NORTH AMERIC.

HERPETOLOGY.

Vol. No. 3

NORTH AMERICAN

HERPETOLOGY;

OR,

A DESCRIPTION

OF THE

REPTILES INHABITING THE UNITED STATES.

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VOL. III.

PHILADELPHIA:

J. DOBSON, 106 CHESTNUT STREET.

LONDON: ROBERT BALDWIN, PATERNOSTER ROW.—*PARIS:* HECTOR BOSSANGE, NO. 11 QUAI VOLTAIRE.—*HAMBURG:* PERTHES, BESSER & MAUKE.

1842.

E. G. DORSEY, PRINTER,
LIBRARY STREET.

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NORTH AMERICAN

HERPETOLOGY.

Order III. OPHIDIA. *Brogniart.*

Serpents form a very natural order, as they present peculiar anatomical and natural characters. "Of all reptiles, they best merit the name, as they creep only by alternate folds of their long and slender bodies, and though deprived of feet, or obvious external organs of locomotion, they glide swiftly on the ground, ascend trees, move rapidly along their branches, and even swim with great facility."

The order Ophidia includes the families Anguina and Serpentia, of which latter I shall only speak in this place. Cuvier again subdivides the family Serpentia into two tribes, Amphisbæna and Serpentes, or true serpents, which are the only ones of the Order found in the United States.

Serpentes.—*Cuvier.*

CHARACTERS.

1. The head varies in form; the branches (rami) of the lower jaw-bone are not firmly united to each other at their anterior extremities, but are joined by

an extensible ligament which allows of their being drawn apart laterally;—the bones of the upper jaw are also connected in the same way to the intermaxillary, and allow the same sort of motion. Even the palatine bones participate in this general mobility and dilatability, which is still further increased by the tympanal bone or pedicle of the lower jaw, which is always suspended to another bone analogous to the mastoid process of the temporal, and is attached to the cranium by muscles and ligaments. From this structure, and from the mobility and distensibility of each of these bones, it results that the mouth may be so widely opened as to receive an object of greater dimensions than the animal itself.

2. The mouth is of variable size, and is furnished with lips; and the upper and lower jaws, as well as the palatine arches in all, with only one exception, (Oligodon,) are armed with teeth. These teeth are solid, of simple construction, and are always situated on the margins of the maxillary bones, and not on the inner margin, as in some of the lizards. As the serpents do not masticate their food, these teeth are organized for seizing and killing their prey, or for retaining it; they are, accordingly, pointed and smooth, and curved or arched backwards, to prevent its escape.

3. The tongue is very long, slender, extensible, retractile within a sheath placed at the root, with the apex bifid, and terminating in two slender semi-cartilaginous filaments.

4. There are no movable eyelids, nor is there a tympanal membrane.

5. The body is exceedingly elongated—destitute of a sternum or of any external members of locomotion;—though in some genera (Boa) there are concealed rudiments of posterior limbs near the vent. The ribs and vertebræ make up nearly the whole skeleton; the former surround a great portion of the circumference of the body, and are only wanting at the tail; the latter are curiously arranged, the body of one is articulated by a convex surface to a

cavity in front of the succeeding vertebra. This structure of ball and socket allows of free lateral motion; but the spinous processes of the back prevent motion, up and down, to any great extent. The whole body is covered above with scales, mostly small and imbricated, and below with large quadrangular plates.

6. The trachea is very long, and surrounded by simple, complete, cartilaginous rings only at its anterior half; the lung is single, and extends nearly the whole length of the body. In some is found a rudiment of a second lung.

7. The heart is placed far back, and is provided with two auricles and a single ventricle.

8. Serpents are for the most part oviparous—the eggs are covered with a calcareous flexible shell—the young burst from them into life with the same form they are permanently to retain. There are some, however, among the poisonous serpents that are viviparous.

So far the true serpents agree in general in their characters and organization; but in some is developed an entirely new set of organs, which invest their possessors with singular and noxious properties.

This peculiarity of structure leads to a very natural division of the serpent tribe into two great sections—venomous and non-venomous serpents.

Venomous serpents are again distributed into different families, according to the arrangement of their fangs, dilatability of jaws, pits about the head, &c. &c.

I.—*Venomous Serpents, with Isolated Movable Fangs.*

Family. CROTALOIDEA.

These are the most remarkable of the Serpent tribe; their habits and peculiar properties have caused them to be regarded with universal abhorrence.

CHARACTERS.

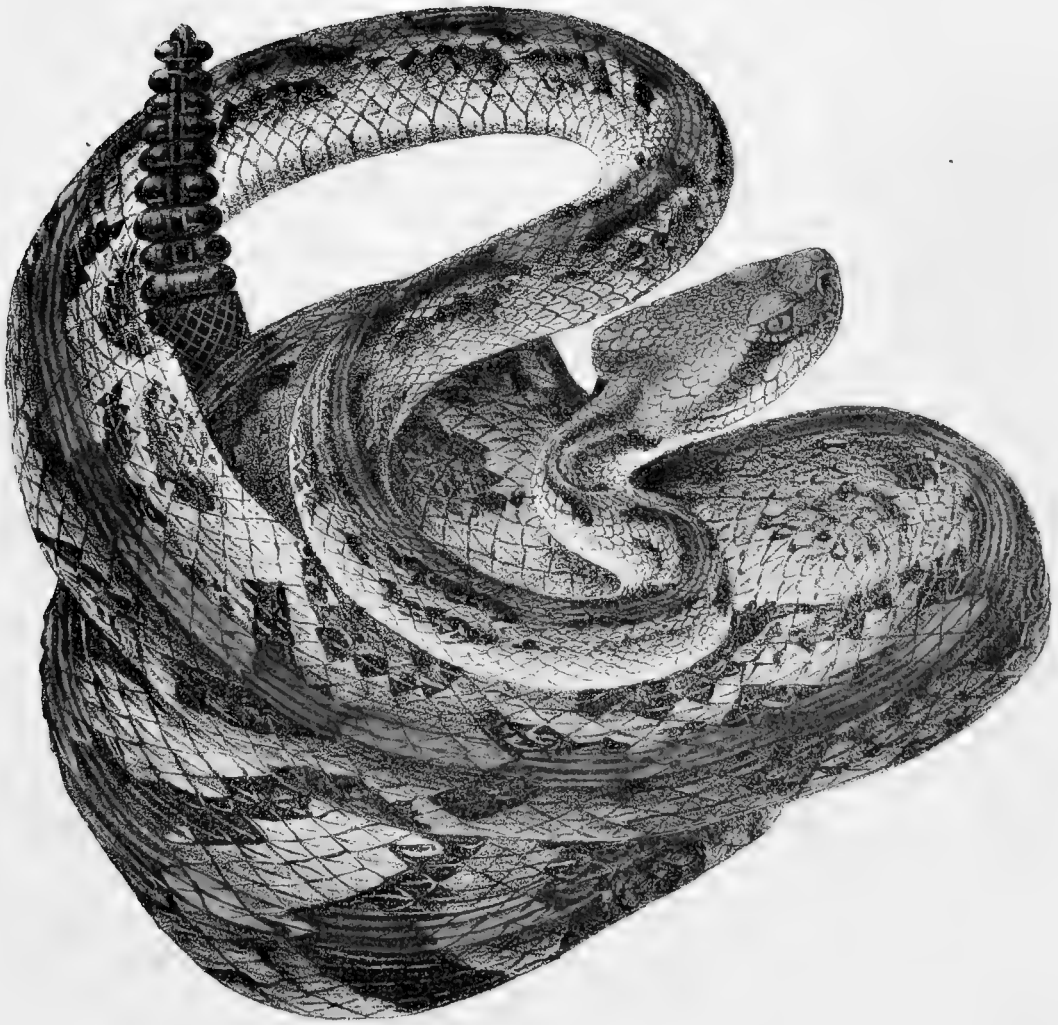
1. The head is generally large; the superior maxillary bones are small, and attached by ligaments to a long pedicle, analogous to the external pterrigoid apophysis.

2. The upper jaw bones are destitute of teeth, but are armed with sharp-pointed, pervious, movable fangs, through which the poisonous fluid flows. These fangs are sometimes only grooved—at others there is a complete canal, opening near their extremity, but in all instances these channels communicate with the excretory ducts of the gland. The fangs, when not erect, are concealed by a fold in the gum, from which they can be raised at the will of the animal. Behind these are the germs or rudiments of several other fangs, destined to become developed, and to replace the original, should these be destroyed by accident, as not unfrequently happens.

3. The palate bones are armed with two rows of small, hard, solid, and fixed teeth.

4. The gland that secretes the poison is situated near the eye, under the temporal muscle, so as to be compressed by its contraction. The poison varies in intensity perhaps in the different genera, but more so according to the state of the animal. It is most active in the healthy snake—in the summer season —when it has been long retained—when the animal is greatly irritated, &c. &c. To be deadly, however, it must be introduced into the circulation, for it can be taken into the stomach with impunity.

5. These serpents are all viviparous; or, the egg is retained in the female until it is hatched, and the young animal is then expelled alive.



Crotalus durissus.

