



# **Philip Henry Gosse**

# **Natural History: Reptiles**

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#### TABLE OF CONTENTS

P	F	D	ГΠ	П	F	S	
11					_	J	

SUB-CLASS I. ENOPLIA.

ORDER I. TESTUDINATA.

Family I. Testudinidæ.

Family II. Emydidæ.

Genus Emys . (Brongn.)

Family III. Trionychidæ.

Genus Trionyx . (Geoff.)

Family IV. Sphargidæ.

Genus Sphargis . (Illig.)

Family V. Cheloniadæ.

ORDER II. LORICATA.

Family I. Crocodilidæ.

Genus Alligator . (Cuv.)

ORDER III. SAURIA.

Family I. Chamæleonidæ.

Family II. Geckotidæ.

Genus Thecadactylus (Cuv.) .

Family III. Iguanadæ.

Genus Iguana (Laur.) .

Family IV. Agamadæ.

Genus Phrynosoma (Wiegm.).

Family V. Varanidæ.

Genus Varanus . (Merr.)

Genus Teius . (Merr.)

Family VI. Lacertadæ.

Genus Zootoca . (Wagl.)

Family VII.—Scincidæ.

Genus Celestus . (Gray.)

Genus Anguis . (Linn.)

**ORDER IV. OPHIDIA.** 

Family I. Amphisbænadæ.

Genus Typhlops . (Schneid.)

Family II. Boadæ.

Genus Python . (Dum.)

Family III. Colubridæ.

Genus Natrix (Laur.) .

Family IV. Viperadæ.

Genus Pelias . (Merrem.)

Family V. Hydrophidæ.

Genus Hydrophis . (Daud.)

SUB-CLASS II. AMPHIBIA.

ORDER I. ANOURA.

<u>Family I. Ranadæ.</u>

Genus Rana . (Linn.)

Family II. Hyladæ.

Genus Hyla . (Laur.)

Family III. Bufonidæ.

Genus Bufo . (Laur.)

Family IV. Pipadæ.

Genus Pipa . (Laur.)

ORDER II. URODELA.

Family I. Salamandradæ.

Genus Lissotriton (Bell).

ORDER III. AMPHIPNEUSTA.

Genus Proteus (Laur.).

ORDER IV. ABRANCHIA.

Genus Amphiuma (Gard.).

ORDER V. APODA.

Genus Rhinatrema. (Dum.)

## REPTILES.

#### Table of Contents

THE subjects of the present volume have been viewed in all countries and ages, with less of popular favour than other Classes of animals. Few of them are of the slightest use to man, either alive or dead; many of them are fatally poisonous, and others are terrible from their power and ferocity. The forms of some consist little with our ideas of beauty; and perhaps the coldness of their bodies when touched, the concealed situations which many of them inhabit, and the crawling motion generally observed in this Class, have also contributed to the suspicion and dislike with which they are commonly regarded. But when we discard prejudice, we find that the great majority of these animals are perfectly inoffensive; that many are clad in mail of the most brilliant polish, unsullied with spot or stain; that others are arrayed in rich and tastefully arranged colours; and that all afford, in the perfection of their structure, the skill and power displayed in the different contrivances of their organization, the varied instincts and habits with which they are endowed, their means of offence and defence, and the great diversity of form and structure which they exhibit, as rich a feast of intellectual gratification to the philosophic student of Nature, as any other of the wonderful works of God.

In this last respect the Class of Reptiles is eminently worthy of attention. "In Mammalogy and Ornithology, we find that the animals which are treated of under those branches are respectively formed according to one leading

type, which, however modified, may be traced throughout the whole chain of beings with which those branches of Zoology are conversant. From an Elephant to a Mouse, from a Whale to a Porpoise, the same uniform principle of construction may be recognised. The same principle of organization governs the conformation of an Ostrich and a Humming-bird. But in Herpetology, we have *various* types or principles of structure. Not to dwell upon the more obvious differences in the organization of a Tortoise and a common Snake, we shall find in more cognate creatures, the Saurians for example, a striking variation in structure. The skeleton of a Crocodile differs widely from that of a Chameleon; ... and how widely are these again separated from the Frogs and Toads!"<sup>[1]</sup>

