could do nothing, he raised himself gently on his bed, and contrived to crawl from thence through a window, hoping that his wife, whom he left sleeping, might, with the remaining children, rest undiscovered till his return. He flew to his nearest neighbour, and besought his aid; in less than half an hour two men returned with him, all three well armed; but alas! they were too late! the wife and her two babes lay mangled on their bloody bed. The gorged reptiles fell an easy prey to their assailants, who, upon examining the place, found the hut had been constructed close to the mouth of a large hole, almost a cavern, in which the monster's hateful brood had been hatched.



THE AGAMA.

THE UROMASTIX.

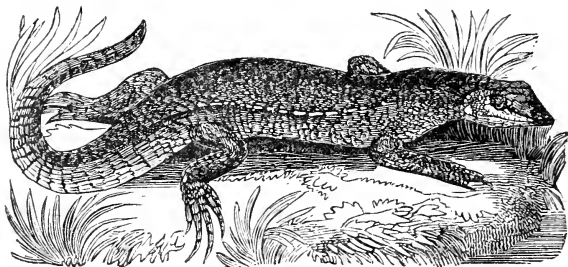
THE LIZARD TRIBE.

THE remainder of the Saurian reptiles may be properly classed under the head of the Lizard tribes; they differ from the Crocodiles in many parts of their anatomy, and in general are perfectly harmless. In the Crocodiles, the tongue is firmly fixed in the mouth, and quite incapable of motion; but among the Lizards, this organ is free, and in many cases capable of being extended to a considerable length. The Lizards are, with few exceptions, of inconsiderable size. The largest, and the only genus that in any degree approaches in magnitude to the Crocodiles, is that of the Monitors.

THE GREAT DRAGON, (*Monitor Crocodylinus*.)

THE Great Dragon is in form considerably like the Crocodiles; like those monstrous reptiles its throat is capacious, and its back provided with rows of spines or tubercles, its tail is flattened, and in size it is some-

times equal to a young Alligator. Its colour also, which is a deep reddish-yellow clouded with green, bears a great resemblance to that of the Crocodile: on this account, the natives of the eastern coasts of South America believe it to be a species of that tribe. But the Dragon differs materially from the true Crocodile. In the first place, its feet are not webbed and adapted to swimming, its toes being entirely free. Its tongue is extensive and forked, like that of many of the serpent tribes; and its toes are armed with strong nails, which enable it to climb with considerable agility. Its eyes are large and brilliant, and the opening to the ear

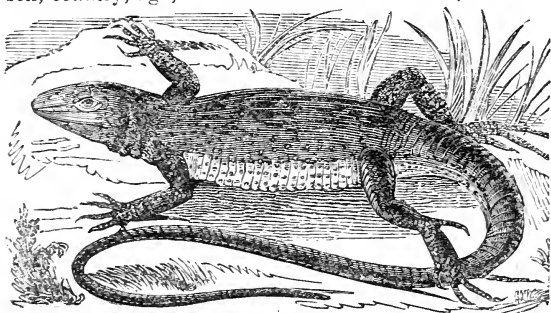


THE GREAT DRAGON.

capacious, and surrounded by a margin of scales. Being capable of moving its tail with great violence and rapidity, it has in some places obtained the name of *whip-tail*. This reptile is chiefly found in South America, but it is taken with considerable difficulty; concealing itself in burrows, and biting with great severity; its flesh is eaten, and considered no small delicacy. The eggs, of which each female lays several dozen at a time, are also in high estimation at Cayenne.

THE AMEIVA, (*Teyus ameiva*.)

THE Ameiva is a native of Guiana and the Antilles : considerable obscurity appears to exist as to the history of this lizard ; its colour varying much, according to its sex, country, age, and the heat of the climate ; but it is



THE AMEIVA.

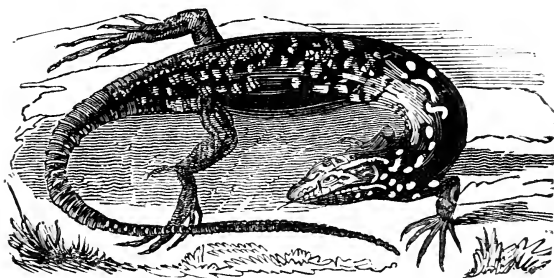
generally greenish or grayish, more or less variegated with spots or rays of more lively tints. A specimen described by Lacépède was twenty-one inches in length ; but its usual length is about a foot.

THE GREEN LIZARD, (*Lacerta agilis*.)

THIS beautiful creature is thus described by Lacépède : “ Nature, in forming the green lizards, appears to have adopted the same proportions as in the case of the gray species, but on a larger scale ; in fact, she has merely enlarged the gray lizard, and covered it with a more beautiful dress.”

It is in the first days of Spring that the Green Lizard

shines in all its beauty: when, having cast its old skin, it exposes its body to the sun, enamelled with the most lively colours. The rays which are reflected from the upper part of its scales, gild them with undulating reflections; they shine with the brilliancy of the emerald, and if they are not transparent like crystals, the reflection of a beautiful sun, adorning the shining and polished scales, compensates for the absence of transparency, by a new display of the power of light. The eye is never tired with the beautiful green of the lizard we are now describing.



THE GREEN LIZARD.

The colour of this reptile is subject to variation, and at some periods of the year it is less brilliant than at others. In hot climates its colours are so bright as to rival gold and precious stones. The beauty which it possesses, has been the occasion of many good qualities being attributed to it. It is said, when met by a human being, to stop and gaze intently, as if wishing to display its gaudy coat. Attracted by its beauty, children are in the habit of capturing it, and rendering it familiar. Its principal food consists of

worms and insects; it also feeds on the eggs of small birds, which it seeks for in trees, climbing with great quickness. Although seldom a conqueror, it attacks, with great apparent courage, the smaller kind of serpents; but this behaviour is, in effect, merely the courage of despair, and arises more from fear than bravery. The Green Lizard is distributed over nearly the whole surface of the globe, varying only in size and colour. In many parts of the world, the natives consider its flesh as excellent food. The bite of this reptile was formerly supposed to be venomous; but this belief is entirely without foundation.

THE GRAY LIZARD, (*Lacerta muralis*.)

THE Gray Lizard is much less than the green species, and has no pretensions to the beauty of colour of its congener. It is a pretty, quiet, and inoffensive little creature, and is very abundant over the whole of the Continent, particularly in the neighbourhood of Vienna. The movements of the Gray Lizard are so rapid, that the eye can no more follow them than it can the flight of a bird. It is fond of basking in the sunshine, and seeks situations sheltered from the wind. On a fine day it may be seen basking at the foot of a wall, receiving the benefit of the reflected, as well as the direct rays of the sun. If quietly approached, it appears but little alarmed, yet at the slightest noise precipitates itself from its elevation, and disappears in an instant; it soon, however, peeps from its hiding-place, but again quickly retreats, and is a considerable time before it recovers from its panic.

The Gray Lizard is generally five or six inches in length, and half an inch in width. What an enormous

difference between this reptile and a Crocodile! The latter inspires terror into the minds of all who see it, while the innocent gambols of the Gray Lizard are looked on with pleasure. It is not easily captured, but when taken, makes no attempt to bite. Children in France are in the habit of playing with this reptile, and so gentle is its disposition, that it soon becomes familiar.

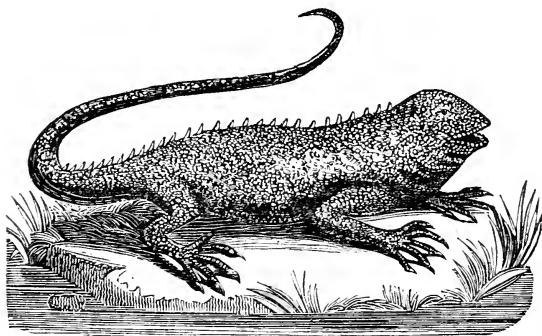
“The ancients,” says a foreign author, “called it the friend of man; they should rather have called it the friend of childhood: but childhood, often ungrateful, or at least inconstant, does not always render kindness for kindness to this little animal, but frequently mutilates its unhappy playmate, whose frame is so delicate as not to be proof against rough usage.” It lives chiefly on insects, such as flies, grasshoppers, worms, &c., and on that account is a very useful assistant in a flower-garden.

In seizing their prey the Gray Lizards dart forth, with astonishing rapidity, a reddish-coloured forked tongue, covered with little asperities sufficient for the purpose of securing their feeble prey. This animal passes its time during the Winter in a state of torpor at the bottom of its retreat, and only makes its re-appearance with the returning warmth of Spring. The female pays great attention to her eggs, moving them about from one sunny place to another until they are hatched; these eggs are round, and about a quarter of an inch in diameter.

THE IGUANA, (*Iguana tuberculata*.)

THE Iguana, or eatable lizard, is common on the marshy lands and in the immense forests which border the large rivers of South America. The Iguana is easily distinguished from other lizards by the large pocket-like

appendage attached to its neck, and also by the ridge of tooth-like scales which form a ridge from the head to the extremity of the tail. The length of this reptile is sometimes as much as five or six feet.



THE IGUANA, OR EATABLE LIZARD.

The head is compressed at the sides and flattened at the top; like the Monitors, this great lizard has the toes perfectly separated, and is consequently an indifferent swimmer. Although provided with powerful teeth, and capable of defending itself from an enemy, the Iguana, unless irritated, is harmless; but when excited to anger, its aspect becomes frightful, it lashes its tail, elevates its scales, inflates its throat-pouch, and utters loud hissings. The female is generally smaller than the male, and her colours are more lively. About the end of the second month of Spring, the females descend from the mountains, or leave the woods, for the purpose of depositing their eggs in the sand on the sea-shore. The number of these eggs is said, most likely erroneously, to be

almost always odd, from thirteen to twenty-five; they are longer but not larger than pigeons' eggs; the shell is soft like that of the egg of a tortoise. Travellers in South America say they are excellent eating, and of more value than hens' eggs.

The mild disposition, or rather the torpid nature, of these creatures, renders their capture an easy task. They are in the habit of sitting on the branches of trees, facing the sun, with only the front part of their head exposed. On these occasions the following method is resorted to by the huntsman. He approaches gently, whistling as he advances; this attracts the attention of the reptile, and appears to please it, for it advances its head further from its retreat. When the huntsman has come sufficiently near, he gently rubs the end of his pole against the sides and throat of the Iguana, who not only suffers this sort of caress without resistance, but appears to return and enjoy it. The huntsman continuing to employ these means, induces his victim to expose its head sufficiently to allow him to pass a loop, which is fastened to the end of his pole, over the head and round the neck of the reptile, and, this accomplished, he brings it to the ground with a violent jerk, and places his foot on its body. The Iguana now proves itself less passive than usual, for when it finds its confidence deceived, and itself captured, it exerts itself with violence, rolls its sparkling eyes, and inflates its throat; but such efforts are useless, the huntsman manages to tie its fore-feet together, and to secure them under the creature's throat, so that it can neither fly nor fight. If taken alive, it appears at first sullen and intractable, but after a time becomes domesticated, and runs about the house and garden with as much confidence as a cat.

Being considered, in the countries which it inhabits, as very delicate food, it is much sought after by the natives.

It is curious to trace the prejudices and preferences of mankind for different sorts of food, and to observe, from the facts discovered, how much influence mental antipathies have over our bodily feelings. The refreshing, and almost universally approved beverage, tea, when offered by some European travellers to the Turkish ladies, was rejected as insipid and valueless. We find in some old English dramas, "corvorants and soland geese" reckoned among the dainties of the table. At the present time, crabs, lobsters, and other shell-fish are, in this and other countries, considered as delicacies, while the inhabitants of the eastern parts of Europe turn from them with disgust, to make a meal off locusts scorched over a fire. Bread dipped in train-oil is greedily devoured by the Laplanders, and even by the more civilized Russians; and Captain Parry, when on his voyage of discovery to the North Pole, contrived to keep a restless Esquimaux in his chair, while his likeness was taken, by treating him at intervals with tallow-candles. If we look nearer home, we find the lower orders in Scotland, in many cases, refusing eels as food, while on this side the border they are considered a delicious dish.

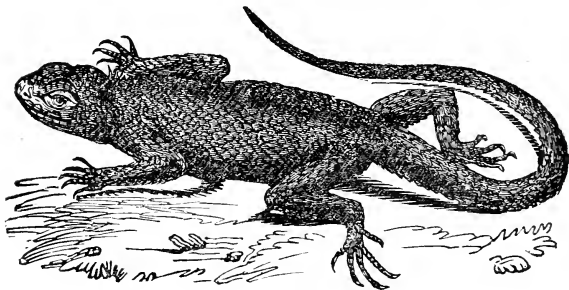
The Iguanas are very common at Surinam, as well as in the woods of Guiana, the environs of Cayenne, and New Spain. They are not so abundant in the Antilles, a great number having been destroyed, on account of the estimation in which their flesh is held.

THE UROMASTIX OF EGYPT, (*Stellio spinipes.*)

THIS reptile, so singular from the large pointed scales with which its tail is covered, is found commonly in Egypt, frequenting ruins and heaps of stones, where it forms a kind of nest, or burrow, for its retreat; it has nothing remarkable in its history, living, like other small lizards, on insects and worms.