Sera pinxt *P.S. Duval Lith. Phil^a*

CROTALUS.—*Linnæus.*

Genus Crotalus.—Characters. Head very large, triangular, rounded in front and covered above, with small plates in front and with scales on the vertex and occiput; a deep pit between the eye and nostril; upper jaw armed with a movable fang on each side; body thick, robust; tail short, thick, and terminating in rattles, which are corneous productions of the epidermis; belly and under surface of tail covered with plates.

CROTALUS DURISSUS.—*Linnæus.*

Plate I.

Characters. Head large, flattened above, triangular, rounded anteriorly, covered with plates only in front, and with minute scales on the vertex and occiput. There is a deep pit between the nostril and eye; upper jaw armed with poisonous fangs; body elongated and robust, above ash colour, with irregular transverse dusky bars, confluent near the tail, vertebral line yellow, flanks tinged with same colour; tail short, thick, and furnished with rattles. Pl. 177, Sc. 25.

Synonymes. Crotalus durissus, *Kalm*, Act. Stockh., ann. 1752, p. 310; 1773, pp. 52, 185.
Rattlesnake, *Catesby*, Carolina, &c., vol. ii. pl. lxi.
Crotalus durissus, *Linnæus*, Syst. Nat. Lin., vol. i. p. 372.
Crotalus durissus, *Gmelin*, Syst. Nat. Lin., vol. i. part iii. p. 1081.
Le durissus, *Lacépède*, Hist. des Serp., tom. ii. p. 423.
Crotalus durissus, *Latreille*, Hist. Nat. Rept., tom. iii. p. 190.
Crotalus atricaudatus, *Latreille*, Hist. Nat. Rept., tom. iii. p. 209.
Crotalus durissus, *Daudin*, Hist. Nat. des Rept., tom. v. p. 304, pl. lxviii.

Crotalus atricaudatus, *Daudin*, Hist. Nat. des Rept., tom. v. p. 316.
Crotalus horridus, *Shaw*, Gen. Zool., vol. iii. p. 317, pl. lxxxviii.
Le Crotale à queue noire, *Bosc*, Nouv. Dict. d'Hist. Nat., tom. vi. p. 555.
Crotalus durissus, *Harlan*, Med. and Phys. Res., p. 132.
Banded Rattlesnake, *Vulgo.*

Description. The head is enormously large, triangular, but broad and truncate anteriorly, covered with plates only in front, and with minute scales on the vertex and occiput; the rostral plate is large and triangular, with its basis downwards and its apex upwards and truncate; the frontal plates are also triangular, with their bases directed backwards. There are two nasal plates; the anterior is quadrilateral and excavated behind; the posterior is lunated in front to complete the nostril. The superior orbital plates are regularly oval, the greatest extent of the oval being in the antero-posterior direction; their outer margin forms a strongly marked projection over the eye. There are thirteen labial plates to the upper jaw, those in front larger and quadrilateral, the posterior smaller and rhomboidal; above the labial plates is a row of small scales or plates, continuous with the inferior orbital. The anterior orbital is quadrilateral and very long; the posterior is of the same form, but only half the size. There are four small inferior orbital plates, which complete the lower walls of the orbit. Above the labial range is a row of small scales, that form the lower walls of a deep pit, completed above by a large lunated plate; this pit is situated midway between the nostril and the eye, but on a lower plane. The nostrils are large, and very near the snout, but open laterally. The eyes are large, and extremely brilliant when the animal is enraged; the pupil is dark, oval and vertical; the iris flame colour. The mouth is large, the jaws strong, the upper furnished with poisonous fangs. The neck is very much contracted, and covered with carinated scales, larger than those on the head. The body is elongated, but thick, and covered with rough carinated rhomboidal scales above, and broad plates below. The tail is short, slightly conical, and sustains a greater or less number of rattles.

Colour. The superior surface of the head is ash colour, with a brownish band

passing from the eye to the commissure of the mouth. The neck and body are pale ash colour, with a vertebral line of yellow, including three scales; behind the occiput on each side of this line is an oblong dark spot. The body is marked with a triple series of dark irregular blotches and bars along the back. In front the blotches of the vertebral series are oblong transversely, widely emarginate before and behind; they vary, however, in shape, near the middle of the body; they resemble chevrons, with an acute angle towards the head; beneath the terminations of these spots on the flanks is a row of sub-quadrate dark spots; near the tail the vertebral and lateral series unite to form a band, and between these there is another row of obsolete grey spots. The abdomen is dirty reddish-straw colour, freckled with minute black dots.

Dimensions. Length of head, $1\frac{3}{4}$ inches; greatest breadth of head, $1\frac{1}{4}$ inches; length of body, 40 inches; length of tail, $3\frac{1}{4}$ inches; length of nine rattles, 2 inches; total length, $47\frac{1}{4}$ inches; greatest circumference of body, 6 inches. The specimen described had one hundred and seventy-seven large broad plates on the abdomen, and twenty-five under the tail.

Habits. The Crotalus durissus lives on rabbits, squirrels, rats, &c., and in general is a remarkably slow and sluggish animal, lying quietly in wait for his prey, and never wantonly attacking nor destroying animals, except as food, unless disturbed by them. A single touch, however, will effect this; even rustling the leaves in his neighbourhood is sufficient to irritate him. On these occasions he immediately coils himself, shakes his rattles violently in sign of rage, and strikes at whatever is placed within his reach. In his native woods one may pass within a few feet of him unmolested; though aware of the passenger's presence, he either lies quiet or glides away to a more retired spot—unlike some of the innocent snakes that I have known attack passers-by at certain seasons of the year. He never follows the object of his rage, whether an animal that has unwarily approached so near as to touch him, or only a stick thrust at him to provoke his anger, but strikes on the spot, and prepares to repeat the blow, or he may slowly retreat like an unconquered enemy, sure of his strength, but not

choosing further combat. It is remarkable that he never strikes unless coiled; so that if once thrown from this position, he may be approached with less danger.

As to the fascinating or charming power of the Rattlesnake, I have every reason to believe it a fable; a modification of that of the basilisk of the ancients, "a creature whose deadly glance would alone prove fatal." Indeed, this belief in fascination does not, according to Dr. Barton, belong to the Indians, as the reply of a "much respected Delaware" to Heckwelder may prove: "The Rattlesnake obtains its food merely by slyness and a persevering patience; it knoweth as well where to watch its prey as a cat does, and it succeeds as well."

The Rev. Dr. Bachman, an excellent naturalist, also informs me that he has more than once observed Rattlesnakes watching for hours at the root of large trees, on the branches of which sported some innocent squirrel, unconscious of the "charmer below;" but woe betide him should he descend to the earth in search of water, or of fallen nuts or acorns. There are even still more tales of the charming power of the Black than of the Rattlesnake, to whom it would be useless, for he is bold, lively, active, and climbs the loftiest trees in pursuit of his prey, while the Rattlesnake waits patiently below.*

Mr. Rittenhouse once observed the peculiar melancholy, and fluttering, tremulous motion of a red-winged maize-thief, like a bird "said to be charmed." "Suspecting that it was disturbed by a serpent, he threw a stone at the place whence the noise proceeded; the bird flew away, but soon returned, and, on

* Much has been said lately about the Rattlesnake's power of climbing trees. For this his organization seems to me ill adapted; his body is thick and clumsy, the tail short, and the rattles too, which are easily broken, would form an awkward appendage in climbing; while in those snakes that climb with great facility, the body is slender, the tail very long and delicate, and may at times be used as a prehensile instrument. But a full account of the curious organization of the Rattlesnake—of its poison, and of its effects on other animals—will be given in the anatomical part of this work.

approaching, he found it perched on the back of a large Black-snake, in the act of swallowing a young bird. The snake was killed, and the old bird flew away."

Thus it is the serpent seeks the nest, or young birds; it is seen by the parent, who darts upon him in an agitated manner—makes a plaintive cry; it flies away, and again returns to attack the robber, with beak and wings, until he is driven off; or, "what not unfrequently happens, she falls a victim to maternal solicitude" —and thus ends the fascination.

If the Rattlesnake has other "charming powers," they lay in the horror of its appearance, or in the instinctive sense of danger that seizes a feeble animal fallen suddenly into the presence of an enemy of such a threatening aspect—rather than to any mysterious influence not possessed by all venomous or ferocious animals upon their weak, timid, and defenceless prey.

In Catesby's time, when the country was less settled, Rattlesnakes were common enough; and he relates stories of their entering dwelling-houses, and of one having even shared his bed, undiscovered; but his accounts are so strange at the present day, that we must suppose him deceived by the servants of the house where they are said to have occurred in February, a season at which the Rattlesnake is never abroad. At present it is rarely met with, keeping far from all settlements, where its greatest enemy, the hog, is to be found. Even sportsmen are seldom under any apprehension on their account; yet I have more than once known dogs killed by them when the hunters have penetrated into woods at a distance from settlements.

Geographical Distribution. The Crotalus durissus has the widest range of all our Rattlesnakes, being found in nearly all parts of the United States. Kalm saw it in lat. 45°, near Lake Champlain, and I have seen specimens from the borders of the Gulf of Mexico, and as far west as Red river; and Dr. Pickering informs me that Say met with it in lat. 40°, on the Mississippi.