In in which Reptiles respect agree themselves, they agree also with the Classes of Birds and Fishes; the reproduction of their species is effected by means of eggs. For the most part these are encased in a calcareous covering, either hard and shelly as in the Tortoises, Crocodiles and some Saurians, or tough and leathery as in most of the Serpents: in the Amphibia, however, they are destitute of any covering. In a few instances, the young are brought forth alive; but these are rather apparent than real exceptions to the general rule, the eggs in such cases being hatched in the body of the parent, or ruptured in the act of deposition. Our native smaller Lizard, Viper, and Slow-worm, afford familiar examples of this peculiarity. Reptiles do not in general incubate their eggs; but there is reason to believe that the Boas and Pythons are exceptions to this rule.

The heart in this Class is so constructed that at every pulsation only a part of the blood from the system is thrown into the lungs, the remaining portion returning into the circulation without being aërated. As animal heat is derived from the communication of oxygen to the blood, in its exposure to the air when passing through the lungs, it follows that the imperfect aëration of the blood in these animals is attended with a diminution of vital heat, and that they are what is called cold-blooded; in other words, the heat produced by respiration is so small, that the difference between the temperature of their bodies and that of the air or water in which they live, is not sensible to the touch. The Sub-class Amphibia, including the Frog-like Reptiles, pass through a sort of metamorphosis, breathing by means of gills in their early stages; and there are a few which have both gills and lungs through their entire existence.

The senses are in general well developed, though in various degrees in the different Orders: in some, however, the sense of sight appears to be nearly obliterated, as in *Typhlops*, and in *Proteus*. Their brain is comparatively small; and their sensations seem less referrible to a common centre, than in the higher Classes: life, and even voluntary motion, continues long after the brain is removed; the irritability of the muscular fibre is preserved for a considerable time after separation from the rest of the body; and the heart pulsates for many hours after it has been detached.

"The motion of Reptiles is as various as their structure, and exhibits a great diversity, particularly in the modes of progression. The slow march of the Land Tortoise, the paddling of the Turtles, the swimming and walking of the Crocodiles, the Newts, and the Protei, the agility of the Lizards, the rapid serpentine advance of the Snakes, the leaping of the Frogs, offer a widely extended scale of motion. If we add the vaulting of the Dragons, and the flying of the Pterodactyles, there is hardly any mode of animal progression which is not to be found among the Reptiles."<sup>[2]</sup>

The temperature of the blood does not require that the body should be clothed with a substance, such as hair or feathers, which might resist the abstraction of animal heat. Hence the skin is either quite naked, as in the Amphibia, or covered with a sort of mail, composed of plates or scales, for defence.

It is in the warmer regions of the globe that Reptiles most abound; both as to the number of species, and of the individuals which constitute them. There also they display the greatest variety of form and colour, the most gigantic bulk, and the highest amount of animal energy. The few species that inhabit temperate and cold countries, commonly retire into concealment and become torpid on the approach of winter. Yet it has been remarked that they can more easily bear the rigour of a severe winter, than suffer the want of a hot summer. "It is interesting to remark the manner in which, according to Berghaus, the number of species diminishes as we pass from the sunny regions of the East to the duller and more cloudy climes of Western Europe. Thus Italy with her islands can number forty-seven species; France has thirty-one; Great Britain fourteen; and Ireland, it may be added, not more than five."[3]

We shall divide the Class *Reptilia* into two Sub-classes, *Enoplia* and *Amphibia*; containing nine Orders.



- 1. ↑ Penny Cyclop. xix. 403.
- 2. ↑ Penny Cyclop., xix. 410.
- 3. ↑ Patterson's Zoology, 266.

# **SUB-CLASS I. ENOPLIA.**

**Table of Contents** 

(Mailed Reptiles.)

The Mailed or true Reptiles are principally distinguished by having the body encased in a series of plates of various degrees of hardness, sometimes imbedded, like stones in a pavement, into compact shields, at others forming overlapping scales, and yet again constituting a granular or tuberculous shagreen. In many particulars their anatomical organization is of a higher grade than that of the Amphibia; they have perfect ribs; and the occipital condyle, or joint by which the skull is connected with the spinal column, is single. They are subject to no metamorphosis, but are evolved from the egg in the form of the parents: gills (branchiæ) are never present in any stage, but respiration is performed entirely by means of lungs. The economy of. reproduction partakes of the characters of that of Mammalia and Birds, and not that of Fishes; the eggs are always furnished with a calcareous covering, either shelly or coriaceous in texture.