THE SPINOUS AGAMA, (*Agama spinosa.*)

THE Agama is a native of South America and the West Indian Islands; in Jamaica it is well known, frequenting moist places, and never issuing from its



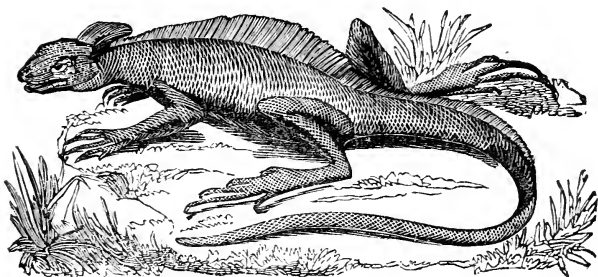
THE AGAMA.

hiding-place until the evening. In general the whole of the Agamæ have the body thick and covered with a loose skin, which can be inflated at the will of the animal, and which is covered throughout its whole extent with small tuberculous scales of various shapes, and more or less prominent. The tongue is not extensible, and the gullet is without teeth. The figure represented

in the engraving is from a specimen in the British Museum, and the colour is uniformly of a yellowish-green.

THE MITRED BASILISK, (*Basiliscus mitratus.*)

THE word Basilisk has been applied by old writers on natural history to a fabulous animal, which was supposed to possess the power of striking dead whatever being was rash enough to look upon it. The Basilisk Lizard inhabits South America, and is readily distinguished from most others by a crest, or ridge, which extends from the head along the back, and the whole extent of the tail: this ridge is formed of rays something



THE MITRED BASILISK.

like the fin of a fish. It has also a prominence resembling a small cap on the summit of its head, and this being supposed to bear some resemblance to a crown, gave the name to the reptile, the Greek word *Basilikos* meaning royal. It sometimes reaches the length of three feet, including the tail; it lives among trees, and like most other lizards whose toes are divided, is able to climb with ease. It is not only a quick runner,

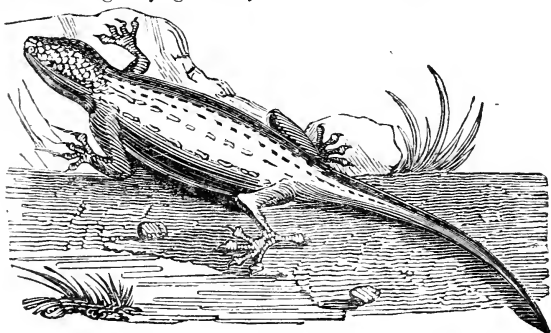
but, after filling its little cap with air, extending its ridge as much as possible, and inflating its body, so as to render itself specifically lighter, it springs from branch to branch with great agility. It is not, however, confined to woods, but is frequently found in the neighbourhood of waters, swimming well, and with great swiftness. Far from killing by its looks, like the fabulous animal whose name it bears, it may be looked upon with pleasure. When animating the solitude of the immense forests of America, it darts rapidly from branch to branch, or when reposing from its gambols, it appears pleased at being noticed, testifying its pleasure by various movements, inflating its crown, and producing gentle undulations in its beautiful ridge.

THE HOUSE GECKO, (*Lacerta gecko*.)

THE Geckos, from their bloated and disagreeable appearance, have had many bad qualities attributed to them which they do not deserve. Their bite is said to cause a most virulent and incurable species of leprosy; some say this disease is produced by eating provisions over which this reptile has walked. The truth is, that the only unpleasant quality they possess resides in the tubercles which line the inner part of their thighs, and which secrete an acrid humour, sufficiently powerful to produce a redness, or slight inflammation, on the skin, if the Gecko is allowed to walk over the hand.

The Gecko has received its name from a peculiar cry which it utters, resembling that word. It is found in Egypt, India, the Molucca Islands, &c. The species we are describing is frequently found in houses, where it creates great alarm among the inmates, from its supposed poisonous qualities. Cuvier says, "their

walk is heavy and creeping, their eyes are very large, and the pupil contracts from the influence of light, like that of the cats; this constitutes them nocturnal animals, and during daylight they remain in obscure places."



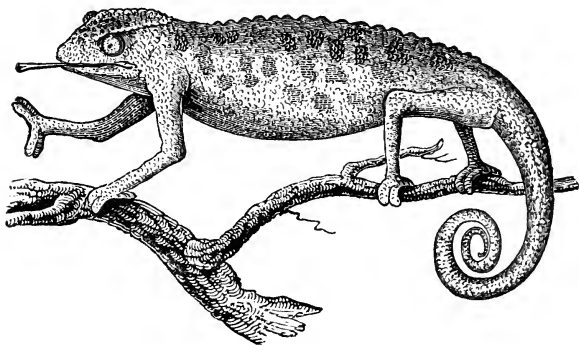
THE HOUSE GECKO.

Their eyelids, remarkably short, are withdrawn between the eye and the orbit, which gives their physiognomy a different appearance to that of the rest of the Saurians. The tail has naturally circular folds, but when it has been broken off, it shoots again without folds, and even without tubercles, although the reptile was furnished with them in the first instance; this has caused the species sometimes to be multiplied.

THE CHAMELEON, (*Chamæleo vulgaris*.)

THERE are, perhaps, no animals whose names and attributed qualities have given rise to more fabulous stories, or have been more frequently used in comparison or allegory, than the Chameleon, the Dragon, the Basilisk, and the Salamander. The Chamelons, like the Agamæ,

differ from the true Lizards by not having their bodies covered with scales. Their eyes have, as it were, but a single eyelid, and can be moved in any direction, independently of each other, so that one eye may be looking forwards while the other is directed backwards. Its eyes also are in continued action, while the vivacity of their motion, and their extreme brilliancy, is a strong contrast to the stupid look and sluggish movements of this celebrated reptile.



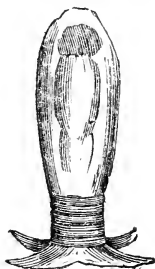
THE CHAMELEON.

The tongue of this reptile is extremely singular in its formation ; it is capable of being lengthened to a great extent, for the purpose of seizing its prey, an object which the sluggish motions of the reptile would render impossible by any other means. The engravings represent this organ in its contracted and in its extended state. The following account of its construction, and of the method in which it captures its prey, is extracted from a paper in the Transactions of the Irish Society :

When a fly so maimed as not to be able to escape, but still sufficiently vigorous to move its legs and wings, was so placed that its fluttering might attract the Chameleon's attention, the animal advanced slowly until within tongue's reach of it, then steadying itself like a pointer, sometimes stretching out its tail, sometimes fixing it against an adjacent body, and directing both eyes steadfastly on the prey, it slowly opened its mouth, and suddenly darted forth its tongue, which advancing in a straight line, seldom failed of striking, with its glutinous cupped extremity, the object aimed at. Near the point of the tongue there is a small gland, which secretes a glutinous fluid: but even when the point happened to err, the prey did not always escape, sometimes adhering to the sides of the tongue. The tongue, thus laden, then retired into the mouth, but somewhat more tardily than in its advance. When projected the tongue acquired a thickness equal to the largest swan-quill, and a length not less sometimes than six or seven inches. Its consistence I attempted on one occasion to ascertain, by catching it between my fingers, when it imparted the feel of an elastic body, yielding slightly when pressed on, and springing back instantly to its former state, as soon as the pressure was removed. The experiment only caused a short delay in its progress, but neither altered its form or course, nor unfastened the prey from its extremity.



The tongue is probably the sole agent of the Chameleon in obtaining its food. Flies have often rested on its body, and though it has looked wistfully at them, it has had no means of taking them. I have frequently observed them on its very lips, without any attempt being made to seize them. Even when placed before it, if not sufficiently distant to afford room for the necessary evolution of the tongue, the Chameleon was under the necessity of retiring for the purpose.



If the fly happened to be on a flat surface, so placed as to oblige the creature to direct its tongue perpendicularly against the surface, the cupped extremity would adhere, for a short time, in the same manner as a child's leather sucker does to a stone. But the animal seemed most annoyed when seizing its prey on the sides of its cage, which was made of paper, the down of the paper sticking to the mucus on the tongue. On one occasion when two Chameleons attempted, at the same moment, to catch a fly placed between them, their tongues struck against each other, and remained connected for a short time.

As it is natural to expect in animals, natives of warm climates, the presence of heat and sunshine seemed necessary to render them sufficiently active to secure their prey; when cold or sickly they seemed unequal to the effort. When irritated, and the reptile was very subject to anger, its tongue, as well as its skin, gave evidence of the same excitement, and it swelled out prodigiously in the throat.

It was formerly supposed that the Chameleon's tongue

was directed to its prey by the action of a series of muscles; but the dissections of Mr. Houlston, the author of the above account, show that the cause of its extension is the injection of a quantity of blood into the organ, and not, as in the case of the tongue of the Woodpecker by the direct aid of muscular cords.

The toes on the feet of the Chameleon are opposed to each other, two being directed backwards and three forwards, so as to enable the creature to take a firm hold of the branch of the tree on which it is crawling. Its movements, from their slow and cautious character, are almost ludicrous, for it never lifts one foot to proceed in advance, before it has cautiously ascertained that the other three have a secure hold; it then, with a slowness like that of the hand of a clock, carefully puts forth one of its awkward legs, and grasps a portion of the branch a little in advance. It does not, like Lizards of a more active nature, seek for its prey, but remains seated, for days together, on the same branch, patiently waiting for any insect that may come within its reach; from the small quantity of food it seems to devour, and its great inactivity, the fabulous story of its living on air has arisen.

But the most singular stories which have been told of this reptile, relate to its supposed power of changing the colour of its skin, according to that of the object on which it is resting. That many changes take place in its colour is undoubtedly true; but it is an error to suppose that they have any reference to the colours of the objects near which they are placed. The Chameleon, like many other reptiles, has the power of inflating its body considerably; this it does when alarmed or irritated; at this time, its skin becomes so far distended as

to be nearly transparent; and its lungs being formed of very large cells, the rush of blood to or from this organ is plainly visible through the semi-transparent skin.

In its natural state, and when not disquieted, its colour is a fine green, with the exception of some parts, which present a reddish-brown or grayish-white; when in anger, its colour passes to a deep blue-green, to a yellow-green, or to a gray, more or less dark. If it is unwell, its colour becomes yellowish-gray, or that sort of yellow which we see in dead leaves; this is the colour of almost all Chameleons which are brought into cold countries, and all of which very speedily die. In general, the colours of Chameleons are more lively and variable when the weather is warm, or the sun shines with great brilliancy. This change in their hue has been made the foundation of a well-known fable, which tends to show the folly of what we call *positiveness* in conversation.

Two travellers of such a cast,
 As o'er Arabia's wilds they past,
 And on their way in friendly chat
 Now talked of this, and then of that,
 Discoursed awhile, 'mongst other matter,
 Of the Chameleon's form and nature.
 "A stranger animal," cries one,
 "Sure never lived beneath the sun:
 A lizard's body lean and long,
 A fish's head, a serpent's tongue,
 Its tooth with triple claw disjoined;
 And what a length of tail behind!
 How slow its pace! and then its hue—
 Who ever 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 warmed it in the sunny ray ;
 Stretched at its ease the beast I viewed,
 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 surveyed
 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 of but 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 referred ;
 And begged he'd tell 'em, 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 viewed it o'er by candle-light :
 I marked 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 ; then full before their sight
 Produced the beast, and, lo !—'twas white !
 Both stared, the man looked wond'rous wise—
 "My children," the Chameleon cries,

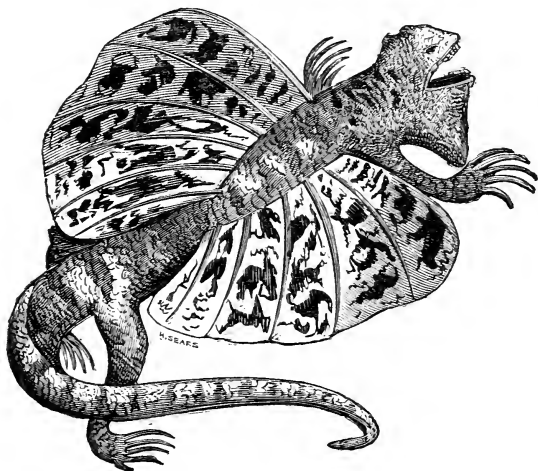
(Then first the creature found a tongue,)
 "You all are right, and all are wrong :
 When next you talk of what you view,
 Think others see as well as you :
 Nor wonder, if you find that none
 Prefers your eye-sight to his own."

THE FLYING DRAGON, (*Draco volans*.)

FROM early associations, the word Dragon produces in the mind an idea of a creature of great power, and of some monstrous form. The ancients and the moderns have all spoken of the Dragon. Among the earlier idolatrous nations it became an object of worship, and formed part of their mythology, the minister of the will of their gods, and the guardian of their treasures. It has been celebrated by poets, and represented by them in extraordinary colours. It has even been mentioned seriously in historical works, described by all, everywhere celebrated, everywhere feared, shown in various forms, but always invested with great power, uniting in one body the rapid flight of the eagle, the strength of the lion, and the magnitude of the largest serpents. The tales of its marvellous powers amused the leisure of those who wished to see truth adorned with the ornaments of an agreeable fiction. But, instead of a being of this terrific and fantastic nature, what do we find it in reality? An animal as small as it is weak; an innocent and quiet Lizard, possessing less power of doing harm than any of its tribe, furnished simply with the means of moving with great agility, and springing from branch to branch in the forests it inhabits.