General Remarks. There can be no doubt that this animal was first made known to naturalists by Catesby, whose plate of it is too good to be mistaken. Kalm, the celebrated Swedish traveller, next observed it in the northern states of the Union, and gave an accurate scientific description of it, from which Linnæus extracted the characters that distinguish the Crotalus durissus of the tenth edition of his Systema Naturæ.

Linnæus's account of our Rattlesnake is, however, not clear, for he says it is marked with "maculis rhombois nigris disco albis," while to the South American animal he attributes the habits of the durissus, as taken from Kalm: "Venenatissimus, antidotum senega; aves sciurosque in faucibus revocat." The only method then remaining to determine to which animal he applied the specific term "durissus," is to consult his references, and then his meaning is clear; for no one doubts that Kalm described our animal, and even Seba's plate is a good one.

Shaw seems to have confounded this animal with the Crotalus horridus, although the greater part of his description is copied from Catesby, which could only refer to the Crotalus durissus, or Banded Rattlesnake, under which latter name indeed Shaws speaks of it. It is next found mentioned as the Crotalus atricaudatus by Bosc, who supposes it to be a new species, in which he is followed by Latreille and Daudin; but there can be no doubt at present, that they are one and the same animal, as in the young the tail is generally black, and even in the adult I have seldom seen it otherwise.

It is commonly supposed that the number of rattles mark the age of the animal, a new one being added annually to those already existing. It is now certain that Rattlesnakes have been known to gain more than one rattle in a year, and to lose in proportion; the exact number being regulated no doubt by the state of the animal as to health, nourishment, liberty, &c. I have known two rattles added in one year, and Dr. Bachman has observed four produced in the same length of time.

Mr. Peale of the Philadelphia Museum, kept a living female Rattlesnake for fourteen years. It had, when it came into his possession, eleven rattles, several were lost annually, and new ones took their place; at its death, after fourteen years confinement, there were still but eleven joints, although it had increased four inches in length. It is thus evident that the growth of these appendages is irregular, and that the age of the animal cannot be determined from their number. The number of rattles vary much; the greatest I ever saw was twenty-one, all of which were perfect.

Crotalus adamanteus.

Sera pinx^t *P S Duval, Lith. Phil^a*

CROTALUS ADAMANTEUS.—*Beauvais.*

Plate II.

Characters. Head very large, triangular, rounded in front, flattened above, covered with plates in front and with scales behind, and on the vertex; a deep pit between the eye and nostril; upper jaw furnished with fangs; body above dark brown or dusky, marked with a series of large, regularly rhomboidal spots, continuous, and extending from the head to the extremity of the tail; abdomen dirty yellowish-white. Pl. 172. Caud. Pl. 25. Rattles variable in number.

Synonymes. Crotalus adamanteus, *Beauvais*, Trans. Amer. Phil. Soc., vol. iv. p. 368.
Crotalus rhombifer, *Latreille*, Hist. Nat. Rept., tom. iii. p. 197.
Crotalus rhombifer, *Daudin*, Hist. Nat. des Rept., tom. v. p. 323, pl. lx. fig. 22.
Crotalus durissus, *Daudin*, Gen. Zool., vol. iii. p. 233, fig. 89, not the description.
Crotalus rhombifer, *Merrem*, Versuch eines Syst. der Amphib., p. 157.
Crotalus horridus, *Harlan*, Med. and Phys. Res., p. 133.

Description. The head is enormously large, triangular, but rounded in front; covered with plates anteriorly, and with scales posteriorly and on the vertex. The rostral plate is small, triangular, larger below, narrowed above; the frontal plates are small and quadrilateral. There are two nasal plates; the anterior large, quadrilateral, and concave on its posterior margin; the posterior irregularly triangular, lunated in front to complete the nostril. The superior orbital plates are oval and large, the greatest extent being in the antero-posterior direction, with their outer margins greatly projecting. There are two anterior orbital plates; the upper larger and quadrilateral, the lower smaller. The inferior and posterior walls of the orbit are made up with small plates.

The nostrils are large, lateral, and near the snout; the pit between the orbit and nostrils is remarkably large. The eyes are large, the pupil elliptical, vertical and dark; the iris light gray, with a tinge of yellow.

The mouth is large, the upper jaw furnished with poisonous fangs, and covered externally with twelve labial plates, all of which are quadrilateral, the largest in front. The neck is remarkably small and contracted; the body elongated, very thick, even to the tail; above it is covered with scales, approaching an hexagonal form, and strongly carinated on the vertebral line, less so near the abdomen, which is covered with very large plates. The tail is short and thick, with scales and plates below, and sustains a greater or less number of rattles.

Colour. The head is very dark brown above, with a light coloured line descending from near the snout to the angle of the mouth; above this is a broad black vitta, reaching from the orbit of the eye nearly to the neck; and above this again is a white line of the same extent and direction. The neck and body are a dusky-brown, sometimes tinged with a dusky-green—indeed the whole colour of this animal is singularly dingy—the body is marked with a series of regular rhombs, of the darkest brown, lighter towards the middle; each rhomb is bordered with a margin of dirty white; these gradually disappear towards the tail, and their place is supplied by dusky bars, which in the end also disappear, so that the tail is dusky near the rattles.

Dimensions. Length of head, $2\frac{3}{4}$ inches; greatest breadth of head, $2\frac{1}{2}$ inches; circumference of the neck, 4 inches; length of body, 60 inches; length of tail, $2\frac{1}{2}$ inches; length of rattles, 3 inches. In the individual here described, there were 172 abdominal plates, and 25 sub-caudal.

Habits. The Crotalus adamanteus chooses for its abode damp and shady places, keeping constantly near the water, from which circumstance it is commonly called the "Water-rattle," though there is no evidence of its taking to the water in search of prey.

Geographical Distribution. Its range seems very limited; as hitherto it has never been found north of Carolina, where it is common on the sea-board; it abounds too in East Florida, but westward beyond that I have no evidence of its existence.

General Remarks. The Crotalus adamanteus is the largest of our Rattlesnakes, reaching even to the length of eight feet. The individual from which the accompanying plate was taken, had reached the length of nearly six feet, and I have seen others over seven feet long; a more disgusting and terrific animal cannot be imagined than this; its dusky colour, bloated body, and sinister eyes of sparkling grey and yellow, with the projecting orbital plates, combine to form an expression of sullen ferocity unsurpassed in the brute creation.

Palisot de Beauvais was the first who distinguished this serpent from the Crotalus durissus, and gave it the name, which has here been retained.

Latreille next speaks of a skin of this animal, procured in Carolina, and given him by Bosc. At first he seems to consider it a new species, under the name Crotalus rhombifer, but he ends by saying it is identical with the Crotalus horridus.

To Daudin belongs the merit of having first fully and accurately described the animal now under consideration. Beauvais's description, though separating this species from the Banded Rattlesnake, must amount to no more than "indications for the establishment of a new species." Daudin's account of the animal is very accurate, and was taken from the skin of one four feet six inches in length, found by Bosc in the United States.

It is not a little remarkable, that after so correct a description and such judicious remarks as those of Daudin, this animal should still have been overlooked, not only by European, but by American naturalists. This can only be accounted for by supposing they confounded it with the Crotalus horridus, to which

its colour, on a superficial examination, appears similar; but, observed attentively, there will be found enough, even in this, to distinguish the two animals. The Crotalus horridus has a black band across the forehead, embracing the anterior part of the superior orbital plates; behind this, and reaching through the centre of these plates, is a white bar across the vertex. Another black band runs from the eye to the angle of the mouth; two large bands, of similar colour, begin behind the occiput, and run along the neck and back to the distance of about one-fifth of the whole animal; these latter bands are of the breadth of two scales and a half; two other narrower bands, and of the same length and colour, depart from the temples; while the Crotalus adamanteus is dusky-brown, without any black marks on the head, and has the rhomboidal spots, beginning at the back of the occiput, and continuing along the whole extent of the animal to near the extremity of the tail, which is banded. Besides the difference in colour between these two animals, there is a difference in the plates about the head. In the Crotalus horridus the nasal plates are very small; the frontals are triangular and also very small, while the vertex between the orbits is covered with plates or scales much larger than in the Crotalus adamanteus or Crotalus durissus. It is highly probable that the figure of the Crotalus durissus of Shaw represents our animal, but the description refers certainly to the Crotalus durissus, and it is mostly taken from Catesby.

Crotalus oregamus.

CROTALUS OREGONUS.—*Holbrook.*

Plate III.

Characters. Head very large, triangular, truncated anteriorly; covered above with plates, and with scales on the vertex and occiput; upper jaw armed with fangs; a broad white bar between the orbits, and two others on the side of the head; one begins above the pit, the other below, and are confluent behind the angle of the mouth; body thick, and marked above with two zigzag white lines, that form a series of trapezoidal or sub-triangular dusky spots, with white margins.—Pl. 177. Caud. Pl. 22. Rattles, 3.