The *Enoplia* are divided into four Orders, founded on diversities of form, the presence or absence of limbs, and the character of the mailed covering. These are named *Testudinata*, *Loricata*, *Sauria*, and *Ophidia*.

## ORDER I. TESTUDINATA.

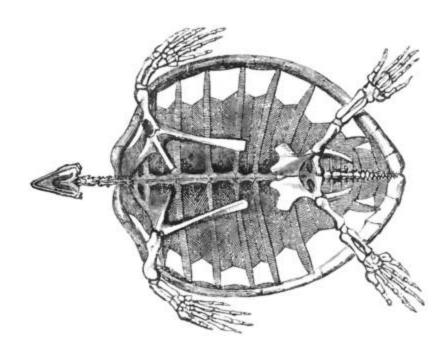
**Table of Contents** 

(Tortoises.)

THE appearance of an animal of this Order will naturally recal to the mind the mailed Armadillos among the Edentate Mammalia, as the Sauria will remind us of the Pangolins. The Tortoises are readily distinguished from other Reptiles by their body being inclosed in a double buckler, which admits only of a partial protrusion of the head, tail, and limbs. The bones of the skeleton, though essentially the same as those found in the preceding classes, are strangely modified. If we remove the convex shield, called the *carapace*, that covers the upper part of a Tortoise, and turn it up, we shall find on the inner surface the vertebral column imbedded into an immovable piece, and the ribs flattened and widened so as to touch each other at their edges. The vertebrae of the neck and of the tail alone are free. The lower plate or plastron, in like manner, is composed of pieces representing the breastbone or *sternum*, united by sutures.

The external surface of these shields is covered with a series of plates of a horny (or sometimes leathery) texture, of regular but varied forms, united at their edges, but sometimes overlapping posteriorly. The shoulder-blade and all the muscles of the arm and neck, instead of being attached to the exterior of the ribs and spine, as in other vertebrate animals, are all within, as are also the bones of the *pelvis*, and even the muscles of the thighs; so that a

Tortoise has been described as an animal turned inside out. The



SKELETON OF TORTOISE.

jaws are destitute of teeth, but are invested with horn like those of birds, and form in fact a powerful beak. The head, neck, tail, and limbs, are clothed with a tough skin, in which are imbedded plates, either connected or detached.

The sphere of action of the *Testudinata* is either the land or the water. Of those which are aquatic, some inhabit marshes, pools, and rivers; others are exclusively marine. The walk of the terrestrial species is slow, even to a proverb; the legs are short, restricted in motion, and being placed at a distance from the centre, they form a sort of short crutches, able to drag the unwieldy body along, but unable to restore the prone position if the animal be laid on its back. The feet seem like stumps abruptly cut off, armed around the edge with a set of blunt nails, which serve as a sort of grapplings to hold on the surface of the ground and

drag the body forwards. To an animal which feeds on herbs, the power of pursuit is useless; nor is it necessary that swiftness in escape should be conferred on one which can draw in its head and limbs on the approach of danger, presenting only a solid case of mail, in which it may defy every enemy but man.

On the other hand, the marine species swim with great rapidity, rushing along beneath the surface like a bird on the wing. The feet take the form of powerful fins, and the form of the body is flattened, and thinned to an edge, both of these provisions facilitating progression through a dense medium. "But the well-developed flipper that enables the Marine Tortoise to oar its way with swiftness, is even a worse organ for land-progression than the clumsy foot of a Land Tortoise. Not but that they will shuffle back to the sea, which they have only occasion to leave in order to deposit their eggs, at a good pace, and they will deal heavy blows with their flippers to those who attempt to stop them, (for they, as well as the Land Tortoises, are very strong,) as those who have been foiled in turning Turtles have known to their cost."

The eggs are of an oval form, and are covered with a white calcareous shell, much resembling those of birds. Those of many of the species are eaten by man.

The food of the *Testudinata* is various: the terrestrial species are believed to subsist exclusively on vegetable diet; the marine species add to this the flesh of large shelled mollusks; the marsh and fresh-water kinds prey on fishes, young birds, insects, worms, and any other animals they can overcome.