The formidable name given to this reptile arises from a fanciful resemblance to its fabulous namesake, by its

possessing a species of wings, with a lizard's body, and on account of its habits agreeing, in some measure, with those of a serpent. The wings are formed of six cartilaginous rays, fixed horizontally on each side of the spine of the back. The membrane with which these rays, as well as its whole body, are covered, is provided with scales. These wings are formed something like the fins of fishes, and enable the reptile to break its fall when leaping from a considerable height. The Dragon is also remarkable for three lengthened and pointed pouches which decorate the under-part of the throat, and which it can enlarge at will.



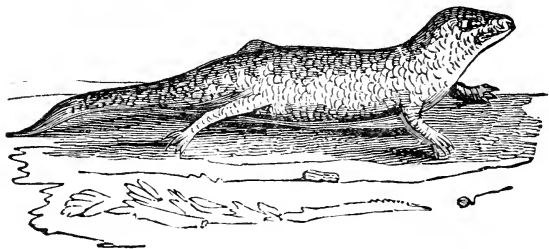
THE FLYING DRAGON.

Very unlike the Dragon of fable, it passes its life innocently on trees, flitting from branch to branch in

search of ants, flies, and other insects, on which it feeds. When springing from one tree to another, it strikes the air with its wings, so as to produce a very distinct sound, and it sometimes will clear a space of thirty yards at a leap. Species nearly resembling each other are found in Europe, Asia, and America. In the water this creature also avails itself of its wings for the purpose of swimming, and its tail compressed sideways assists it in this act.

THE SKINK, (*Scincus officinalis*.)

THIS lizard was formerly famous for the medicinal virtues which it was supposed to possess. The common Skink is about six or eight inches in length, and is found in Nubia, Syria, and the adjoining countries; it is found also on the coast of Barbary, and on some of



THE SKINK.

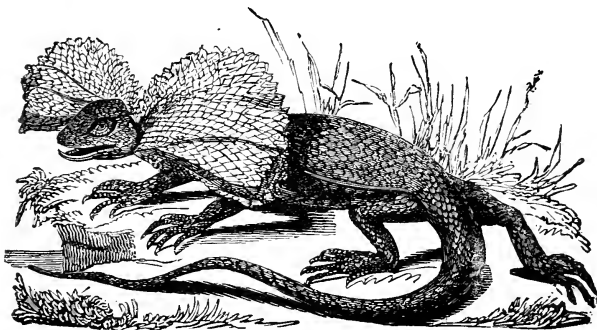
the Grecian Islands. When alarmed, according to Bruce, it digs itself a hole in the sand with so much promptitude, that one would think it rather found the opportunity of disappearing in a retreat already existing, than the means of preparing one for itself.

The Arabian physicians and their followers considered it a sovereign remedy for many disorders. Pliny attri-

buted to it the power of curing the wounds made by poisoned arrows, and it is still recommended by physicians in the East, for cutaneous diseases. On this account it is sought with great eagerness by the inhabitants of the deserts that surround Egypt, who, after drying it, send it to Cairo and Alexandria as an article of merchandise.

THE FRILLED LIZARD,
(*Clamydosaurus Kingii.*)

THIS singular creature was brought from New Holland by the expedition under the command of Captain King; it is engraved from a specimen in the British Museum: nothing whatever is known of its habits, and we have



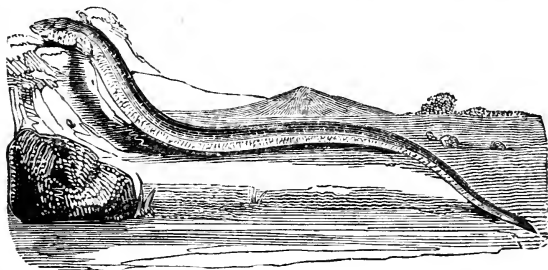
THE FRILLED LIZARD.

introduced it here, merely to show the infinite variety of forms assumed by animated nature, the reason of which, in many cases, is inscrutable to our understandings, but all of which were, no doubt, ordered by a kind Providence for the benefit of the individual.

THE TWO-LEGGED LIZARD,

(Lacerta bipes.)

THIS is the last of the Lizard tribes we intend to notice. In its figure, and in its possessing but two short fore-legs,



THE TWO-LEGGED LIZARD.

it approaches the Snakes, which form the next order of reptiles. Most of these remarkable creatures are found in New Holland and South America.

SERPENTS. Order OPHIDIA.



A CARELESS glance at the form of a Serpent, while stretched on the ground and in a state of inactivity, would induce a beholder to believe, that the reptile, being unprovided with limbs of any description, was consequently unable to move, except with extreme difficulty. No animal, however, is equally quick in its movements, or can transport itself from place to place with so much rapidity as a Serpent; when in motion it seems indeed scarcely to touch the ground over which it glides. If it wishes to raise itself from the surface, it attains, without difficulty, the summit of the highest trees, twining round the trunk, and gliding upwards with so much quickness, that the eye can scarcely follow it.

The ancients employed the figure of the Serpent in many of their emblematical representations of the attributes of their divinities. Its supposed healing power, or its wisdom, caused it to be employed as a symbol of Esculapius, who presided over medicine. Two Serpents and two wings (*cunning and swiftness,*) formed the *caduceus* of Mercury, the messenger of the pagan deities. A Serpent, with its tail in its mouth in the form of a ring, was emblematical of eternity, on account of the long life of the reptile, and the form of the circle, which has neither beginning nor ending.


The Serpents seem to hold an intermediate place between the Lizards and Fishes; some of the Snakes resembling, both in habits and in form, the eels and the *murænæ*. Quickly, however, as a Serpent glances, as it were, over the surface of the earth, many parts of its body are constantly in contact with the ground, even when it seems scarcely to touch it; so that the name of reptile is properly more applicable to the animals of this order, than to any other creatures of the same class. The total absence of feet, or limbs of any kind, to assist their movements, and the peculiar form of the Serpents, causes them to be readily distinguished, even by their outward appearance, from any other vertebral animals.

The species are very numerous, and we shall be only able to notice a few of the most prominent. Some reach an enormous size, as much as thirty or even forty feet in length; they are all covered with scales or scale-like tubercles, which vary much in form and size. The different species have various combinations of these scales; some have four kinds, some three, others again but two, and there are others in which the scales are of one sort over the whole body. From the different numbers and

various combinations of these scales, we are enabled to distinguish genera, and even species, from each other. Serpents are easily killed, if firmly seized immediately behind the skull, as, from the peculiar formation of the bones of the head, the spinal marrow is at that spot not well protected.

The skeleton of the Serpent is more simple than that of any other animal with a vertebral column, having no provision for feet, as in the mammalia; for wings, as in birds; or for fins, as in fishes. It is composed entirely of a series of vertebræ, reaching from the skull to the extremity of the tail, and these vertebræ are so formed as to allow the animal to twist its body in every direction without difficulty; the ribs also, in many species, are extremely numerous, and extend nearly the whole length of the body. The flat scales which are placed on the belly of the Serpents, are each provided with a peculiar set of muscles, by which they can be moved singly, so that, when brought into action, they act like so many feet.

But Serpents have another and more powerful means of motion; by forming a part of their body into the arc

of a circle, thus,  they can, by suddenly straightening it, and keeping one end of the arch firmly against the ground, dart forward a considerable distance with great force. Some kinds of Serpents, when intending to spring from one point to another, or to dart upon their prey, roll themselves up in a spiral form, with the head elevated, and suddenly uncoiling, spring forward with astonishing force.

Like other reptiles, the animals belonging to this class are most abundant in hot climates, and are fond of frequenting impervious woods and marshy lands.

THE SNAKE TRIBE.

THE BLIND WORM, (*Anguis fragilis*.)

THE Snakes differ in their anatomy from the rest of this order, in having, in some species, a rudimentary indication of the bones of the shoulder, thus showing their connexion with the Lizards, and on this account the Snakes are placed at the head of this order.

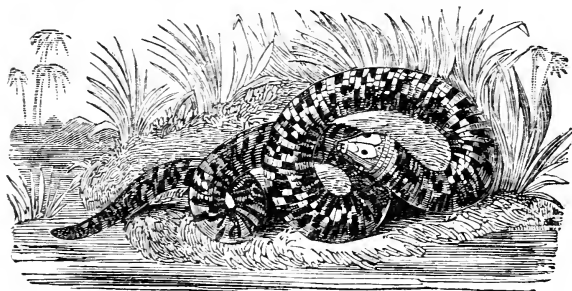
The Blind Worm is one of this division, and is very well known in all the countries of the old continent, from Sweden even to the Cape of Good Hope. The upper part of the head is covered with nine . . . scales, arranged in four rows, in the following order : : : The scales with which it is covered, both on the upper and under side of the body, are extremely small, and this distinguishes the Snakes from the true Serpents: the eyes of the Blind Worm are extremely small, but very bright.

It was formerly believed that the bite of this reptile was poisonous, but far from this being the case, it has been proved by experiment, that no endeavours to irritate it will induce the creature even to open its mouth. When alarmed, it contracts its muscles violently, and stiffens its body to such an extent, as to be easily broken by a fall, or a blow from a stick; from this it takes its name, *Anguis fragilis*, the Brittle Snake. It feeds on worms, beetles, frogs, and young rats. It appears to be one of the hardiest of the Serpent kind, and has sometimes been seen raising its head above the surface of the snow in the winter season. In length, it varies from twelve to eighteen inches.

THE SERPENT TRIBE.

“THE family of the true Serpents,” says Cuvier, “which is by far the most numerous, comprehends the genera without sternum, (*breast-bone*,) or even the vestige of shoulder, but whose ribs surround a great part of the circumference of the trunk; many of them have under the skin the indication of a hinder limb, the extremity of which even appears in some externally, in the form of a little crook.” To give some general idea of the arrangement of the true Serpents, we may separate them into Double Walkers, Boas, and Vipers.

THE DOUBLE WALKER, (*Amphisbæna alba*.)



AMPHISBÆNA FULIGINOSA.

IN the *Amphisbæna* the scales are of a square form, and arranged in circles round the body. The head and tail of these creatures are so much alike, in some species, that it is difficult to distinguish the one from the other, and the peculiar arrangement of the scales enables them to move either backwards or forwards with equal ease. Their appearance, and their peculiar manner of moving,

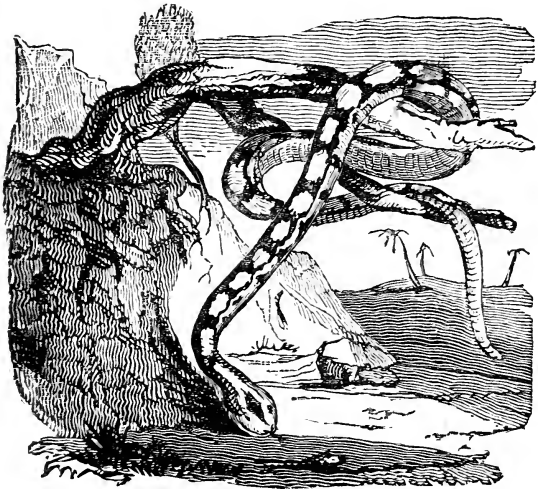
occasioned a belief that they had two heads. Many other ridiculous things were also believed of their power of uniting after being cut in pieces, and even after these parts had been dried in the sun, provided they were exposed to a shower of rain. They are generally natives of South America, and the great islands in the neighbouring seas.

THE BOA, (*Boa constrictor.*)

THE Boas may be said to include all those Serpents in which the upper part of the body and the tail are furnished with transverse scaly bands of a single piece, and which have neither spur nor rattle at the end of the tail, although the word *boa* is commonly used only in reference to the larger species. The Boa Constrictor is among Serpents, what the Elephant and the Lion are among quadrupeds. Like the former, it surpasses in size all the rest of its order, and equals the latter in strength; it generally reaches the length of twenty feet, and if we are to believe the accounts of travellers, it has been seen as much as forty or fifty feet long.

The Serpent that Pliny speaks of as having retarded the march of the Roman army on the northern shores of Africa, is supposed to have belonged to this genus. According to the Roman naturalist, this Serpent was 120 feet in length, but although there is reason to believe that there is some error in the account of its size, we must still be obliged to acknowledge the existence of an enormous Serpent, which, pressed by hunger, attacked the Roman soldiers when they wandered from their camp, and which these conquerors of the world found themselves unable to destroy, without employing the engines of war with which they overturned the walls of their enemies.

The head of the Boa is extremely grand, the crown of the skull being wide, the front elevated and divided by a longitudinal groove, the orbits of the eyes prominent, and the eyes themselves extremely large. The opening to the throat is capacious, and the teeth long and sharp, but the creature is without poison-fangs. It is distinguished as much by the beauty of its scales, as by its immense length.



THE BOA.

Looking at the great size of the Boa, we need not be astonished at its prodigious strength. We may easily conceive how an animal thirty feet in length, may suffocate, and crush within the multiplied folds of its

body, animals of the largest size. Its great power, dreadful strength, and gigantic size, together with the brilliancy of its scales, and the beauty of its colours, have filled uncivilized nations with a kind of admiration mixed with awe, and we therefore frequently find it the object of their worship.