Description. The head is very large, triangular, broad behind, narrow and truncated, or slightly rounded in front, and is proportionably longer than in other Rattlesnakes; above it is covered with plates anteriorly, and with scales on the vertex and occiput; the rostral plate is large and triangular, with its apex slightly truncate and turned upwards; the nasal plates are two in number, the anterior is quadrilateral and very large; the posterior semilunar and smaller, with a concavity in front for the nostrils; the superior orbital plate is large, irregularly quadrilateral, and projects over the eye; there are two anterior orbital, nearly quadrilateral, and two posterior orbital plates, nearly of the same size and form, with three inferior, oblong and narrow. In front of the anterior orbital plate, and above the labial range, are several small scales, making the posterior and inferior walls of the deep pit between the eye and the nostril, which is completed above and in front by two large plates.

The nostrils are large and placed near the snout, but open laterally and a little upwards.*

The margin of the upper jaw is covered with fifteen labial plates, those near the snout are quadrilateral, and those near the angle of the mouth are more elongated. The neck is much contracted, and covered with small carinated scales, of less size than those on the vertex, which are smooth.

The body is elongated, but thick, and covered above with carinated, hexagonal scales, and with large plates below. The tail is very short, and terminates in several large rattles.

Colour. The head above is ash colour, paler in front, darker behind, with a transverse white line between the orbits; this line is slightly arched forwards, and terminates on each side in the superior orbital plate, passing through its centre; two other white lines are seen to begin, one above, and the other below the nostrils; these lines unite behind the angle of the mouth; the margin of the upper jaw below these lines is dusky.

The body and tail are ash colour above, darker than the head, and marked with two interrupted, zigzag, white lines, beginning about three inches from the head and terminating at the tail; the lines of the opposite sides frequently run into each other, and thus mark out a series of dusky spots, margined with white; these spots vary much, some are trapezoid, while others are rhomboidal, and others again nearly triangular; on the neck and tail, where the lines do not exist, there are only a few rounded, dusky spots, bordered with white. The plates of the abdomen and tail are very dusky, with the posterior margin of each white.

* Of the size of the eye and colour of the iris and pupil, and exact colour of the skin, I can say nothing, as the animal above described had been for a long time preserved in alcohol.

Dimensions. Length of head, 9 lines; length of body, 12½ inches; length of tail, with rattles, 1¾ inches; total length, 15 inches. The specimen here described had 177 broad plates on the abdomen, and 22 under the tail, and 3 large rattles.

Habits. Nothing is known of the habits of the Crotalus Oregonus.

Geographical Distribution. This animal was found in the country west of the Rocky Mountains, on the banks of the Oregon or Columbia river.

General Remarks. I have never seen but one specimen of this serpent, and that was furnished me by the celebrated naturalist Mr. Nuttall, who procured it in the Oregon territory. There can be little doubt of its being a new species, as it differs from the Crotalus horridus, in wanting the black lines along the neck;—from the Crotalus durissus, in not being banded;—from the Crotalus adamanteus, in having white lines about the head, in the form and arrangement of its vertebral spots and the number of its abdominal plates;—and from the Crotalophorus tergeminus, which of all its colour most resembles, in having scales and not plates on the vertex.

N. B.—The plate was coloured from a specimen preserved in alcohol.

Crotalophorus miliarius.

CROTALOPHORUS.—*Gray.*

Genus Crotalophorus.—Characters. Head large, triangular, rounded in front, covered with plates above; a deep pit between the eye and nostril; rattles few in number, and not well developed; plates on the abdomen; plates mostly single, few, bifid under the tail.

Remarks. This genus was first established by Mr. Gray, and makes a very natural transition from Crotalus to Trigonocephalus, having the rattles of one at the tail, and the plates on the head of the other genus. Fitzinger calls it Caudisona, a name more applicable to Crotalus, as it makes but a feeble noise at best with its rattle, and often none at all.

CROTALOPHORUS MILIARIUS.—*Linnæus.*

Plate IV.

Characters. Head large, triangular, rounded in front; covered anteriorly and on the vertex with plates, posteriorly with scales; a pit between the eye and nostril; upper jaw with poisonous fangs; body above dark grey, with a vertebral brownish-red line, interrupted by a row of sub-quadrate black spots, margined with yellow, and a double series of black spots on each side, the upper larger, but less distinct. Caud. Pl. 30.

Synonymes. Small Rattlesnake, *Catesby*, Carol., vol. ii. p. 42. pl. xlii.
Crotalus miliarius, *Linnæus*, Syst. Nat., vol. i. p. 372.
Le millet, *Lacépède*, Hist. Nat. des. Serp., tom. ii. p. 421.

Crotalus miliarius, *Gmelin*, Syst. Nat. Lin., vol. i. part iii. p. 1080.
Crotalus miliarius, *Latreille*, Hist. Nat. Rept., tom. iii. p. 203.
Crotalus miliarius, *Daudin*, Hist. Nat. des Rept., tom. v. p. 328.
Crotalus miliarius, *Merrem*, Versuch eines Syst. der Amphib., p. 156.
Crotalus miliarius, *Harlan*, Med. and Phys. Res., p. 134.
Caudisona miliarius, *Wagler*, Nat. Syst. der Amphib., p. 176.
Ground Rattlesnake, *Vulgo.*

Description. The head is very large, triangular, broad behind, and truncate at the snout; covered with plates in front, and on the vertex to behind the eyes. The vertical plate is pentagonal, broadest in front, pointed behind; the superior orbital is oval, most extensive in the antero-posterior direction, with its outer margin projecting greatly over the eye. The occipital plates are rhomboidal; behind these the head is covered with small scales. The frontal plates are pentagonal, broadest externally; the anterior frontal are trigonal, with their bases outwards and forwards; the two nasal plates are quadrilateral and nearly of the same size, the one hollowed on its posterior, the other on its anterior border, to form the nostril. There are two posterior orbital plates quadrilateral; and two inferior, of which the posterior is very long and narrow. The anterior orbital are two in number, the inferior of which makes the upper wall of a deep pit, that exists midway between the nostril and eye, but on a lower plane; the inferior margin is completed by two other plates. The upper jaw is covered with twelve labial plates.

The nostrils are large and very near the snout, but lateral; the eyes are large, the pupil black, oval and vertical; the upper half of the iris is of the brightest yellow, and the lower half black. The mouth is large, the jaws strong, the upper furnished with poisonous fangs. The neck is greatly contracted, and covered with small carinated scales. The body is elongated, but thick in proportion, even to the tail, where it becomes suddenly contracted, and is covered with ovato-lanceolate, carinated scales above, the lowest row is ecarinate. The tail is short, conical, and sustains an uncertain number of rattles, not as well developed as in Crotalus.

Colour. The ground colour of the whole upper surface of the animal is pepper-and-salt grey. The head is more dusky in front, with a light coloured band running transversely from orbit to orbit; from this transverse band begins a yellowish-red or reddish-brown vertebral band, that runs to near the extremity of the tail; this band increases in size to the neck, and has on either side of it, at the occiput, an oblong dark blotch; from the superior orbital plate to the posterior part of the head is a dash of yellowish-white; beneath this, and descending from behind the orbit, is a black vitta, under which is again a yellowish-white line, from the inferior margin of the orbit to behind the angle of the mouth, where it is continuous with a line of similar colour that departs from the lower jaw about its middle. The upper jaw is dusky; the lower is light coloured, with some dark lines that mark the position of the labial plates; the brownish-red vertebral line is interrupted at regular intervals by oblong, oval, or sub-quadrate spots, placed transversely; these spots are frequently emarginate before and behind, and all of them have their margins tipped with yellowish-white. On the flanks is another series of sub-round spots, placed in the same vertical line with the vertebral row, becoming less regular towards the tail. Between the lateral and vertebral rows, and alternating with them, is another series of round spots; these are dusky, and never as strongly marked as the others. These colours are by no means so bright at all times as they are represented in the accompanying plate, which were taken from an animal of great beauty, soon after it had shed its skin. The inferior surface of the tail is flesh colour, dotted with dark grey.