About one hundred and twenty species are known to belong to the Order, of which twenty-eight are terrestrial, eighty-four are fluviatile, and eight are marine. They are confined to the warmer regions of the earth; none of them being properly inhabitants of the British Islands; but occasional occurrences of some of the marine species on our shores are recorded, and a terrestrial Tortoise is imported in some numbers from the south of Europe, and kept as a pet in gardens.

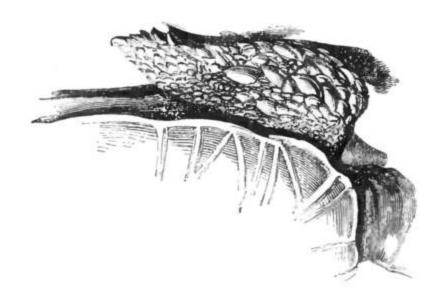
We shall consider the Tortoises as comprised in five Families; *Testudinidæ*, *Emydidæ*, *Trionychidæ*, *Sphargidæ*, and *Cheloniadæ*.

## FAMILY I. TESTUDINIDÆ.

**Table of Contents** 

(Land Tortoises.)

In this Family the *carapace* is very high and convex, solid in structure, and covered with a horny shell. The general form may be illustrated by the common Greek Tortoise (*Testudo Græca*), familiar to most of our readers. But the principal and most remarkable peculiarity, and that which most perfectly indicates the manner of life common to the group, is the conformation of the limbs: the feet are short and stumpy, nearly of equal length, with toes scarcely distinct, immovable, united by a thick skin, and forming a sort of truncated mass, "callous in its periphery, on the outside of which one distinguishes only horny cases, a sort of hoofs, which for the most part



FOOT OF TORTOISE.

correspond with the last *phalanges* [or joints] they incase, and consequently shew that these animals live only on the land, never in the water."<sup>[1]</sup>

The feet, as well as the head, are capable of being completely drawn within the bony shell. Some of the species have the hinder part of the *carapace* flexible, so that it can be brought down to the *plastron*; while others have the front plates of the *plastron* jointed to the rest by an actual hinge, so that they can shut up the head as in a sort of box.

The food of the members of this Family consists exclusively of vegetables: their motions are slow and awkward: they live to an immense age, individuals having been ascertained to be above two hundred years old. In temperate climates, they burrow into the earth on the approach of winter, where they remain inert.

GENUS TESTUDO. (LINN.)

The technical characters of this genus are that the forefeet are furnished with five toes each, the hind with four; the carapace is composed of a single piece; the anterior part of the *plastron* is not moveable. Above twenty species are described, principally inhabiting the tropical regions; many of these attain a gigantic size, to which our little European species present no approach.

One of the most interesting of these giant



#### INDIAN TORTOISE.

Tortoises is that described by Mr. Darwin as inhabiting the Galapagos Islands. It is probably the *Testudo nigra* of Quoy and Gaimard. In these equinoctial islands it has been abundant from the time of Dampier, who observes, that five or six hundred men might subsist on them for several months without any other sort of provisions, adding, that they are so extraordinarily large and fat, and so sweet that no pullets eat more pleasantly.

The day on which Mr. Darwin visited the little craters in the Galapagos Archipelago was glowing hot, and the scrambling over the rough surface, and through the intricate thickets, was very fatiguing. "But," says Mr. Darwin, "I was well repaid by the Cyclopean scene. In my talk I met two large Tortoises, each of which must have weighed at least two hundred pounds. One was eating a piece of cactus, and when I approached it looked at me, and then quietly walked away; the other gave a deep hiss, and drew in his head. These huge reptiles, surrounded by the black lava, the leafless shrubs, and large cacti, appeared to my fancy like some antediluvian animals."