In attacking its prey, the Boa precipitates itself suddenly on its victim, and, twining round it in enormous folds, compresses it with such force, that the bones are instantly crushed, and it is soon suffocated by the enormous reptile. If the size of the animal is too great to allow the Boa to swallow it, in spite of its enormous throat, the facility with which it can enlarge its jaws, and the power of extension with which nearly the whole of its body is endued, it endeavours, by further efforts, to reduce it to a proper size, and, failing in this, drags its prey to the foot of some large tree, round the trunk of which it entwines itself, and placing its victim between the tree and its own body, redoubles its efforts, and soon succeeds in moulding it, as it were, into a proper form. Then untwining its folds, it proceeds to swallow its meal at leisure. To prepare for this, and also to make it slip down its throat more easily, it covers the whole body over with a slimy substance, which at this time is secreted in great abundance. Occasionally the morsel is too large to be entirely swallowed, until the part which first entered the monster's mouth is digested; at this time, gorged to repletion, it falls an easy prey to its pursuers. Many dreadful accounts are on record of the ravages committed by these large snakes.

A circumstance once occurred to an English officer commanding a small out-station in the East Indies, which may be considered not undeserving of record.

He was early one morning taking his customary ramble, before the sun had attained a sufficient elevation in the heavens to drink up the freshness of the dews which glittered around, when, upon passing a small ruined building, his attention was suddenly arrested by the appearance of something with which his eye did not seem to be at all familiar, moving in a deep recess of the ruin. He approached it cautiously, fearing, as he could not distinguish the object very clearly, that it might be a tiger, or some other animal equally dangerous. Upon closer inspection, he discovered it to be an immense Snake, filling, with its voluminous folds, the whole recess. Determined at once on its destruction, but knowing that he could do nothing single-handed, against a creature at once so active and powerful, he made the best of his way to the guard-house, and ordered half a dozen soldiers to the spot, armed with their muskets, and having their bayonets fixed. They were six strong, determined Englishmen. They made no objection to encounter so unusual an enemy; on the contrary, they were pleased at the thought of the sport, and, being formed in line, advanced steadily to the attack as soon as the word of command was given, and simultaneously transfixed the monster with their bayonets, firmly pinning it against the wall. Being so roughly disturbed from its slumbers, the enormous creature uncoiled itself in a few seconds, and such was its prodigious strength, that, with one mighty sweep of its tail, it dashed five of its assailants to the earth. The sixth, who was near to its head, maintained his position, and still kept his terrific adversary against the wall, adroitly avoiding the lashings of its ponderous tail, by stooping or dodging as circumstances required, until the animal, exhausted with pain

and exertion, lay extended at full length upon the earth, almost motionless. By this time, the five soldiers who had been struck down, having recovered their feet, wounded the vanquished snake with the butt-end of their muskets upon the extremity of the tail, where the inosculation of the vertebræ is less firm, thus disabling it so completely that it was soon despatched. It measured upwards of fifty feet in length, and was full three in circumference.

In a letter printed in the German Ephemerides, we have an account of a combat between an enormous Serpent and a buffalo, by a person who assures us he was himself a spectator. 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 that offered. Having darted upon the affrighted animal, it instantly began to wrap itself round with its voluminous twistings, and at every twist, the bones of the buffalo were heard to crack with a loud report. It was in vain the poor animal bellowed and struggled; its enormous enemy entwined it too closely to allow it to get free, till at length every bone in its frame was completely crushed; it then proceeded to swallow it in the manner we have already related.

In the Dutch colonies of the East Indies, André Cleyer purchased of the hunters of the country an enormous Serpent, in the body of which he found a deer of middle age, altogether entire, with its skin unbroken. In another individual of this species, examined by the same traveller, a wild goat was found with its horns, and another had swallowed a porcupine with its quills.

The ADDERS, a division of the Serpent tribe, comprehend, according to Cuvier, all Serpents, venomous or

not, in which the plates on the under-part of the tail are divided into two; that is to say, ranged in pairs. Independently of the separation of venomous species, their number is so enormous, that recourse has been had to various characters to subdivide them. The Python, the Great Adder of the Sunda Islands, is one of this group; it nearly attains the size of the Boa.

We cannot better describe the characters of the venomous Serpents, than by employing the words of Cuvier. "The true venomous Serpents, or those with isolated fangs, have a very peculiar construction in some of the bones of their jaws. The bones of the upper jaw are small, and supported on a long foot-stalk, and are, at the same time, very moveable. In these bones is fixed a sharp tooth, pierced by a small canal, which gives issue to a liquor, secreted by a considerable gland, situated under the eye. It is this fluid, poured into the wound by the tooth, which carries destruction into the bodies of animals, and produces effects more or less fatal, according to the species of the Serpent from which it comes. This tooth is concealed in a fold of the gum when the Serpent does not choose to make use of it; and there are behind it several germs, or young teeth, destined to replace it, if it should be broken in a wound. Naturalists have named these teeth moveable fangs, but it is, more properly speaking, the bones in which they are fixed which move. All these venomous species, whose habits are well known, produce their young alive, because the eggs disclose them before they are laid. This it is that has caused them to receive the general name of *vipers*, a contraction of the word viviparous."

The venomous Serpents have generally the head very

wide behind ; and this causes the neck to appear much smaller than it really is.

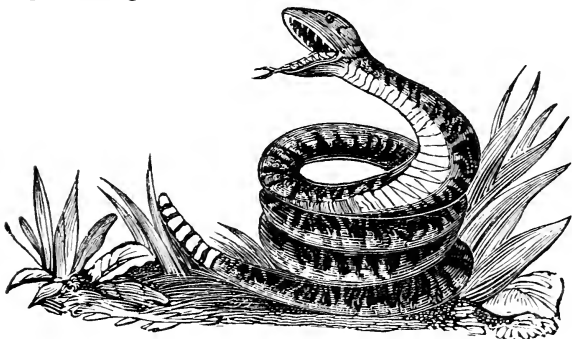
THE COMMON SNAKE, (*Coluber natrix*.)

THIS is the largest of English serpents, and sometimes exceeds four feet in length ; it is perfectly harmless, but possesses a means of defence which is very annoying, when unexpectedly resorted to. If irritated or alarmed, a most fœtid humour exudes from beneath its scales. The Snake preys upon frogs, insects, worms, mice, and young birds, and is said to be particularly fond of milk. Several instances are on record of its having been, to a certain extent, tamed, that is, so far as to come from its hiding-place at the call of its master. In some countries it is eaten, and is considered exceedingly savoury. The fat is also used as an outward application in some cases of disease, and soups and broths made from its flesh are reckoned useful in cases of scrofula, &c. It has sometimes been called the Water-Snake, from its frequenting the banks of streams.

THE RATTLE-SNAKE, (*Crotalus horridus*.)

THIS terrific reptile is found in great abundance on the continent of America, and, if its instincts induced it to make use of the dreadful means of destruction and self-defence which it possesses, it would become so great a scourge as to render the country in which it is found almost uninhabitable ; but, except when violently irritated, or for the purpose of self-preservation, it seldom employs the fatal power bestowed upon it. The venom

of the Rattle-snake is, perhaps, more virulent than that of any other creature of the same class, but experience teaches us that its effects are modified by several circumstances, particularly the heat of the climate, and the season of the year. In all hot countries, the bite of Serpents is found to be much more dangerous than in more temperate regions; and much depends upon the time that has elapsed since the reptile last employed its poison-fangs.



THE RATTLE-SNAKE.

The power said to be possessed by the Rattle-snake of fascinating its prey, has been the theme of many an astonishing tale, and the possession of this faculty is still believed by many. There is no doubt that the smaller animals on which the reptile subsists are alarmed in the presence of their known enemy, and that fear may cause them to lose their self-possession, and thus they are more readily seized by their cunning opponent.

The Rattle-snake, in general, flies from the sight of man; but, if this was not the case, it could with ease be

avoided, for, unlike the harmless Snake of England, its movements are extremely sluggish. If, however, the creature is alarmed, and sufficiently near to reach the intruder at one spring, much caution may be requisite to avoid the attack.

The name Rattle-snake is given to it on account of the very surprising apparatus with which the extremity of its tail is furnished. This consists in a series of hollow horn-like substances, placed loosely one behind the other, in such a manner as to produce a kind of rattling noise, when the tail is shaken; and as the animal whenever it is enraged always carries its tail raised up, and produces at the same time a tremulous motion in it, this provision of nature gives timely notice of its dangerous approach. It is said that the number of pieces of which this rattle is formed points out the age of the possessor, who acquires a fresh piece every year. Some specimens have been found with as many as from forty to fifty, thus indicating a great age; and, as the animal is very slow in its growth, it is a fact we should be led to expect, for the same rule holds good throughout all nature.

The duration of life in an animal always bears a certain proportion to the time required for its attaining maturity. The age of the enormous whale is said to extend to one thousand years. It is the same, also, in the vegetable world: the oak does not arrive at maturity till it has weathered a hundred winters; and in the first year of its growth, it scarcely attains the height of three inches, while, on the other hand, the short-lived gourd grows to the length of thirty feet in a few months.

The poison of the Rattle-snake preserves its power, after the death of the animal which has secreted it, and

fixes in linen with considerable energy. It is said even to remain active after the linen has been washed. It equally retains its properties in the fangs after the death of the reptile.

A man was bitten through his boots by a Rattlesnake, and very quickly died of the bite; these boots were sold successively to two other persons, who also died, because the extremity of one of the venomous fangs had remained in the leather. However extraordinary such a fact may appear, its possibility has been confirmed by experiment.

THE COMMON VIPER, (*Coluber verus*.)

THE Common Viper is the only venomous reptile with which Great Britain is infested, and, notwithstanding the high state of cultivation in this country, which always tends to the extermination of wild animals, it is still far from uncommon. The usual length of this reptile is about two feet. The poison-fangs of the Viper resemble those of the Rattlesnake in every thing except size. Lacépède, describing the Common Viper, says, "As if it felt the dreadful power of the poison it secretes, its looks are bold; when irritated its eyes sparkle brightly, its action is animated, and opening its mouth, it darts forth its tongue, which is commonly of a gray colour, cleft in twain, and composed of two little fleshy cylinders adhering to each other for nearly two-thirds of their length; the animal's agitated movements are so rapid, that it sparkles, as it were, and appears like a phosphorescent body."

The tongue was formerly considered as a kind of dart with which the Viper pierced its prey, and the venom

being supposed to lie at its extremity, it was, on this account, compared to a poisoned arrow. This error arose from the Viper always moving its tongue rapidly when about to inflict a wound. The Viper, like the Rattlesnake and most other Serpents, is able to enlarge its throat considerably, when swallowing its food. During severe frosts, Vipers are found in considerable numbers twisted or knotted together, beneath stones, in holes in ancient walls, and other sheltered places. The Vipers seldom attain their full size until after the lapse of six or seven years.

The fatal properties of this reptile's bite have been much exaggerated. Fontana, who made more than six thousand experiments, proved that the bite of a single Viper was sufficient to kill a mouse, a pigeon, or other small animal; but many repeated bites were necessary to cause the death of an ox or a horse. The power of the venom also varies according to the greater or less heat of the climate, and several other causes.

Although the poison of a Viper, when introduced directly into the blood by a wound, produces serious effects, yet it is perfectly innocuous if merely swallowed, supposing no fracture of the skin to exist, which in fact would be equivalent to a wound. This fact appears to have been known to the ancients, and several romantic tales of affection are told, in which the life of persons bitten by Serpents has been saved; the poison being extracted from the wound by the mouth of some attached friend or relative. In the *Pharsalia* of LUCAN, the same belief is acted on :

And now with fiercer heat the desert glows,
And mid-day beams now aggravate their woes ;

When lo! a spring, amid the sandy plain,
 Shows its clear mouth to cheer the fainting train ;
 But round the guarded brink in thick array
 Dire Aspicks rolled their congregated way,
 While in mid-wave the horrid Dipsas lay.
 Blank horror seized their veins, and, at the view,
 Back from the fount the troops recoiling flew ;
 When, wise above the crowd, by fear unquelled,
 Their awful leader thus their dread dispelled,—
 ‘ Let not vain terrors thus your minds enslave,
 Nor dream the serpent-brood can taint the wave :
 Urged by the fatal fang their poison kills,
 But mixes harmless with the bubbling rills.’
 Dauntless he spoke, and bending as he stood,
 Drank with cool courage the suspected flood.

As to the effect of the bite of a Viper on the human frame, it may be safely said, that very few cases occur in which it terminates in death. The fatal effects of a Serpent's bite are not so constant as it is imagined, even in the case of other species of venomous reptiles. In 1827, at a sitting of the Academy of Sciences, Professor Box declared, that he had seen the cases of more than thirty persons who had been bitten by Rattle-snakes, not a single one of whom had died in consequence.

THE CERASTES, OR HORNED VIPER, :

(*Coluber cerastes.*)

THIS Viper is common in Egypt and Abyssinia ; it is of a grayish colour, keeps itself concealed in the sand, and is easily distinguished by a small pointed bone over each eyebrow. It attains the length of about two feet. The singularly-horned head of this Serpent, and the danger of its bite, caused it to be noticed by the ancients in very early times. The best modern account of this reptile is that given by Bruce. The Cerastes

he notices as being extremely fond of heat, "for though the sun was burning hot all day, when we made a fire at night, by digging a hole and burning wood and charcoal therein, it was seldom we had fewer than half a dozen of these Vipers, who burn' themselves to death by approaching the embers."