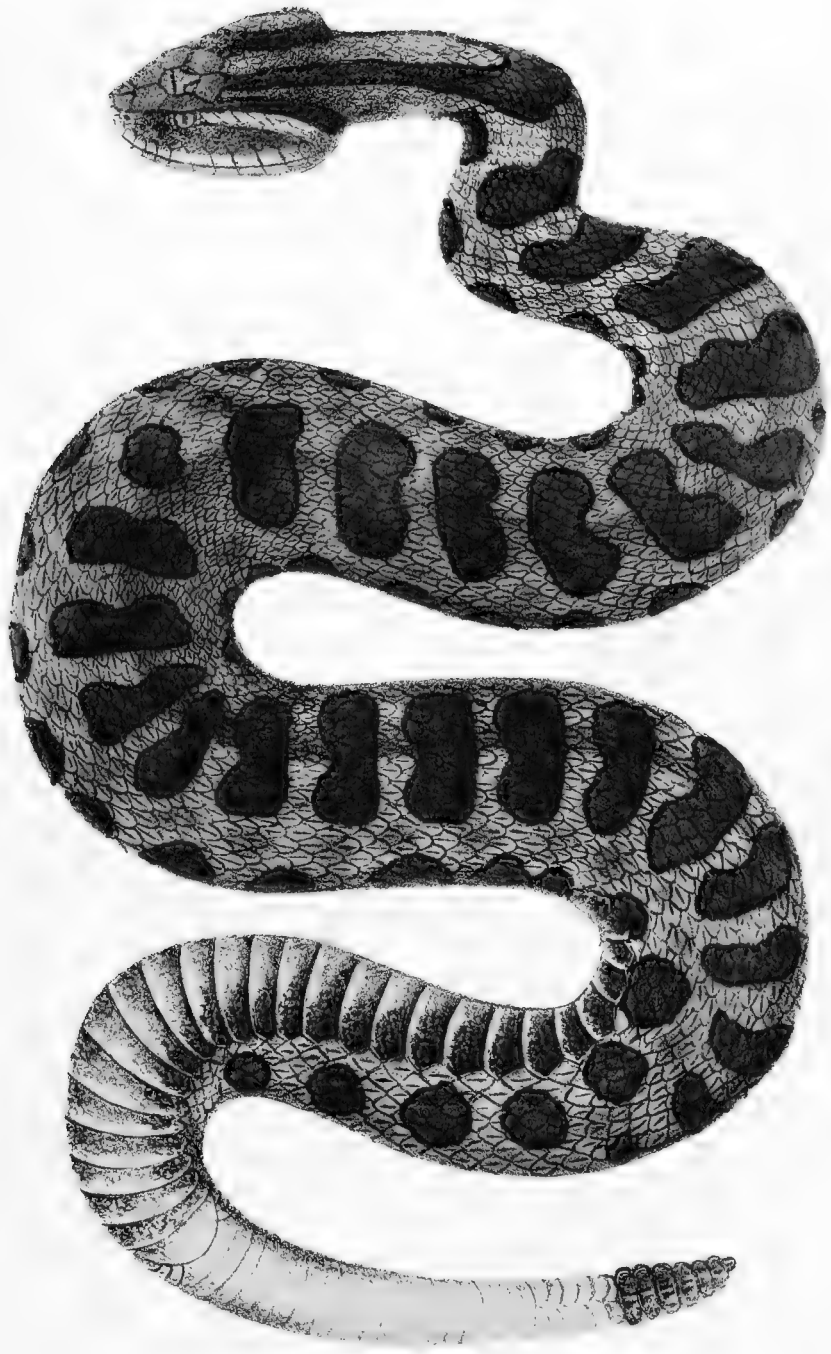
Dimensions. Length of head, 11 lines; greatest breadth of head, 7½ lines; length of body, 13 inches; length of tail, 2 inches without the rattles; these vary in number, generally there are two or three, but I have seen as many as five. In the specimen here described, there were 128 abdominal plates, and 30 sub-caudal.

Habits. This species of Rattlesnake is very common in the southern states; it is found in dry places among leaves, and frequently in high grass, in search of small field mice, on which it feeds.

Geographical Distribution. This animal has a wide range, though in the Atlantic States it is not found north of lat. 35°; it abounds in Carolina, whence it passes through Georgia, round the southern extremities of the Alleghanies to Alabama, Mississippi and Louisiana.

General Remarks. This serpent was first made known to naturalists by Catesby, whose figure of it is but tolerable. He seems to have considered it as a young animal, yet his name (Vipera caudisona) cannot be retained, either for this or the larger species, as I find it previously applied to a South American reptile; and further, it is now a generic name of several excellent herpetologists. Linnæus received a specimen from Dr. Garden, and gave it a place in his twelfth and last edition of the Systema Naturæ, under the name Crotalus miliarius, which it bears to this day.

The Crotalophorus miliarius is greatly dreaded, as it gives but a very slight warning with its rattle, and, unlike the Crotalus durissus, will frequently be the aggressor. By the common people its bite is thought to be more destructive, and its venom more active, than that of the larger species; various experiments have, however, satisfied me of the fallacy of this opinion. It is probable that each of these serpents has the requisite quantity of venom to destroy the animals on which it preys, for it is certain that the Crotalophorus miliarius can easily kill a small bird, such as the towhee bunting, a pigeon, or a field-mouse; but a cat that was bitten several times, at different intervals, appeared to suffer much, and to droop for thirty-six hours, at the end of which time the effects of the poison entirely disappeared; the same animal was long afterwards destroyed by a single bite of the Crotalus durissus. Catesby's observation of this animal is very correct: "the bite of this snake is poisonous, but it being small, is not always mortal."



Crotalophorus tergeminus

CROTALOPHORUS TERGEMINUS.—*Say.*

Plate V.

Characters. Head large, triangular, rounded in front, covered anteriorly and on the vertex with plates, and posteriorly with scales; a deep pit between the eye and nostril; upper jaw with poisonous fangs; body above cinereous, with a triple series of dark brown spots; beneath a double series of dusky spots.—Pl. 150. Caud. Pl. 19. Bifid Pl. 6.

Synonymes. Crotalus tergeminus, *Say*, Long's Exped. Rock. Mount., vol. i. p. 499.
Crotalus tergeminus, *Harlan*, Med. and Phys. Res., p. 135.

Description. The head is large, triangular, truncated in front, and covered above with plates to behind the eyes. The vertical plate is large, pentagonal, broad before, and pointed behind; the superior orbital are oblong, of equal length with the vertical, but narrower, and project outwardly over the eye; the occipital plates are rather large and irregularly rhomboidal; behind these the head is covered with small scales; the frontal plates are broad, sub-pentagonal, and rounded outwards; the anterior frontal are trigonal, with their bases directed outward and forward; the nasal are quadrilateral and nearly of the same size; the one is concave behind and the other before, to accommodate the nostrils. There are two posterior orbital plates, and two inferior, of which the posterior is long and narrow; there are two anterior orbital, the inferior making part of the pit. The nostrils are lateral and near the snout. The upper jaw is covered with twelve labial plates on each side.

Colour. The ground colour of the whole animal above and at the sides is

cinereous, tinged slightly with olive. The head is marked with a dusky bar between the orbits, whence depart two dark bands, one of which runs along the neck for an inch or more, and then joins the band of the opposite side, leaving an oblong lighter coloured blotch on the vertebral line; the other dusky band descends from the orbit to behind the angle of the mouth; beneath this latter dusky band is a white one of equal length, and of nearly the same breadth. The upper jaw is dusky. The body is marked with a triple series of dusky blotches, those on the vertebral line largest, and about forty-two in number; they are oval, emarginate in front, and most extensive transversely, and are all bordered with a thin margin of black; opposite to these oval spots and on each side is another series of dusky spots, sub-round and bordered also with black, and this again, but indistinctly, with a lighter colour. The tail is banded with dusky. The belly is whitish, tinged with flesh colour, mottled with black spots; and each plate has two or more dusky blotches, disposed in two irregular series.

Dimensions. Length of head, 1 inch 2 lines; length of body, 22 inches 10 lines; length of tail 2 inches 2 lines: total length, 2 feet 2 inches 2 lines. In the specimen here described there were 150 abdominal plates, 19 entire plates, and bifid under the tail, which sustained five rattles.

Habits. Mr. Say observes—"they seem to prefer an unproductive soil, where their sluggish gait may not meet with the opposing obstacles of grass and mud;" for their hiding places they seek the holes of the prairie dog, (Arctomys Ludoviciana.)

Geographical Distribution. The Crotalophorus tergeminus inhabits the region of country bordering on the Rocky Mountains, near the sources of the Missouri.

General Remarks. This Rattlesnake was first observed and accurately described by Mr. Say, in Long's Expedition to the Rocky Mountains. The colour of the accompanying plate was done from a preserved specimen.

Crotalophourus Kirtlandi

CROTALOPHORUS KIRTLANDI.—*Holbrook.*

Plate VI.

Characters. Body above black, relieved in places by dusky-brown, and marked with a series of light brown rings on the back, and vertical lines of similar colour on the flanks, hardly visible in old animals.—Pl. 152. Caud. Pl. 27. Bifid Pl. 2.

Description. The head is large, sub-triangular, broad behind, narrow and truncated in front, and covered with large plates above to the occiput, behind which are small scales. These plates so nearly resemble those of the two last species, that it is unnecessary to describe them here. The nostrils are lateral, near the snout, and the pits between them and the eyes are deep and large. The eyes are bright, the pupil black, elliptical and large; the iris of dark grey, interspersed with yellow spots. The neck is contracted and covered above with small, hexagonal, carinated scales. The body is short, robust and covered above with scales of similar form to those of the neck, but much larger and more strongly carinated. The abdominal plates are broad and large. The tail is short, thick, and terminates in an uncertain number of rattles.

Colour. The whole superior surface of the body and tail is black, more or less relieved in places by dusky-brown, and marked with a series of lighter brown rings along the back, and sometimes vertical lines of the same colour on the flanks; often, however, both the rings and vertical lines are very indistinct, scarcely visible, and then the animal appears entirely black. The tail is always black.

Dimensions. Length of head, 1 inch 2 lines; length of body to vent, 22 inches; length of tail, 3 inches: total length, without the rattles, 27 inches. In the specimen here described there were 152 abdominal plates, and 29 sub-caudal, the first two last bifid, and six rattles.

Habits. This Rattlesnake prefers damp and shady places for its dwelling, and is not unfrequently found in cranberry (Oxycoccus macrocarpus) marshes.