Mr. Darwin states his belief that these Tortoises are found in all the islands of the Archipelago; certainly in the greater and thus continues his description:—"They number: frequent, in preference, the high damp parts, but likewise inhabit the lower and arid districts. Some individuals grow to an immense size. Mr. Lawson, an Englishman, who had, at the time of our visit, charge of the colony, told us that he had seen several so large that it required six or eight men to lift them from the ground, and that some had afforded as much as two hundred pounds of meat. The old males are the largest, the females rarely growing to so great a size. The male can readily be distinguished from the female by the greater length of its tail. The Tortoises which live on those islands where there is no water, or in the lower and arid parts of the others, chiefly feed on the succulent cactus. Those which frequent the higher and damper regions eat the leaves of various trees, a kind of berry (called guayavita), which is acid and austere, and likewise a

pale green filamentous lichen, that hangs in tresses from the boughs of the trees. The Tortoise is very fond of water, drinking large quantities, and wallowing in the mud. The larger islands alone possess springs, and these are always situated towards the central parts, and at a considerable elevation. The Tortoises therefore, which frequent the lower districts, when thirsty, are obliged to travel from a long distance. Hence, broad and well-beaten paths radiate off in every direction from the wells even down to the sea-coast; and the Spaniards, by following them up, first discovered the watering places. When I landed at Chatham Island, I could not imagine what animal travelled so methodically along the well-chosen tracts. Near the springs it was a curious spectacle to behold many of these great monsters; one set eagerly travelling onwards with outstretched necks, and another set returning, after having drunk their fill. When the Tortoise arrives at the spring, quite regardless of any spectator, it buries its head in the water, above its eyes, and greedily swallows great mouthfuls, at the rate of about ten in a minute. The inhabitants say that each animal stays three or four days in the neighbourhood of the water, and then returns to the lower country; but they differed in their accounts respecting the frequency of these visits. The animal probably regulates them according to the nature of the food which it has consumed. It is, however, certain, that Tortoises can subsist even on those islands where there is no other water than what falls during a few rainy days in the year.

"I believe it is well ascertained, that the bladder of the frog acts as a reservoir for the moisture necessary to its existence: such seems to be the case with the Tortoise. For some time after a visit to the springs, the bladder of these animals is distended with fluid, which is said gradually to decrease in volume and to become less pure. The inhabitants, when walking in the lower district, overcome with thirst, often take advantage of this circumstance, by killing a Tortoise, and if the bladder is full, drinking its contents. In one I saw killed, the fluid was quite limpid, and had only a very slightly bitter taste. The inhabitants, however, always drink first the water in the pericardium, which is described as being best. The Tortoises, when moving towards any definite point, travel by night and by day, and arrive at their journey's end much sooner than would be expected. The inhabitants, from observation on marked individuals, consider that they can move a distance of about eight miles in two or three days. One large Tortoise which I watched, I found walked at the rate of sixty yards in ten minutes, that is, three hundred and sixty in the hour, or four miles a day—allowing also a little time for it to eat on the road. They were at this time (October) laying their eggs. The female, where the soil is sand, deposits them together, and covers them up with sand; but where the ground is rocky, she drops them indiscriminately in any hollow. Mr, Bynoe found seven placed in a line in a fissure. The egg is white and spherical; one which I measured was seven inches and three-eighths in circumference. The young animals, as soon as they are hatched, fall a prey in great numbers to the buzzard with the habits of the caracara. The old ones seem generally to die from accidents, as from falling down precipices: at least, several of the inhabitants told me they had never found one dead without some such apparent cause. The inhabitants believe that these animals are absolutely deaf; certainly they do not overhear a person walking close behind them. I was always amused, when, overtaking one of these great monsters as it was quietly pacing along, to see how suddenly, the instant I passed, it would draw in its head and legs, and uttering a deep hiss, fall to the ground with a heavy sound, as if struck dead. I frequently got on their backs, and then, upon giving a few raps on the hinder part of the shell, they would rise up and walk away; but I found it very difficult to keep my balance. The flesh of this animal is largely employed, both fresh and salted; and a beautifully clear oil is prepared from the fat. When a Tortoise is caught, the man makes a slit in the skin near its tail, so as to see, inside its body, whether the fat under the dorsal plate is thick. If it is not, the animal is liberated; and it is said to recover soon from this strange operation. In order to secure the Tortoises, it is not sufficient to turn them like Turtle, for they are often able to regain their upright position."[2]

#### FAMILY II. EMYDIDÆ.

**Table of Contents** 

(Marsh Tortoises.)