"The Cerastes moves with great rapidity, and in all directions, forward, backward, and sideways. When it intends to surprise any one who is at too great a distance, it creeps with its side towards the person, and its head averted, till, judging the distance, it turns round, springs forward, and fastens on the nearest part of the victim's body; for it is not true that the Cerastes does not leap or spring." A great many anecdotes are given by the same writer, of a property said to be possessed by some of the natives of these countries, of handling with impunity this very dangerous reptile, and of even allowing themselves to be bitten. At present, the cause of this is quite unexplained; although there is little doubt there was at least some juggling in the transactions. We shall give two anecdotes in the author's own words. "I will not hesitate to aver, that I have seen at Cairo (and this may be seen daily without trouble or expense,) a man who came from above the Catacombs, where the pits of the mummy-birds are found, who has taken a Cerastes in 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 in his breast, and tied it about his neck like a necklace; it has then been applied to a hen, which it has bitten, and 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 stick of celery, without any seeming repugnance."

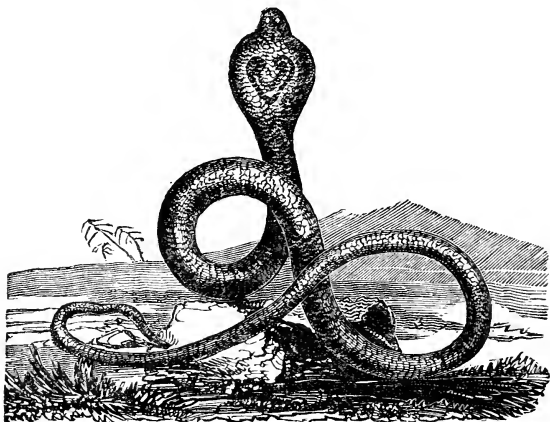
"I saw a *Cerastes* at Cairo, in the house of Julian de Rosa, crawl up the side of a box, in which there were many others, and there lie still, as if hiding itself, till one of the people who brought them to us came near it, and though in a very disadvantageous posture, sticking as it were perpendicular to the side of the box, it leaped nearly the distance of three feet, and fastened between the man's fore-finger and thumb, so as to bring the blood; the fellow showed no signs either of pain or fear, and we kept him with us full four hours, without his applying any sort of remedy, or seeming inclined to do so. To satisfy myself that the animal was in its perfect state, I made the man hold it by the neck, so as to force it to open its mouth and lacerate the thigh of a pelican, a bird I had tamed, as big as a swan. The bird died in about thirteen minutes, though it was apparently affected in about fifty seconds, and we cannot think this a fair trial, because a few minutes before it had bitten the man, and so discharged a part of its poison, and it was made to scratch the pelican by force, without any irritation or action of its own."

These tales are really very wonderful, and no doubt the facts appeared as Bruce has related them, but it is a pity he had not been a systematic naturalist, as he then could have seen whether the poison-fangs had been really removed or not, and he might possibly have detected some other trick. We are naturally disinclined to believe the possession of such peculiar faculties, and if the effects are the result of scientific research, or of some antidote, it certainly does appear strange, that the possessors of the secret should be satisfied with a

miserable pittance and the life of vagabonds, when they might obtain by its disclosure a princely reward.

THE HOODED SNAKE, (*Coluber naja*.)

THE *Cobra di Capello*, or Hooded Snake, is a native of the East Indies, and one of the most venomous reptiles of its class, its bite generally proving mortal in less than an hour. It is called the Hooded Snake, from being enabled to inflate the skin of the head to such an extent, as to cause it to appear something like a hood. It has



THE HOODED SNAKE.

also received the name of the Spectacled Snake, from a mark resembling a pair of spectacles on the back of its head. These are the Snakes called in India Dancing Snakes, and they are carried about in baskets throughout Hindoostan, and procure a maintenance for a set of people who play a few simple notes on the flute, with

which the Snakes seem much delighted, and keep time by a graceful motion of the head; raising about half their length from the ground, and following the music with gentle curves, like the undulating lines of a Swan's neck.

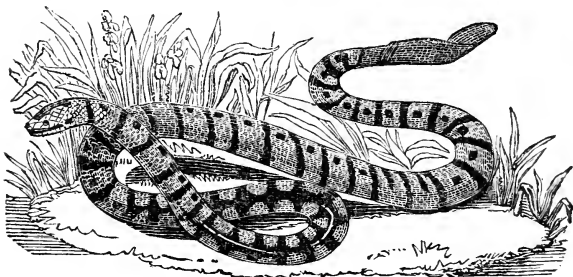
Forbes, in his *Oriental Memoirs*, says, "It is a well-attested fact, that when a house is infested with these Snakes, and some others of the same genus, which destroy poultry and small domestic animals, these musicians are sent for; who, by playing on a flageolet, find out their hiding-places, and charm them to destruction; for no sooner do the Snakes hear the music, than they come softly from their retreat, and are easily taken. I imagine that these musical Snakes were known in Palestine, from the Psalmist comparing 'the ungodly to the deaf adder, which stoppeth her ears, and refuseth to hear the voice of the charmer, charm he never so wisely.'

"When the music ceases, the Snakes appear motionless: but if not immediately covered up in the basket, the spectators are subject to fatal accidents. Among my drawings is that of a Cobra di Capello, which danced for an hour on the table while I painted it; during which time I frequently handled it, to observe the beauty of its spots, and especially the spectacles on the hood, not doubting but that its venomous fangs had been previously extracted. But the next morning, my upper servant, who was a zealous Mussulman, came to me in great haste, and desired I would instantly retire, and praise the Almighty for my good fortune: not understanding his meaning, I told him, I had already performed my devotions, and had not so many stated prayers as the followers of his prophet. Mahomet then informed me, that while purchasing some fruit at the bazaar, he

observed the man who had been with me the preceding evening, entertaining the country people with his dancing snakes: they, according to their usual custom, sat on the ground around him; when, either from the music stopping too suddenly, or from some other cause irritating the vicious reptile which I had so often handled, it darted at the throat of a young woman, and inflicted a wound of which she died in half an hour. Mahomet once more repeated his advice for praise and thanksgiving to Alla, and recorded me in his calendar as a lucky man."

THE HYDRUS, (*Hydrus hydrophis.*)

THE Hydri, or Water-Snakes, of which the Hydrus Hydrophis is the common species, are more adapted for swimming than any of the other tribes of Serpents.



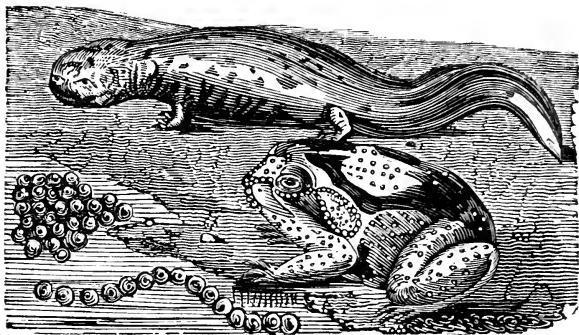
THE HYDRUS.

The hinder part of the body of these reptiles is flattened, so as to make it more like the tail of an Eel; this formation assists them materially in their movements in the water. They appear to be all natives of India and the Indian Islands.

THE HAJE, (*Coluber Haje*.)

THIS Snake is found in Egypt, and is there employed by the jugglers of that country in the same manner as the Cobra di Capello by the Hindoos. The habit which the Haje has of raising itself upright when approached, made the ancient Egyptians believe that it guarded the fields which it inhabited. They made it the emblem of the protecting divinity of the world, and sculptured it on the portals of their temples, on the two sides of a globe. "It is," says Cuvier, "incontestably the Serpent which the ancients have described under the name of the *Aspic of Cleopatra*," &c.

The NAKED SERPENTS comprehend but one very singular genus, the Cæcilia, so called from the small size of their eyes. The different species are natives either of Brazil or the East Indies; they are distinguished from the rest of the Serpents by being without scales, with a smooth and usually slimy skin, furrowed with folds, or annular wrinkles. They possess, however, a kind of rudiment of scales underneath the skin. In many parts of their anatomy they resemble the Frogs, and have, by some naturalists, been placed in that order: they are, in appearance, a kind of connecting link between the Snakes and Fishes and the Snakes and Frogs. These curious reptiles attain at times the length of six feet. Very little is known of their habits, but their food is supposed to be small insects and worms.



THE GIGANTIC SALAMANDER.

BRAZILIAN TOAD.

FROGS, TOADS, SALAMANDERS, &c.

(Order BATRACHIA.)

THIS order contains all reptiles with naked bodies, and without scales; the head without any distinct neck or division, and the toes without nails. In general they undergo some kind of metamorphosis; that is, on their first appearance from the egg, their organization differs from that of the perfect animal.

The Batrachians are produced from eggs, with a membranous covering, which must remain in water while the young are excluded; the animal which proceeds from this egg has the structure, and in some respects the form, of a fish. The eggs appear in the water like small round masses of jelly, with a black speck in the centre; these in the case of the Frogs are deposited in large masses, while those of the Toad are in long strings, like the beads of a necklace.

We cannot better illustrate the different stages in the

growth of these animals than by describing the various alterations of form which take place in the growth of a common Frog or Toad. We have already said that in the centre of the egg of both animals a black speck is visible. This black speck enlarges, and becomes at length of the size of a pea, with a black thread, like a tail, attached to it. The jelly-like covering becomes gradually thinner, and at length bursts, and the young Toad begins its life in the water, in the form of a Tadpole. When it has first left the egg, that part which forms the head has small black fringes attached to either side, and with these it is supposed to breathe; these fringes soon disappear, and it then breathes by means of gills, in the same manner as a fish; it remains in this form for several weeks, feeding, as most fishes do, upon any animal substances that come within its reach: it is soon, however, destined to undergo another and most extraordinary change. At the hinder part of the black mass that looks like its head, two legs appear, and, if carefully examined, two others may be seen in front, but underneath the skin; the tail also becomes shorter, and at last disappears; the fore-legs are set at liberty; a horny beak, which, till now, had covered the extremity of the nose, falls off, the opening of the gills is closed, and the perfect animal appears; it is no longer able to breathe while under water, it refuses all dead animal substances, and seeks the land, to hunt insects for its living.

The number of eggs laid by one of these creatures amounts to as many as from six to twelve hundred yearly, so that if it was not for the variety of enemies which feed upon their spawn, and upon the perfect animals themselves, they would multiply to a fearful extent. In former times, when France was covered with forests and

numberless chateaux, their numbers were so great, that the feudal retainers were engaged during the mornings, in the summer season, in agitating the pools with sticks, to prevent the croakings of the Frogs disturbing the slumber of their masters.

These reptiles, at the approach of winter, improve in condition, and retire into the mud or to some deep hole, where they remain dormant for the cold season. As the time for their hybernation approaches, their appetite, which till then was voracious, begins gradually to fall off, till at length they leave off feeding entirely. We have already noticed that all reptiles can bear great abstinence, and submit to mutilations of many kinds, without appearing to suffer to any great extent; but Frogs can endure with impunity immersion in water at a considerable degree of heat: they have been found in hot springs in which the water was of considerable heat.

THE FROG TRIBE.

THE GREEN FROG, (*Rana esculenta*.)

THIS Frog is found in abundance in France and the greater part of Europe, but in England it is extremely rare. It is of a beautiful green, spotted with black, with three yellow rays upon the back, and seldom exceeds three inches in length. The skin is covered with little tubercles, principally on the sides and back; the toes of the fore-feet are separated and free, those of its hinder feet are half-webbed. The epicures of the Continent consider its hinder legs a favourite dish. At Vienna great quantities are consumed, and they fatten them in *Froggeries*, con-

structed for the express purpose. During the heat of summer they are often taken with a line, baited with a bit of scarlet cloth, which is moved about in such a manner as to make it look like a living creature.

The following extract from Catesby will illustrate this fact, although it is related of another species:—
“As I was sitting on a sultry evening with some company out of doors, one of us let fall from a pipe of tobacco some light burning ashes, which were immediately caught up and swallowed by a Frog of this kind. This put us upon tempting him with a red-hot wood-coal, not less than the end of one’s finger, which he also swallowed greedily; and I afterwards always found them easily deceived in this manner, mistaking the bait, I imagine, to be a cicindela, or a fire-fly, which in hot nights are very numerous in Virginia and Carolina.”

These Frogs are also much sought after for the table in France, although, as a French author observes, “in England they are looked upon with horror.”

They are taken in various ways by lines, nets, &c., and sometimes they are captured at night; torches being employed to attract them to the margin of the marshes they frequent.

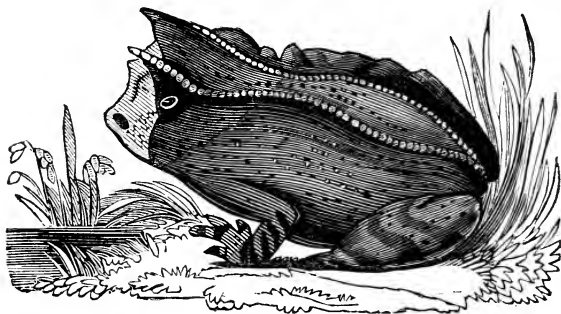
It is in autumn, when they are about to plunge themselves into the waters where they pass the winter, that their flesh is most sought after. It is full a hundred years since they first came into fashion in Paris. A native of Auvergne, named Simon, residing in the suburbs, made a considerable fortune by fattening the Frogs which he caused to be taken for that purpose in his own country. Now-a-days they are not so much sought after, although in the proper season they are always to be found in the Parisian markets.