Geographical Distribution. This reptile has as yet been noticed only in the States of Ohio and Michigan.

General Remarks. To Dr. Kirtland of Ohio, a distinguished naturalist, well known by his writings on Conchology and Ichthyology, am I indebted for a knowledge of this new and beautiful reptile, and to him have I dedicated the species. In his Zoological Report of Ohio, he observes that this animal is commonly known under the name Massasaugua, a word of Indian origin. He furthermore informs me by letter, that he observed it many years since: thus he says, "In the year 1810, I spent a summer in Trumbull county, (Ohio,) and while there, engaged in boyish pursuits around a cranberry marsh in Boardman, I frequently met with them. A recollection of their appearance at that day contrasted with your plate of the Crotalus miliarius, induced me to examine a specimen three years since, which ultimately led me to conclude that it was a distinct species. Its bite, I believe, is never fatal, and, so far as I have had experience, is not much more venomous than the sting of a common hornet, (Vespa maculata.) In one instance, however, its bite was followed by a long train of nervous and hysterical affections in a female."

Trigonocephalus piscivorus

TRIGONOCEPHALUS.—*Oppel.*

Genus TRIGONOCEPHALUS.—CHARACTERS. Head large, triangular, covered with plates in front, and on the vertex to behind the orbits, and with scales posteriorly; a deep pit between the eyes and nostrils; upper jaw armed with poisonous fangs; body thick; plates on the abdomen and base of the tail; a few scales at the apex.

TRIGONOCEPHALUS PISCIVORUS.—*Lacépède.*

Plate VII.

CHARACTERS. Head very large, triangular, covered with plates in front, and on the vertex, and with scales behind; a deep pit between the eye and nostril; upper jaw armed with poisonous fangs; body thick, dusky greenish-brown, tinged with yellow, and with transverse bands of black. Pl. 130. Caud. Pl. 29. Sc. 4. Pl. 2. Sc. 8.

SYNONYMES. Water viper, *Catesby*, Carol., vol. ii. p. 43, pl. xliii.
Crotalus piscivorus, *Lacépède*, Hist. des Serp., tom. ii. p. 424.
Scytalus piscivorus, *Latreille*, Hist. des Rept., tom. iii. p. 163.
Scytale piscivorus, *Daudin*, Hist. Nat. des Rept., tom. v. p. 344.
Coluber aquaticus, *Shaw*, Gen. Zool., vol. iii. p. 425, pl. iii.
Natrix piscivorus, *Merrem*, Versuch eines Syst. der Amphib., p. 131.
Trigonocephalus tisiphone, *Cuvier*, Reg. An., vol. ii. p. 89.
Scytalus piscivorus, *Harlan*, Med. and Phys. Res., p. 129.
Toxicophis leucostomus, *Troost*, Ann. Lyc. Nat. Hist. N. Y., vol. iii. p. 176.
Water Moccasin, *Vulgo.* Cotton Mouth, in the western country.

Description. The head is triangular and very large, covered with plates in front and on the vertex, and with small scales posteriorly. The vertical plate is regularly pentagonal, with an acute angle behind; the superior orbital are irregularly quadrilateral, narrowest within, broadest without, and projecting far over the eye, so as to give it a threatening appearance; the occipital plates are regularly pentagonal, with acute angles forward; posterior to them is a transverse row of four smaller plates; the frontal are pentagonal, large, with their outer margins rounded; the anterior frontal smaller and triangular, with the bases rounded and pointed forward, and the apices backwards and inwards; the rostral plate is nearly quadrilateral, a little larger below. There are two nasal plates; the anterior is quadrilateral, a little excavated posteriorly; the posterior is irregularly quadrilateral, concave in front, to complete the nostril. There are two anterior orbital plates; the superior very large, the inferior smaller, making the posterior wall of the pit between the eye and nostril, which is completed in front and below by the second labial, and a small plate resting on the third labial. The posterior orbital plates are three in number, and nearly of the same size; the inferior makes part of the inferior wall of the orbit, which is completed by the third labial plate.

The nostrils are large, lateral, and near the snout; a very deep pit exists midway between them and the eye, but on a lower plane; the upper jaw is covered with seven labial plates. The eye is large, though it does not appear so at first view, from the projection of the superior orbital plate; the pupil is elliptical, dark and vertical; the upper half of the iris bright golden, the inferior half, black; the neck is greatly contracted; the body elongated, very robust and thick, even to the tail, where it contracts suddenly; it is covered with carinated scales, to those adjoining the plates; those above are most strongly carinated. The abdomen is covered with very broad plates; the tail is short, thick, convex, and terminates in a horny point, having carinated scales above, and plates and scales below.

Colour. The head is dark brown above, with a yellowish line from the snout

over the nostril, tinging the outer margin of the superior orbital plate; below this is a black vitta, beginning at the pit in front of the eye, and continuing backwards to beyond the angle of the mouth, involving the lower half of the pupil and iris. The labial plates of the upper jaw are dirty white. The neck, body and tail of the animal is dark brown, lightened towards the sides to a dingy greenish-yellow, where it is banded dark brown. The abdomen is leadish-grey, approaching to black towards the tail.

Dimensions. Length of head, $1\frac{1}{2}$ inches; breadth of head, 1 inch; length of body, 19 inches; length of tail, $3\frac{1}{2}$ inches; circumference of neck, 2 inches; circumference of body, 5 inches. In the specimen described there were 130 abdominal plates, and 29 plates under the tail, the first bifid; these were succeeded by 4 bifid plates, or scales; and there were again two entire plates, succeeded by 8 scales, or bifid plates.

Habits. The Trigonocephalus piscivorus is found about damp, swampy places, or in water—far from which it is never observed. In summer, numbers of these serpents are seen resting on the low branches of such trees as overhang the water, into which they plunge on the slightest alarm. Catesby thinks they select these places to watch for their prey; they merely choose them in order to bask in the sun; for in those situations deprived of trees, as the ditches of rice fields, their basking places are often on dry banks. They are the terror of the negroes that labour about rice plantations, where they are more dreaded than the Rattlesnake, which only bites when irritated, or in self-defence, or to secure its prey; the Water Moccasin, on the contrary, attacks every thing that comes within his reach, erecting his head and opening his mouth for some seconds before he bites.

I have placed in a cage with the Water Moccasin several of the harmless snakes, as the Coluber guttatus, Coluber getulus, &c., at a time; they all evinced the greatest distress, hanging to the sides of the cage, and endeavouring by every means to escape from their enemy, who attacked them all in turn. Two animals of his own species were then thrown into the cage; he seemed instantly aware of

the character of his new visiters, and became perfectly quiet. Indeed I have often received four or five of these animals in safety, after their having peaceably travelled together a journey of fifty miles in the same box. The dread of the fatal Water Moccasin has brought into suspicion several other snakes that live in the same localities, as the Tropidonotus fasciatus, Tropidonotus erythrogaster, &c., which are not only harmless, but really useful in destroying vermin.

The food of the Water Moccasin is such fish as he can overtake, and few exceed his velocity in swimming; and whatever smaller reptiles, as frogs, toads, tadpoles, &c. that fall in his way.