This is the most numerous in species of the Families of the *Testudinata*. MM. Duméril and Bibron observe, that America produces more Marsh Tortoises than all the rest of the world put together; for of the seventy-four species composing this family, forty-six are confined to that continent. The cause of this disproportion they attribute to the vast body of water in the form of immense lakes, marshes, and rivers with which the expanse of America is intersected. The continent of Africa, on the other hand, which offers in this respect so great a contrast to the former, presents us with but three species of *Emydidæ*, but is very rich in *Testudinidæ*.

The Marsh Tortoises, or Terrapins, have the body much flatter, the *carapace* being less arched, than the Land Tortoises. The toes are separated, or rather separately moveable, and are furnished with hooked claws; they are usually connected by a palmated membrane or web, and the hind feet are larger than the fore ones. They have twelve plates on the *plastron*; they withdraw the head and neck between the shields.

The habits of this Family differ much from those of other Tortoises. They swim with facility, and walk on land with a less slothful gait than the *Testudinidæ*. They inhabit marshes, stagnant ponds, lakes, and even small rivers whose course is gentle; feeding on small water-animals, such as frogs and newts, the young of web-footed fowl, fresh-water snails, and insects; nor does the flesh of larger creatures drowned in the lakes, or bogged in the marshes, come amiss to them. The eggs are rounded, with a hard, white, calcareous shell; they are deposited in shallow cavities scraped in the soft earth on the margins of the waters in which they reside, whence the young, hatched by the heat of the sun, readily find their way into their proper element.

# GENUS EMYS. (BRONGN.)

Table of Contents

In this genus all the feet are furnished with five toes, but the inner toe of the hind foot is destitute of a nail: the plastron is wide, and oval, and is furnished with twelve plates; the marginal plates of the *carapace* are twenty-five. The jaws are strong and cutting, the mandibles notched, and toothed in a manner closely resembling the beak of a Falcon.

The most common European fresh-water Tortoise belongs to a genus allied to *Emys*, but distinguished by having the plastron attached to the buckler by a cartilage, allowing it some degree of mobility. It is named *Cistudo Europæa*, and is extended over the whole south-east of Europe, as far north as Prussia. It attains the length of nine or ten inches; the carapace is oval, of a blackish hue, marked with yellowish specks; the skin of the neck and breast is similarly spotted. It is a species of some elegance, but it is most esteemed for the excellence of its flesh, and is commonly sold in the markets of Germany. To improve its flavour, colonies of these animals, kept in ponds, are fattened upon lettuce and other 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 informed by Wolff that the peasants in Prussia keep numbers of these creatures in troughs for a year or two, and fatten them up.



#### EUROPEAN MARSH TORTOISE.

On approaching a pond where these reptiles abound, numbers of them may be seen of various sizes, from that of a penny upwards, sitting motionless on the twigs and branches of fallen trees, or the projecting points of any other substance that is partly submerged. They are very watchful, and on the slightest alarm they drop almost imperceptibly into the water, and sink to the bottom, whence they soon emerge if all is quiet. They are voracious: their living prey is taken, by stealing slowly towards it, and seizing it with a sudden snap.

It is a curious fact that whenever this Tortoise eats a fish, it rejects the air-bladder; and the peasants, who seek these animals for the market, judge of the number that are to be found in any pond, by the number of fish-bladders floating on the surface. Professor Bell has mentioned to us that he had a Tortoise of this species in his possession, to which he

once threw six small living fishes; the next morning there was one fish remaining, and five air-bladders on the surface, told the fate of the rest.

Several genera of fresh-water Tortoises are distinguished by their not being able entirely to retract the head between the shields; but they obtain a partial protection by bending the long neck to one side. In general the head in this group is depressed, and the eyes are seated somewhat on the upper surface, so as to look obliquely upwards instead of sidewise. These Tortoises are, by some Naturalists, considered to form a distinct Family by the name of *Hydraspidæ*.

## FAMILY III. TRIONYCHIDÆ.

**Table of Contents** 

(Soft Tortoises.)