In Germany the whole of the Frog is eaten, with the exception of the skin and the intestines; but in France they confine themselves to the hinder legs and loins, which are dressed in various ways, stewed, fried, and sometimes roasted. The cooks, however, are not the only class of persons who have made use of these reptiles, and profited by their real or fancied properties. Physicians, some years back, were in the habit of prescribing stewed Frogs in many disorders, particularly in cutaneous diseases. A not uncommon belief exists in this country, that a live Frog swallowed is of great service in cleansing the stomach of impurities, and many a young Frog has been swallowed for that purpose.

THE WHITE-FACED HORNED FROG,

(*Ceratophrys boiei.*)

THIS curious reptile is found in South America, and we have given a figure of it in this place on account of



THE WHITE-FACED HORNED FROG.

its singular construction. Nothing whatever is known of its habits.

THE BULL FROG, (*Rana pipiens*.)

THIS is one of the largest species of the Frog kind, being six or eight inches in length, without including the paws. It inhabits North America, particularly Carolina, but it is not so common in Virginia. In this latter country it is frequently seen seated at the entrance to some hole near a spring, and at the least approach of danger, it tumbles headlong into its hiding-place. It is the belief of the people of Virginia, that these Frogs keep the springs clean, and purify the water; on which account they never kill or molest them, but superstitiously believe it bodes them ill so to do.

Catesby says, "The noise they make has caused their name, for at a few yards' distance their bellowing sounds are very much like that of a Bull a quarter of a mile off; and what adds to the force of the sound is, their sitting within the hollow mouth of the spring. Though the imaginary usefulness of these Frogs is frequently the means of their preservation, yet their voracious appetites often cause their destruction. They are great devourers of young ducks and goslings, which they swallow whole. This provokes the good wives to destroy them; but, as they are not very numerous, the mischief is easily prevented."

In Pennsylvania this Frog is called the *Shad Frog*, because it appears in the spring, about the same time as the Shad. The Bull Frog appears to have been confounded with several others, and among them with one called the Bell Frog, the voice of which exactly resembles the sound of the little bells which are hung to the neck of Cows, for the same purpose as we attach a bell to the neck of Sheep. They generally croak in

concert, one answering to another. The sound is then repeated from troop to troop, to a considerable distance, for several minutes. It increases and diminishes according to the strength of the wind on which the sound is borne. It then ceases entirely, or is prolonged to a distance by other troops, who answer to the first. It is again renewed at short intervals, and when the ear becomes accustomed to it, it is found to be not altogether devoid of harmony, although it appears to strangers disagreeable and annoying.

THE TREE FROG, (*Rana arborea*.)

THE Tree Frog is very common in the south of Europe, but becomes more rare as we proceed northwards. It is found in the neighbourhood of water, either in woods or in parks, and gardens ornamented with ponds.

We have said in the introduction, that Frogs shed their skin in the same manner as Serpents. It comes away in fragments, and is left behind by the reptile; but the Tree Frog, after moulting, according to M. De France, swallows its own skin. The Tree Frog is extremely active, and leaps to a considerable distance.

In the engraving it is represented about to drop into the water from the overhanging branch of a tree, clinging for a moment by the claws of its hinder feet. There is a species belonging to this group, the *Hyla tinctoria*, whose blood is said to possess a very peculiar property. The Indians, they say, employ it to change the plumage of Parrots, in small spots, from green to red. For this purpose, they pluck out the green feathers from these birds when young, and rub the wounded skin with the blood of the Frog; the feathers which grow after this are of a fine red or yellow; this account, however, wants confirmation.



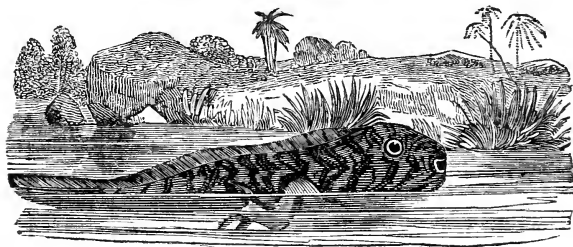
THE TREE FROG.

Stedman relates the story of, as he calls it, a combat between a Frog and a Serpent. When the Frog was first perceived, the head and half of its body was already in the jaws of the snake; the tail of the Serpent was twisted round the branch of a tree, and its body was extended in a straight line; the Frog, which was a Tree Frog, clung by means of the claws of its fore as well as its hinder feet, to a slender twig of another tree. In this situation they struggled, the one for its dinner and the other for its life, and formed a straight line between the two branches;

fer some time they were perfectly stationary, and without any apparent movement, and there still seemed to be a chance of the poor Frog being able to withdraw itself from its dangerous situation by a well-timed effort ; but it was soon clear that its case was hopeless, for the Serpent's jaws began gradually to enlarge, while the body and fore-paws of the Frog disappeared by degrees. At last, the poor beast was completely engulfed in the jaws of its adversary, who passed it downwards a few inches ; it remained there for a time, forming a kind of knob in the throat of the serpent, while its jaws and throat contracted and returned to their original state.

THE FISH-LIKE TADPOLE.

THE engraving represents the Tadpole of the *Rana paradoxa*. It is found in Surinam, and other parts of South America. Of all the species of Frogs, this is that in which the Tadpole grows to the largest size



THE FISH-LIKE TADPOLE.

before its metamorphosis is complete. The loss of an enormous tail, and of the coverings of the body, causes the adult animal to be smaller than its Tadpole. This

circumstance led Mademoiselle Merian, Seba, and other old writers, into an error, and caused them to believe that this reptile changed from the Frog state into that of a Tadpole, and that afterwards it was changed into a fish. Although this belief circulated for a length of time, it has at length been completely refuted.

THE TOAD TRIBE.

THE Toads (says Cuvier) have a corpulent body, covered with warts or papillæ, a thick pad behind the ears, from which is expressed a milky and fœtid humour, no teeth, the hinder feet but little lengthened; they leap badly, and remain in general remote from the water. They are animals of a hideous, disgusting form, which have been erroneously considered venomous from their saliva, their bite, and even the humour they exude. All this, however, has been proved false by later observations.

THE COMMON TOAD, (*Bufo vulgaris*.)

THE Common Toad is so well known, that it hardly needs description. It is found over all Europe, living in obscure and sheltered places, and retiring in the winter to holes dug by itself. It walks slowly, and seldom leaps. Toads live to a great age, and disgusting as they appear to the eye, have yet been sometimes rendered tame, and become the pets even of ladies. Many astonishing stories have been told of Toads, which have been found living in the centre of wood, or even stone, after having been apparently enclosed in those substances for an indefinite space of time, and completely shut out from the outward air; and many of these tales are founded on facts which cannot be disputed.

Few persons would knowingly eat the flesh of a Toad, but, on the authority of a French author, it appears that even at Paris the legs of Toads are frequently sold instead of those of Frogs. The negroes of Africa are said to use them as a common article of food.

The following account of a domesticated Toad is extracted from a letter addressed to Pennant, the English naturalist, by one of his correspondents:—

“Concerning the Toad that lived so many years with us, and was so great a favourite, the greatest curiosity was its becoming so remarkably tame. It had frequented some steps before our hall-door, some years before my acquaintance commenced with it, and had been admired by my father for its size, (being the largest I ever met with,) who constantly paid it a visit every evening. I knew it myself upwards of thirty years; and by constantly feeding it, brought it to be so tame, that it always came to the candle and looked up, as if expecting to be taken up and brought upon the table, where I always fed it upon insects of all sorts. It was fondest of flesh maggots, which I kept in bran: it would follow them, and when within a proper distance, would fix its eyes, and remain motionless for near a quarter of a minute, as if preparing for the stroke, which was an instantaneous throwing of its tongue at a great distance upon the insect, which stuck to the tip by a glutinous matter. The motion is quicker than the eye can follow. I cannot say how long my father had been acquainted with the Toad before I knew it; but when I was first acquainted with it, he used to mention it as ‘the old Toad I have known for so many years.’ I can answer for thirty-six years.

“This old Toad made its appearance as soon as the

warm weather came; and I always concluded it retired to some dry bank, to repose till spring. When we new laid the steps, I had two holes made in the third step on each side, with a hollow of more than a yard long, for it, in which I imagine it slept, as it came thence at its first appearance. It seldom appeared irritated. Neither that Toad, nor the multitudes I have seen tormented with great cruelty, ever showed the least desire of revenge, by spitting or emitting any juice from their pimples. Sometimes, upon taking it up, it would let out a great quantity of clear water, which, as I have often seen it do the same upon the steps when quite quiet, was certainly its urine, and no more than a natural evacuation. Spiders, Millepedes, and Flesh-maggots, seem to be this animal's favourite food. I imagine if a Bee were to be put before a Toad, it would certainly eat it to its cost; but as Bees are seldom stirring at the same time that Toads are, they rarely come in their way, as they do not appear after sun-rising, or before sun-set. In the heat of the day they will come to the mouth of their hole, I believe, for air.

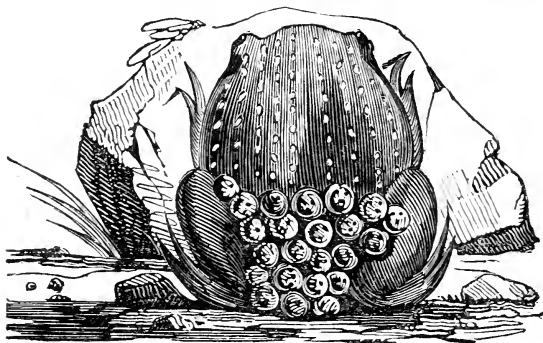
“I once, from my parlour window, observed a large Toad I had in the bank of a bowling-green, about twelve at noon, on a very hot day, very busy and active upon the grass. So uncommon an appearance made me go out to see what it was; when I found an innumerable swarm of winged ants had dropped round his hole, which temptation was as irresistible as a Turtle would be to a luxurious alderman.

“In respect to the fate of my favourite Toad, had it not been for a tame Raven, I make no doubt but it would have been now living. This bird one day seeing it at the mouth of its hole, pulled it out; and, (although I

rescued it,) it had pulled out one eye, and hurt it so, that, notwithstanding its living a twelvemonth, it never enjoyed itself, and had a difficulty of taking its food, missing its mark for want of its eye. Before that accident it had all the appearance of perfect health."

THE OBSTETRIC TOAD, (*Bufo obstetricans*.)

THIS Toad (says Cuvier) is small, gray above, whitish underneath, with blackish points on the back, and whitish ones on the sides. The male assists the female in getting rid of her eggs, which are pretty large, and attaches them in packets on its own thighs, by means of some kind of glutinous matter. He continues to carry them until the eyes of the Tadpole become visible



THE OBSTETRIC TOAD.

through the covering that contains it. When this takes place, the Toad seeks some dormant water in which to deposit them. The eggs immediately open, and the Tadpole issues forth and swims. It is very small, and

lives on flesh. This species is common in the stony places in the neighbourhood of Paris.

THE GREEN TOAD, (*Bufo variabilis*.)

THE Green Toad is upwards of three inches in length, and is sometimes found in the south of Europe, particularly in Italy and Germany. During the winter it hides itself



THE GREEN TOAD.

in the crevices of rocks, and passes the rest of the year in stagnant waters. It is said that if it is struck it gives out a smell like ambergris, which changes to a fœtid odour, like the black morel or nightshade.

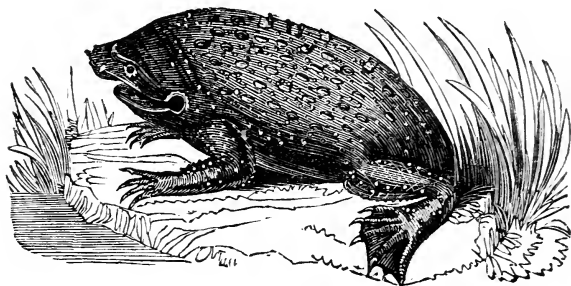
THE BRAZILIAN TOAD, (*Bufo aqua*.)

THE head of this Toad is large, and the eyes prominent, and the upper eyelid is much prolonged and covered with warts. (*See Vignette, page 100.*) This gives the creature a hideous and monstrous appearance. The upper part of

the body is mottled with gray, yellow, and brown, and decorated with large tubercles. This Toad, which is extremely large, has, according to Seba, had the name of *aguaquagan* given to it by the inhabitants of Brazil.

THE PIPA, (*Bufo pipa*.)

OF all the species of Toad, there is, perhaps, none more disgusting in appearance, or more curious in its history,



THE PIPA.

than that shown in the annexed figure. It is found in great numbers in Surinam, and other places in the warmer latitudes, as well of North as of South America. The peculiarity for which it is most remarkable, consists in the extraordinary manner in which the young are hatched. After the female has deposited her spawn, her partner places portions of it, with the assistance of his fore-paws, upon her back. She then takes to the water, and those parts on which the spawn is laid soon begin to swell, and the egg becomes attached to her skin, while a thin film is spread over it, the spots containing her future young appearing like round projec-

tions. By degrees a small hole is formed in the back of the mother for each of the eggs, and in these chambers, protected by their filmy covering, the young undergo all their changes of form, the parent in the mean time never quitting the water. These changes are the same as those which take place in the Common Toad. The humour which distils from the body of this Toad is said to be sufficiently corrosive to blister the skin when applied to it. The most probable use of this liquid is to moisten the body of the animal when exposed to the heat of the sun, the warmth of whose rays would otherwise render its skin so dry as to prevent its movements, and in the end cause its death. Disgusting, however, as this creature appears, the negroes in Surinam eat its hinder legs.