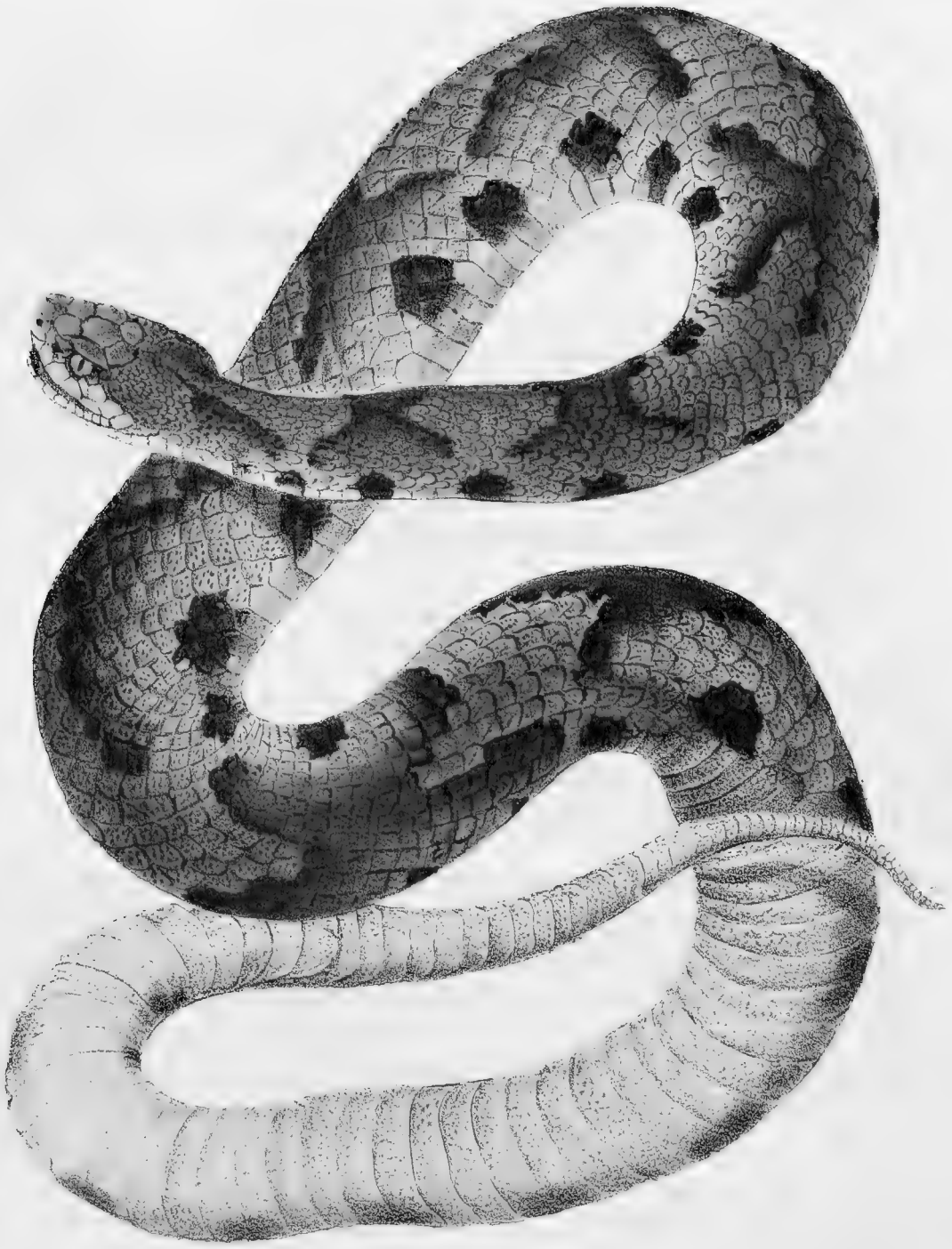
Geographical Distribution. The northern limit of the Trigonocephalus piscivorus must, for the present, be set down as the Pedee river in North Carolina; as to the southern and western, nothing positive can be said, only that the range is extensive; I have received specimens from the Floridas, Alabama, and from the banks of the Mississippi, and have no doubt that they may be found for a certain distance up the tributaries of this great river, as Professor Troost has observed them in Tennessee.

General Remarks. This animal was certainly first made known to naturalists by Catesby, who calls it the Water Viper, and adds, that it is commonly called in Carolina "the Water-Rattle; not that it hath a rattle, but because many are as large, and coloured not unlike the Rattlesnake, and their bite is considered as fatal." Lacépède placed it among the Crotali, but improperly, as it is without rattles, which are the distinctive characters of that genus; their place is supplied in this by a small horny point, about half an inch in length. This excrescence, though perfectly harmless, has, as Catesby says, "been considered of dreadful efficacy by the credulous vulgar, not only to kill men and other animals, but even to destroy plants and trees."

This is doubtless the Trigonocephalus tisiphone of Cuvier, as he first refers to Plate xliii. of Catesby, which is certainly the Trigonocephalus piscivorus, or

Water Viper. Why he should also have referred to Plate xliv. is inconceivable, as that is the Black Viper, an animal entirely distinct; and the same may be said of the specific name tisiphone, for which he refers to Shaw, whose Coluber tisiphone is neither the xliii. nor the xliv., but the xlv. plate of Catesby, which is his Brown Viper, and is probably only a dark Tropidonotus fasciatus before it has shed its skin; for it is like no other snake in Carolina.

As to the Toxicophis leucostoma of my friend Professor Troost, of Nashville, I was from the first disposed to regard it as a variety of the Trigonocephalus piscivorus, from the general correspondence in the number of plates and scales, as well as from the habits of his animal; and, the examination of a specimen sent me from Tennessee, proves it to be identical with our animal.



Trigonocephalus Contortix

14

TRIGONOCEPHALUS CONTORTRIX.—*Linnæus.*

Plate VIII.

Characters. Head very large, triangular, covered with plates in front, and on the vertex, with scales behind; a pit between the eye and nostril; upper jaw with poisonous fangs; body thick, light hazel-nut brown, with transverse bars of dark brown, narrowest on the mesial line, broader and bifurcating on the flanks; tip of the tail corneous. Pl. 150. Caud. Pl. 42. Sc. 4.

Synonymes. Boa contortrix, *Linnæus*, Syst. Nat., vol. i. p. 373.
Angkistrodon mokeson, *Beauvais*, Trans. Amer. Phil. Soc., vol. iv. p. 381.
Cenchris mokeson, *Daudin*, Hist. Nat. des Rept., tom. v. p. 358, pl. xl. fig. 3.
Scytalus cupreus, *Rafinesque*, Am. Journ. Arts and Sci., vol. i. p. 85.
Scytalus cupreus, *Harlan*, Med. and Phys. Res., p. 130.
Cenchris mokeson, *Harlan*, Med. and Phys. Res., p. 128.
Copperhead, *Vulgo.*

Description. The head is very large, triangular, and broadest posteriorly; the mouth large, with the upper jaw strong, and furnished with poisonous fangs; the vertical plate is regularly pentagonal, with an acute angle directed backwards; the superior orbital plates are irregularly triangular, with their apices turned inwards, and their bases outwards, projecting over the eye; the occipital are rhomboidal; the frontal plates are large and quadrilateral; the anterior frontal are of the same form, but smaller; the rostral is large, triangular, with its basis downwards, and its apex upwards and truncate. There are two nasal plates, the anterior quadrilateral, with its posterior margin hollowed; the posterior trapezoid, with its anterior border lunated to complete the nostril. There are three posterior orbital plates nearly of the same size, the upper one triangular; the

inferior orbital plate is single, long, narrow and semicircular; there are two anterior orbital, the upper quadrilateral, the lower makes the superior wall of the pit between the eye and the nostril, which is completed below by the second labial plate, and by a small plate that rests on the third labial. The margin of the upper jaw is covered with seven quadrilateral plates.

The nostrils are large, lateral, and placed near the snout. The eyes are large, but do not at first appear so from the projection of the superior orbital plates; the pupil is elliptical, vertical and dark; the iris bright golden, with a tinge of red. The neck is greatly contracted and covered with smooth scales; the body is elongated, but thick to near the tail, and is covered above with rhomboidal scales, carinated, except those of the lower rows, which are smooth and larger. The abdomen is covered with plates, the last one of which is very large; the tail is short, thick, conical, and ends in a horny tip.

Colour. The head is a delicate light hazel-nut brown above, with the labial plates whitish; the ground colour of the whole animal, neck, body and tail, is of the same delicate hue, lighter on the sides, where the scales are beautifully freckled with small dark spots. Behind the occiput begins a series of transverse bars of dark brown, continued to near the extremity of the tail; these bars are contracted along the vertebral line, but are broader and bifurcated on the flanks. These bars are lightest on the back, darker at the sides, with their anterior and posterior margins bordered with brown. The under surface of the whole animal is flesh coloured, freckled with minute points of dark brown, and a series of sub-round dark coloured spots on the abdominal plates near their extremities; these ascend to include a scale or two on the flanks, and are so disposed that one spot corresponds to the point of bifurcation of the transverse dorsal bars, and another to the space between them; all these spots terminate at the tail, which is flesh colour below.

Dimensions. Length of head, 1 inch 2 lines; breadth of head, 11 lines; length of body, 21 inches; length of tail, $3\frac{1}{2}$ inches; greatest circumference of body, $3\frac{1}{2}$

inches; circumference of the neck, 1 inch 10 lines. In the individual described, there were 150 abdominal plates, 42 sub-caudal, and four pairs of bifid plates or scales near the apex.

Habits. The Trigonocephalus chooses dark and shady places for its residence in general, though at times it is found in meadows of high grass. Its usual food seems to be small birds and field mice, which I have more than once found in its stomach. In confinement it could never be made to take any food; though different small animals were offered, it would kill but never eat them.

Geographical Distribution. The Trigonocephalus contortrix has an extended geographical range. I have received it from the western parts of New England to middle Florida inclusive, and from the shores of the Atlantic to the borders of the Alleghany mountains. As yet, I have no evidence of its existence in the valley of the Mississippi; its place is there probably supplied by the Toxicophis (Trigonocephalus) atro-fuscus of Troost, to which its habits are very similar.

General Remarks. This animal was first described by Linnæus, in the twelfth edition of his Systema Naturæ, under the name Boa contortrix, and it ranges well under his genus Boa, which included those serpents, venomous or not, that had plates under the tail, as well as on the abdomen. The specimen from which he took his description, was sent him by Dr. Garden, and had, according to his account, the same number of plates as the animal here described, though he does not mention the two or three scales or bifid plates on the tail. He says furthermore, that he found the gland or sac for containing the venom, but that there were no fangs, which might have been the result of accident, as the larger fall out and are succeeded by others. It cannot be imagined why he should have given a reference to the Hog Nose of Catesby,* especially as this is far removed from his genus Boa, in having scales or bifid plates under the tail. The

* Cates., Carol., &c., vol. ii. pl. lvi.

reference to the Coluber constrictor, of the tenth edition of the Systema Naturæ, which is entirely a different animal from that of the twelfth, is very remarkable, as it corresponds with it neither in its character nor habits; of that he says, "maxillæ apex simus triqueter, adoritur homines, circum pedes convolvens, sed innocuus," while this he is desirous to prove a poisonous animal, "caput latum, valde convexum, sacculos venenatos habet, sed tela non reperi."