These are large Tortoises which have no horny shell, but the *carapace* and *plastron* are covered with a soft skin. The ribs do not reach to the border of the carapace, nor are they united through the whole of their length, the parts analogous to sternal ribs being replaced by a simple cartilage; and the sternal pieces are partly dentelated as in the Turtles, and do not cover the whole inferior surface. The feet, like those of the preceding family, are webbed, but not lengthened; only three toes of each foot are furnished with nails. The horny beak is covered on the outside with fleshy lips, and the muzzle is produced into a short trunk. The tail is short, and the anal orifice of the body is situated near its extremity.

The Soft Tortoises inhabit great rivers and lakes, where they live upon aquatic animals; they are eminently carnivorous and voracious, and pursue with agility in the especially fishes. and water. young crocodiles. Notwithstanding the nature of their food, their flesh is esteemed for the table, and hence they are caught with a hook and line: it is necessary, however, as MM. Duméril and Bibron assert, that the hook should be baited with a living prey, or at least that the motion of apparent life should be communicated to it, if dead, as they are said never to touch a dead or immoveable prey. This does not apply, however, to the eggs of Crocodiles, which the Soft Tortoises devour greedily in the African and Indian rivers. In seizing their food, or defending themselves, they dart out their long neck with the sudden rapidity of an arrow. The grasp of their powerful and trenchant beak is sharp and deadly, nor is it relaxed until the piece is taken clean out; and as they are bold and ferocious, they are much dreaded even by those who fish for them.

Like the *Emydes*, the Soft Tortoises love to repose on the islets and points of rock, on the fallen trees at the rivers' margins, or on floating logs of timber, whence they drop into the water on the slightest alarm. They swim with ease and swiftness, both on and beneath the surface.

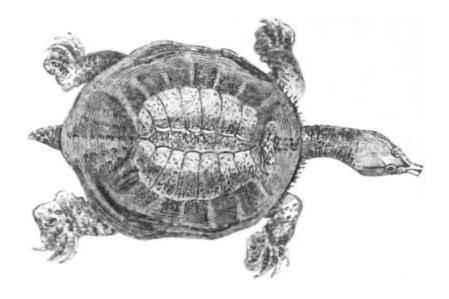
No species of this Family is found in any of the rivers of Europe. The Nile, the Niger, and the Senegal, the Euphrates, and the Ganges, the Mississippi, the Ohio, and their tributaries, and the great lakes of the St. Lawrence, are the localities known to be inhabited by various species of *Trionychidæ*.

# GENUS TRIONYX. (GEOFF.)

**Table of Contents** 

The species belonging to this genus, which includes the majority of those known, are distinguished by the following characters. The *carapace* is surrounded by a cartilaginous circumference, very wide, floating behind, and deprived of bone externally. The hinder part of the *plastron* is too narrow to hide the posterior limbs completely, when the animal draws them up under the *carapace*.

The common Soft Tortoise of North America (*Trionyx spiniferus*, Lesueur) inhabits the great lakes, and many of the rivers of that continent. It is a ferocious tyrant of the waters, devouring ducks and other fowl, the young of alligators, and fishes, with great voracity. It attains a large size.



SOFT TORTOISE.

Pennant mentions some which weighed seventy pounds; one which he kept for three months weighed twenty pounds, and the buckler or *carapace* of this specimen was twenty inches in length, while the neck and head measured thirteen inches and a half more. The upper parts vary in tint, being brown or grey of various shades, irregularly marbled, and frequently studded with dots: the under surface is whitish, or of the same tint as the human nails.

Towards the end of April or May, according to M. Lesueur, the females of this species crawl out of the rivers, for the purpose of seeking out places suitable for the deposition of their eggs. Sandy spots exposed to the sun are chosen, and to obtain these they will often scale a steep bank that is ten or fifteen feet above the water's edge. The eggs are deposited in hollows, to the number of fifty or sixty, the old Tortoises laying more than young ones. They are spherical in form; the shell is calcareous but in a slight degree, and is therefore more fragile than that of the eggs of the Emydes that inhabit the same waters. M. Lesueur counted in the ovary of a female twenty ready for laying, and an immense number of others, varying in their dimensions, from the size of a pin's head to the full volume attained when they become covered with the calcareous shell. They are caught by persons who angle for them with a hook and line, baited with a small fish; when drawn on shore they are dangerous, darting the head to the right and left with incredible velocity; they often inflict severe bites on their captors, so that the prudent chop off their heads as soon as they draw them out of the water; the flesh is very delicate in flavour.