THE SALAMANDER TRIBE.

THE Salamanders have a lengthened body, four feet, and a long tail, which give them the general form of Lizards, and they were formerly placed in that order; but they have all the characters of the Frogs.

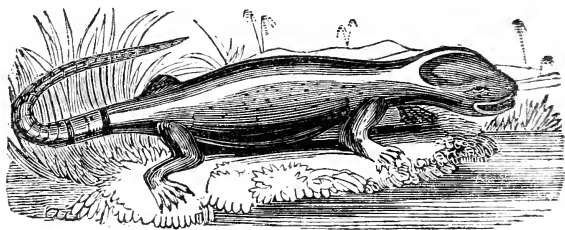
In the adult state they breathe in the same manner as the Frogs: their Tadpoles, for they undergo the same changes as the Frogs, respire at first by gills of a tufted form, three on each side of the neck, which are afterwards obliterated.

There are two tribes of Salamanders, the land and the water species.

THE SALAMANDER, (*Salamandra vulgaris*.)

THE name of the Salamander (says Lacépède) has been celebrated from antiquity, and embellished with the tints

of fable in all ages. It was on the fortunate soil of ancient Greece, in the bosom of a wise and warlike nation, whose imagination, favoured by a happy climate, exaggerated even the wonders of creative power, that the reputation of the Salamander originated, and that an immortal and generally-adopted name was employed to characterize an obscure reptile, which has usurped the most universal celebrity, and is even still one of the objects of the curiosity of man.



THE SALAMANDER.

This animal, which the rude inhabitants of other countries regard as an object of terror, and abhor and proscribe as a malevolent being, has formerly passed, and still passes in the eyes of many persons, as being able to brave the violence of fire, the most active of the elements, to escape from the force of its action, and not only to come safe and sound out of the flames, but even to extinguish them.

At length, however, after having furnished so many emblems to the poet, more brilliant than faithful, this little creature, once so highly privileged, has fallen into oblivion and contempt; so much so that the interest which it really deserves to excite, has subsided

since it has been stripped of those attributes in which it had been so unnecessarily invested.

“This daughter of fire, with a body of ice, whose origin was not less surprising than its power, which owed its existence to the purest of elements, by which it could not be consumed, which mountebanks had declared capable of arresting the progress of the most violent conflagrations, has dwindled down into a simple and obscure reptile.”

On the sides of the Salamander are ranges of tubercles, from which, in time of danger, a bitter milky fluid oozes, of a powerful odour, and poisonous to weak animals. This, probably, has given rise to the fable, that the Salamander can resist the flames.

The Salamander is found in France and Germany, and even further north, but it is more common in the south of Europe. It takes up its abode in the moist earth in the tufted woods of high mountains, in ditches and shady places, under stones and roots of trees, in subterraneous caverns, and in ruined buildings. Though generally feared, it is by no means dangerous. The milky fluid which exudes from its skin, and, which it sometimes projects to the distance of several inches, though nauseous and acrid, and, as it is said, capable of removing the hair, is fatal only to very small animals. It lives on flies, worms, young snails, &c.

THE GIGANTIC SALAMANDER,

(*Salamandra gigantea.*)

THIS is a species of aquatic Salamander, and differs from the land Salamanders in having the tail flattened, so as to enable it to swim with more ease. (*See Vignette, page 100.*)

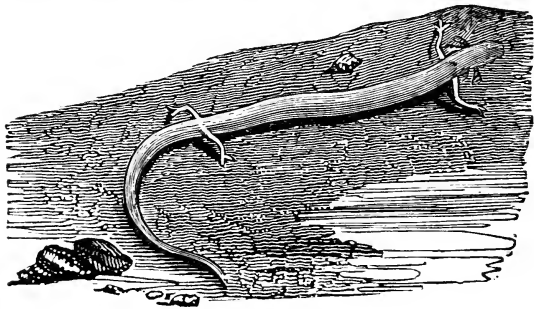
They have been rendered celebrated by the experiments of Spallanzani on their astonishing power of reproducing parts which have been removed, and those too with all their peculiar bones, muscles, &c. They are also capable of remaining a long time encompassed by ice without perishing.

The Gigantic Salamander is found in North America, inhabiting the rivers of the interior, and the great lakes of that vast continent. Although called Gigantic, it is not more than from fifteen to eighteen inches in length.

There is another species which more properly deserves the name of gigantic, as it reaches a much larger size; there is one at present in the Museum of Natural History at Leyden; it is already three feet in length, and we believe still increasing in size: it was brought from the mountains of Japan.

THE PROTEUS, (*Proteus anguinus*.)

THIS animal is as thick as one's finger, about a foot in length, with a flattened tail, and four small limbs; its



THE PROTEUS.

two jaws are furnished with teeth, its tongue free only in front, and its eyes exceedingly small, and concealed by the skin. It is found only in subterranean waters, through which certain lakes in Carniola communicate.

There are several species nearly allied to these curious creatures, but a description of this singular animal will suffice for the whole. The chief distinction between the Proteus and the Salamander consists in the Proteus retaining its gills through life, and, at the same time, possessing internal lungs, so that this reptile, and two or three others, are the only creatures that can be said with truth to be amphibious, as they can breathe their whole life either on land or in water: for a length of time it was supposed to be a reptile in its tadpole state, but it has since then been satisfactorily proved to be a perfect animal.

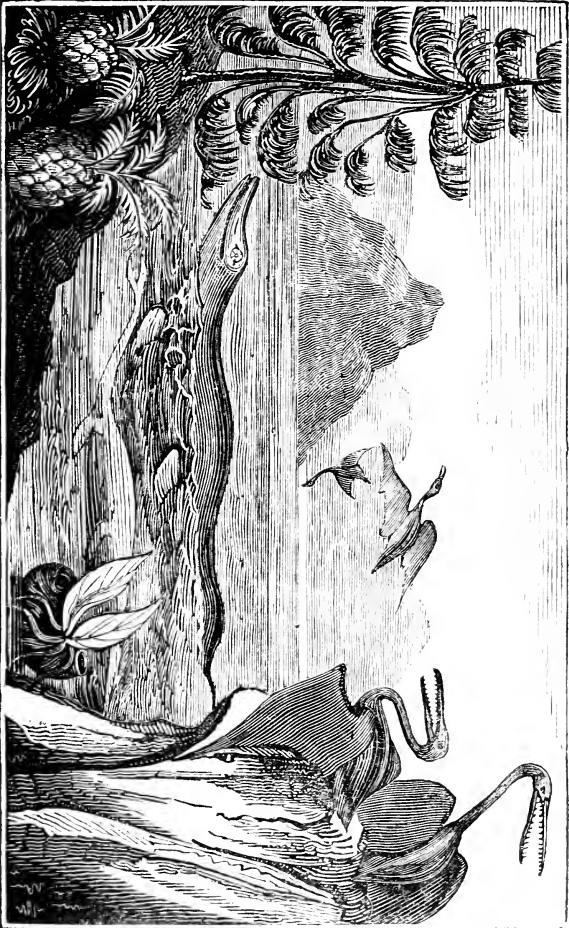
END OF REPTILES.

SOME ACCOUNT OF THE
FOSSIL REMAINS OF VERTEBRAL ANIMALS

WHOSE SPECIES HAVE BECOME EXTINCT.

GEOLOGISTS in searching into the structure of the earth have discovered the remains of animals which at present are unknown in a living state. The forms of many of these creatures are so extraordinary, and differ in some cases so much from those at present in existence, that a work on natural history would hardly be complete, without taking some notice of their singular remains. We are indebted to the Baron Cuvier for almost all the knowledge we possess of the perfect forms of the organic remains which had been brought together by different collectors. When the Baron entered upon his task, we may well conceive the difficulties he had to overcome; it was more easy to collect the materials than to arrange them; more easy to accumulate the bones than to reconstruct the skeletons, which was still the only means by which a just idea could be formed of the species. He had in his possession the mutilated remains of some hundreds of skeletons, all mixed and confused together; and it was absolutely necessary that each bone should be placed with those to which it naturally corresponded, before any satisfactory result could be obtained. But, stupendous as was this task, it was yet accomplished. On the immutable laws prescribed by nature to living beings, he reconstructed these ancient animals. He has no language, he says, to depict the pleasure he experienced, as he observed, on the discovery of each peculiar character, the consequences he had predicted from it develop themselves in gradual succession. Thus, for example, the

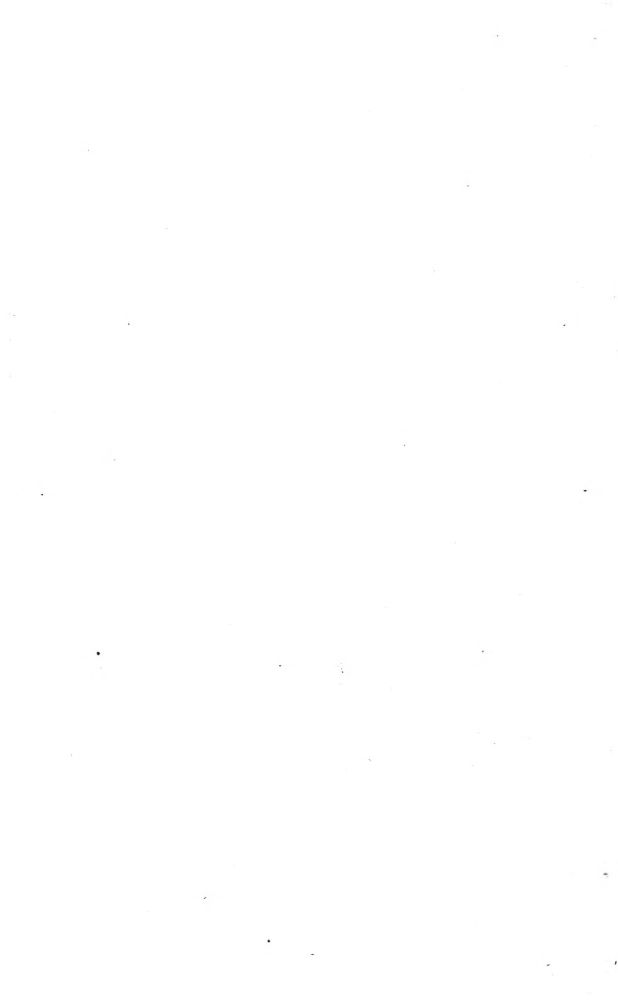
SUPPOSED FORM OF VARIOUS ANIMALS OF WHICH FOSSIL REMAINS HAVE BEEN DISCOVERED.



Ichthyosaurus.

Plesiosaurus.

Pterodactylus.



feet corresponded with the peculiarities of the teeth, and the teeth with those indicated by the feet. The bones of the legs, thighs, &c., all proved conformable to the judgment he had formed beforehand from the consideration of other parts; so that at length, by constant practice, he was enabled, by the inspection of only a fragment of the bone of the fore-leg of an animal, to determine to what Order that animal had belonged, and this he ascertained from the form of the bone, and the marks left on it by the muscles which had been attached to it; these marks of course indicated the size of the muscles, and this, together with their position, would point out their use; so that a man accustomed to the study of natural history would at once discover whether the animal belonged to the carnivorous tribes or otherwise.

The same rule pointed out that a certain arrangement of muscles, in conjunction with a bone of a peculiar shape, could only have been made for a foot of a particular form. The form of the foot would at once point out that of the teeth, the teeth would declare that a certain arrangement of muscles was necessary to render them serviceable, and these muscles must require bones of a certain size and form to attach themselves to, so that by these means the shape of the skull would be readily guessed; in this manner, by pursuing the inquiry, the general form of the animal can be made out. These fossil remains have been found in general imbedded in different kinds of limestone, but at times vast quantities of fossil bones have been discovered in caverns of many parts of the world.

The earliest known of these repositories, according to Cuvier, is that of Bauman, near the city of Brunswick;

the entrance is very narrow, and the whole cavity consists of five or six different chambers, which are of very difficult access. Most of them are beautifully ornamented with stalactites, which hang from the roof in the most elegant and fantastic forms; it is in the last of these chambers, a place nearly filled with water, that the fossil bones are chiefly found: the principal portion of the bones that have been discovered belong to the bear tribe. Other caverns very nearly similar are found in the chain of the Hartz mountains. Many are also known in Hungary, on the southern declivities of the Krapach mountains. But the most celebrated of all is that of Gaylenreuth, situated on the left bank of the Wiesent; it is composed of six grottoes, which are more than two hundred feet in extent; these caverns are strewn with bones of various sizes. More than three-fourths of these bones belong to a species of bear as large as our horses, and which is no longer found in a living state. The half, or two-thirds, of the remaining bones belong to a species of hyæna. There are also some remains of tigers, wolves, foxes, gluttons, and polecats, &c. The bones of the vegetable feeders are also found, but in much smaller numbers.

Of the caves of this country, the most remarkable is that of Kirkdale, in Yorkshire, visited and first described by Dr. Buckland. The teeth and bones discovered in this noted cavern belonged to twenty-three different species of animals, six carnivora, four pachydermata, four ruminantia, four rodentia, and five birds. Among the carnivora, the most numerous by far appear to have been hyænas of a larger size than any known at present. The teeth of these animals were so very abundant, that it was calculated they must have belonged

to no less than two or three hundred animals. Two large canine teeth of the tiger were found, four inches in length, and a few grinders, exceeding in size those of the largest lion. The bones of the elephant, rhinoceros, and hippopotamus were also found, and the teeth of deer in great abundance; but the most numerous bones were those belonging to the water-rat.

In the following sketch we shall give a short account of the remains of vertebrated animals which have been discovered, in the same systematic order as was observed in treating of living animals.

FOSSIL MAMMALIA.

ON referring to the list of Fossil Mammalia, no instance has as yet occurred of the discovery of any of the Monkey-tribes; of [the Bats, the remains of one alone has been found, in the gypsum quarries near Paris. The bones of the Carnivora occur in very great abundance, and among them we may record fossil Bears, which, as already stated, are found in great abundance in the caverns of Germany, and long since attracted the attention of the curious; they were at first spoken of as the bones of fossil Unicorns. In 1672 a writer of the day notices them as the bones of Dragons, and it is afterwards asserted that Tree Dragons were to be still found living and flying in Transylvania. So little was known in those days of comparative anatomy, that it was said that these Bears' heads "bore some resemblance to those of the Hippopotamus." The fossil Bears appear to have been very much larger than the living species, and more decidedly carnivorous; in other respects they do not differ to any great extent. Hyænas have also been found in great numbers.

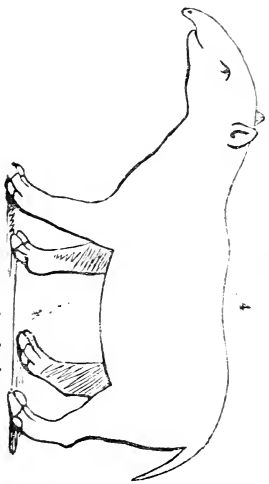
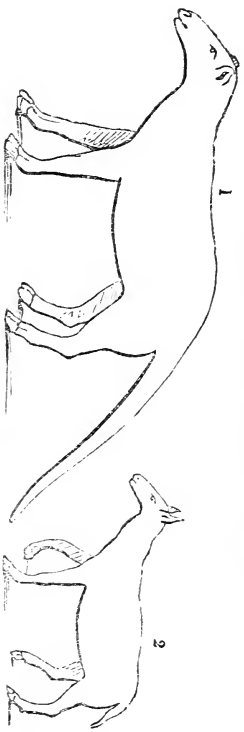
Of the genus *Felis*, many species have been found, which do not greatly differ from the Jaguar. Wolves, Foxes, Gluttons, Weasels, and other [smaller Carnivora, have also been collected in considerable numbers, but all nearly resembling the present species. Fossil RODENTIA have also been commonly found, such as Rabbits, Rats, Mice, &c.

Of the EDENTATA, but one genus has been discovered, and that completely differing from any animal at present known, namely the *Megatherium*, which was as large as an ox, and appears to have resembled the Sloth more than any other existing species. The *Megatherium* has been called the *Animal of Paraguay*. It was discovered towards the end of the last century: the skeleton, almost entire, was found nearly at one hundred feet of depth, in excavations made on the banks of the river Luxan, a league south-east of the town of the same name, which is three leagues west-south-west of Buenos Ayres. It was sent to the museum of Madrid in 1789. A second skeleton less complete, forming part of the same collection, was sent thence from Lima in 1795.

In the order PACHYDERMATA many most astonishing animals have been discovered, and for the discovery of these we are indebted to the researches of Baron Cuvier. The *Palæotherium* bears some resemblance to the Tapirs in the number and disposition of its teeth, and more particularly in the bones of the nose. There are several species, the largest (*Palæotherium magnum*) being nearly the size of a horse.

The *Anoplotherium*: this singular animal has one peculiarity in the arrangement of its teeth, which form one continued series, as in the Monkey-tribes, a formation which occurs in no other animal. The

SUPPOSED FORMS OF SEVERAL SPECIES OF MAMMALIA.

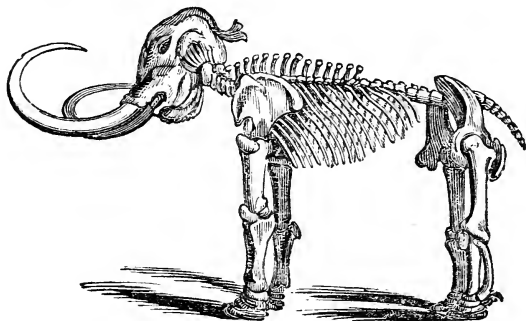


1. Great Anoplotherrium.
2. Slender Anoplotherrium.

3. Little Palaeotherium.
4. Great Palaeotherium.

most common species was an animal about the height of a Wild Boar, but much longer in form, with a very long and thick tail; its proportions were about those of an Otter, but on a much larger scale. It seems probable that it was a good swimmer.

The Mammoth (*Elephas primigenus*) differs in many respects from the recent species. Its bones have been found in great abundance in many parts of the earth; the most curious discovery of one of these huge creatures was made in Siberia.



THE MAMMOTH.

In 1799, a Tongoose fisherman observed on the borders of the Icy Sea, near the mouth of the Lena, in the midst of fragments of ice, a shapeless mass of something, the nature of which he could not conjecture. The next year he observed that this mass was a little more disengaged. Towards the end of the following summer the entire side of the animal, and one of the tusks, became distinctly visible. In the fifth year, the ice being melted earlier than usual, this enormous mass was cast upon

the coast on a bank of sand. The fisherman possessed himself of the tusks, which he sold for fifty rubles. Two years after, Mr. Adams, associate of the Academy of St. Petersburg, who was travelling with Count Golovkin, on an embassy to China, having heard of this discovery at Yakutsk, repaired immediately to the spot. He found the animal already greatly mutilated. The flesh had partly been cut away by the Yakouts for their dogs, and some of it had been devoured by wild beasts. Still the skeleton was entire, with the exception of a fore-leg. The spine of the back, a shoulder-blade, the pelvis, and the rest of the extremities, were still united by the ligaments and a portion of the skin; the other shoulder-blade was found at some distance; the head was covered with a dry skin. One of the ears, in high preservation, was furnished with a tuft of hair, and the pupil of the eye was still discernible. The brain was found in the skull, but perfectly dried. The under lip had been torn, and the upper one being utterly destroyed, left the cheek-teeth visible. The neck was furnished with a long mane. The skin was covered with black hairs, and a reddish sort of wool. The remains were so heavy, that ten persons had much difficulty in removing them; more than thirty pounds' weight of hair and bristles were carried away, which had been trod into the wet soil by the white bears when devouring the flesh. The animal was a male; the tusks were more than nine feet long, and the head, without the tusks, weighed more than four hundred pounds. Mr. Adams collected with the utmost care all the remains of this singular and valuable relic. He purchased the tusks at Yakutsk, and received for the whole from the Emperor Alexander eight thousand rubles.

The bones of the Mammoth are so abundant in Siberia, that the inhabitants have invented a fable to explain their presence. They have supposed them to belong to a subterraneous animal, living like the moles, and unable to endure the light of day. This animal they call Mammoth, according to some authors, from the word *mamma*, which in some Tartar idiom signifies the earth, or according to others, from the Arabian word *behemoth* or *mehemoth*, an epithet which the Arabs still attach to the name of the elephant. The Siberians call the fossil tusks the *horns* of the Mammoth, and they are so numerous and well preserved, especially in the northern parts, that they are employed for the same purposes as fresh ivory, and form so lucrative an article of commerce, that the Czars formerly reserved the monopoly of it to themselves.

The Chinese are acquainted with this fable of the subterraneous animal, which they call *Tien-schu*, *the mouse that hides itself*. They describe it as continually remaining in caverns under ground, resembling a mouse in form, but of the size of an ox or buffalo; it is of a dun colour, and has no tail. This is the statement of one writer. Another tells us that its tail is an ell long, the eyes small, and that it dies instantly when it sees the rays of the sun or moon; he even adds that during an inundation of the river Tan-schuann-tuy, in 1571, several of these animals were seen in the neighbouring plains.

Those immense rivers that descend to the Icy Sea are continually laying bare the remains of the Mammoth. It was imagined by a French author that they were brought down by these rivers from the mountains of India. But these remains are as frequently met with

in the streams which come from the north, such as the Volga, the Tanaïs, and the Jaik, as well as in the Lena, the Kolima, and others, whose sources are in the icy mountains of Chinese Tartary.

The Great Mastodon is a very remarkable creature, and perhaps the largest of all the fossil species. It is about one hundred and twenty years since remains of the Mastodon were first discovered at Albany, near Hudson river. They are mentioned in a letter from Dr. Mather to Dr. Woodward, in the *Philosophical Transactions* for 1712; he believed them to be the bones of giants, and a confirmation of the Scriptural accounts of gigantic races of mankind. Numerous fragments of the bones of this enormous creature were afterwards discovered, but not sufficiently perfect to enable the naturalist to ascertain with correctness to what description of animals they belonged.

This matter has, however, been since that time set completely at rest. Mr. Peale, the founder of the Museum of Natural History at Philadelphia, in the spring of 1801, learned that some bones had been dug up the preceding autumn, in the neighbourhood of Newburgh, on the river Hudson. He repaired thither, with his sons, and obtained from the farmer who had dug them up a considerable portion of a skeleton, which he sent to Philadelphia. The skull was much damaged in the upper part, the lower jaw was broken, and the tusks mutilated. At the close of autumn, after many weeks' labour, all the vertebræ of the neck, many of those of the back, and a great many others, were found in the same place. Still there were many important bones wanting; to obtain these, Mr. Peale repaired to another spot, eleven miles distant, where bones had been disinterred about eight

years previously. He worked for fifteen days, and collected many fragments, but not those he wanted. However, on his return, he met a farmer who had found some bones three years previously, and who conducted him to the place of his discovery. Here, after much labour, he was fortunate enough to find a complete under jaw, and many other principal bones. With the materials he had thus obtained by three months' laborious research, he formed two skeletons, copying artificially from the bones of one what was wanting in the other, and from the bones of one side what were deficient on the opposite. The Mastodon appears, like the Elephant, to have been furnished with a trunk.

There is a spot in Kentucky, to the south-east of the Ohio, a hollow between small hills, and forming a marsh in which is a small stream of brackish water, the bottom of which consists of a black and stinking mud. Here, and on the borders of the marsh, the remains of the Mastodon have been found in the most astonishing profusion. This mud is intermixed with a fine sand, and some remains of wood are distinguishable in it.

One of the most remarkable depots of these bones is at Withe in Virginia, five feet and a-half underground, on a bank of limestone. One of the teeth weighed seventeen pounds. In the midst of these bones was found a mass of little branches, grass, and leaves, in a half-bruised state. Among these was a species of rose, now common in Virginia, and the whole was enveloped in a kind of bag which is supposed to have been the stomach of the animal. Unlike the Mammoth, the bones of the Mastodon are only found in one part of the globe, namely, in North America, between the thirty-third and forty-third degrees of north latitude.

The Indians of North America have a singular belief as to the cause of the destruction of these huge creatures; they say, that a troop of these formidable quadrupeds destroyed for some time the Deer, the Buffalo, and all the other animals created for the use of the Indians, and spread desolation far and wide. At length "*the mighty man above*" seized his thunder and killed them all, with the exception of the largest of the males, who presenting his head to the thunderbolts, shook them off as they fell, but being wounded in the side, he betook himself to flight towards the great lakes, where he still resides at the present day.

Fossil Lamantins, Dolphins, and other Cetacea, have been found, which differ considerably from the present known species.

FOSSIL REMAINS OF BIRDS.

THE fossil remains of Birds are very rare, and only consist of small portions of the skeleton, so that little worth recording is known concerning them.

FOSSIL REMAINS OF REPTILES.

AMONG the remains of Reptiles, we find many interesting species. Fossil Tortoises and Crocodiles are found in considerable numbers, differing materially from the present species.

The PTERODACTYLUS is one of the most singular beings yet discovered; it was, in fact, a flying Reptile. It was assisted in the act of flying, not by means of its ribs, like the *Draco volans*, nor by a wing without distinct fingers, like that of Birds, not by a wing in which the thumb alone is free, like that of Bats, but by a wing sustained

principally on one toe very much lengthened, while the others preserved their usual shortness and their claws. At the same time, these flying reptiles (if they may be so called) had a long neck, and the beak of a bird, which must have given them a most remarkable and strange appearance.

The *ICHTHYOSAURUS* (*Fish-like Lizard*). In this strange reptile we find the muzzle of a Dolphin, the teeth of a Crocodile, the head and breast-bone like a Lizard, the paddles of the Whale tribe, but four in number, and the ribs of a fish. The most common species of this reptile is supposed to have been about twenty-five feet in length.

The *PLESIOSAURUS* is another ancient reptile, whose formation strangely varies from any animal we are at present acquainted with; with the head of a Lizard, it has a neck like a Serpent, and paddles like the Ichthyosaurus, but is of much greater length. It was evidently an aquatic animal, and must, from its formation, have been very rapid in its movements.

FOSSIL REMAINS OF FISHES.

The fossil remains of Fishes present but trifling distinctions from those of the present day.

THE END.

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