Daudin, from some researches of Palisot de Beauvais, and from his own observations, makes this animal a new genus, Cenchris, saying at the same time that the Hog Nose of Catesby was synonymous with it, and that the Common Hog Nose is the Boa contortrix, in which he was mistaken. There are doubtless several species of Hog Nose snakes in the country, both at the north and south, but all are widely different from the Boa contortrix of the Systema Naturæ. Daudin's description of his Cenchris mokeson is good, and agrees well with the Trigonocephalus contortrix; "body thick; tail short and cylindrical; head large, covered with plates in front and scales behind; jaws with fangs." "The colour of the Cenchris mokeson," he says, "appears, from a drawing done from nature by Peale, the proprietor and director of the Philadelphia Museum, of a reddish-brown; the body and tail marked with fifteen large transverse dark bands; these are narrowest in the centre," (viz: along the vertebral line,) "and are broader and darker at the sides."

Cuvier is as wrong in referring the Cenchris mokeson of Daudin to the genus Heterodon,* as in saying that Daudin himself knew it only from the figure of the Hog Nose of Catesby, when in fact he had a very fair drawing furnished him by Peale, easily recognised by those acquainted with the animal; and besides this he has given two good figures on the same plate,† one the head of the Hog Nose, and the other the head of his Mokeson, shewing clearly that they belong to very different genera.

* Regn. Anim., tom. ii. p. 62, note 2.

† Hist. Nat. des Rept., tom. v. pl. xl., fig. 25, Mokeson; fig. 28, Hog Nose.

Trigonocephalus atrofuscus

J.H. Bichard del. *P.S. Duval Lith. Pinx.*

TRIGONOCEPHALUS ATRO-FUSCUS.—*Troost.*

Plate IX.

Characters. Head large, sub-triangular, broad behind, smaller and truncated in front, covered with plates to the occiput, behind which are small, smooth, hexagonal scales; a deep pit between the eye and nostril; upper jaw armed with fangs; body above dusky, variegated with dark brown spots. Pl. 133. Caud. Pl. at basis, 25. Sc. 18 at apex.

Synonymes. Toxicophis atro-fuscus, *Troost*, Ann. Lyc. Nat. Hist. N. Y., vol. iii. p. 181.

Description. The head is large, broad behind, narrow and truncated anteriorly. The vertical plate is irregularly pentagonal, with curvated sides, and an acute angle behind; the superior orbital are large, and project over the eye, and are irregularly hexagonal, rounded externally; there are four occipital plates, the two anterior large, pentagonal, with rounded sides and very acute angles forward; the posterior smaller, quadrilateral, and irregularly rounded; the frontal plates are more or less pentagonal, approaching the hexagonal form; the anterior frontal are smaller, and somewhat trapezoidal, with curved margins; the rostral is irregularly hexagonal, with curved margins, broader below, narrower above. There are two nasal plates, trapezoidal, one most incurvated before, and the other most so behind, for the nostrils. Of the two anterior orbital plates, the upper is oblong-quadrilateral, the posterior part concave; the inferior is triangular, its apex to the orbit, and its base forming part of the pit between the eye and nostril, which is completed by the second and third labial, and a small plate that rests on the third labial; the inferior orbital plate is single, long, narrow; there are three posterior

orbital plates, rhomboidal, of which the superior is largest, and forms most of the orbit behind. The upper jaw is covered with eight quadrilateral, labial plates.

The nostrils are large, lateral, and near the snout. The eye is rather large, the pupil elliptical, black, and the iris grey, tinged with yellow. The posterior part of the head is covered with small hexagonal and not carinated scales, in which it differs from the Trigonocephalus piscivorus. The neck is greatly contracted, and the body, though elongated, is thick to the tail, which is short, cylindrical, slender, and terminates in a horny tip. The superior surface of the back and tail is covered by elongated, oval, and deeply carinated scales, with small points at their base; the abdominal plates are large.

Colour. The upper part of the head is dark brown, bordered with grey, which becomes lighter behind the eyes, with a dark longitudinal spot reaching from the orbit to the tympanal bones; the upper lip is white, terminating near the tip in grey. The colour of the body is dusky, variegated with brown spots of smoky-grey, broadest on the back, and disappear entirely near the tail, which is black. The throat is marked with black and white, the latter colour predominating; the belly is also irregularly spotted with black and white, darkest towards the tail, and in all parts the white is minutely dotted with black.

Dimensions. Length of head, $1\frac{2}{5}$ inches; breadth of head, $1\frac{3}{4}$ inches; length of body, 20 inches; length of tail, $3\frac{2}{5}$ inches: total length, 25 inches. In the specimen here described, there were 133 abdominal plates, and 25 sub-caudal, near the base of the tail, and 18 bifid plates near its apex.

Habits. The Trigonocephalus atro-fuscus is always found on dry land, in the pine barrens and similar places, and never in water or swamps. "It is a vicious animal, and its bite is very dangerous."

Geographical Distribution. This reptile has as yet only been observed in Tennessee.

General Remarks. I have never seen the Trigonocephalus atro-fuscus, and have therefore given the above description of the animal entirely from notes furnished me by my friend Dr. Troost, of Nashville. It seems, however, closely allied to the Trigonocephalus contortrix in its habits, and in the arrangement of scales not carinated on the neck, and is in fact called in Tennessee Highland Moccassin.

II.—*Venomous Serpents, with fangs fixed, and permanently erect.*

Family. ELAPSOIDEA.

CHARACTERS.

1. The head is not distinct from the body, and the jaws are not dilatable, in consequence of the shortness of the tympanal bones.

2. There are teeth both in the upper maxillary and palatine bones, besides which the former is armed on each side and near its anterior extremity with a single, strong, conical, perforated, fixed, and permanently erect fang.

3. The deep pits between the eye and nostril, so conspicuous in the last family, are wanting in this.

4. The body is cylindrical and very long, with broad plates on the abdomen; the tail is short, thick, conical, and covered below with bifid plates or scales. One genus of this family only inhabits the United States.

Elaps Fulvius

ELAPS.—*Schneider,* Cuvier.*

Genus Elaps.—Characters. Head nearly of a uniform size with the body; jaws not dilatable, on account of the shortness of the tympanal bones; upper jaw furnished on each side with a fang, fixed and permanently erect; the pit between the eye and nostril wanting.

ELAPS FULVIUS.—*Linnæus.*

Plate X.

Characters. Head short, not distinct, rounded in front; upper jaw armed on each side with a permanently erect poisonous fang; body red, surrounded with black rings margined with yellow. Pl. 212. Caud. Sc. 32.

Synonymes. Coluber fulvius, *Linnæus*, Syst. Nat., tom. i. p. 381.
Coluber fulvius, *Gmelin*, Syst. Nat. Lin., vol. i. part iii. p. 1104.
La noire et jaune, *Lacépède*, Hist. des Serp., tom. ii. p. 299.
Coluber fulvius, *Latreille*, Hist. Nat. Rept., tom. iv. p. 140.
Coluber fulvius, *Daudin*, Hist. Nat. des Rept., tom. vi. p. 300.
Coluber fulvius, *Shaw*, Gen. Zool., vol. iii. p. 469.
Coluber fulvius, *Say*, Am. Journ. Arts and Scien., vol. i. p. 262.
Harlequin Snake, *Audubon*, Ornith., vol. i. pl. xliv.
Vipera fulvia, *Harlan*, Med. and Phys. Res., p. 127.
Elaps fulvius, *Fitzinger*, Neue Class. der Rept., p. 51.

* Schneider's name is badly chosen, Ελαφ or Ελοφ is the Greek name for a non-venomous serpent, while this animal has poisonous fangs.

Description. The head is short, thick, and stout, rounded in front and not distinct from the body. The vertical plate is pentagonal, broadest in front, and pointed behind; the superior orbital are regularly quadrilateral, and do not project externally over the eye; the occipital plates are large and irregularly oblong; the frontal are pentagonal, broadest internally, narrow and pointed outwards and downwards; the anterior frontal are irregularly quadrilateral, broadest internally; the rostral plate is trigonal, broadest below, narrowed and rounded above. There are two nasal plates, the anterior quadrilateral, the posterior triangular, the former concave behind, the latter concave before, to complete the nostril; there is one very large and irregularly quadrilateral anterior orbital, and two small posterior orbital plates, rounded and nearly of the same size; back of these are two or three large temporal plates; the upper jaw is covered with seven quadrilateral labial plates, the largest being behind, and the third and fourth forming the lower part of the orbit of the eye. The nostrils are lateral and near the snout; the eyes are small but prominent, the pupil dark, the iris reddish-grey. The neck is the same size as the head; the body is greatly elongated and nearly cylindrical, becoming suddenly smaller at the tail, which is short, small and pointed.

Colour. The head is black in front, with a bright yellow band at the occiput, running forwards and downwards under the lower jaw, narrower above and broader below. The ground-colour of the body above, as well as below, is jet black, surrounded by about seventeen crimson rings, each with a yellow border both anteriorly and posteriorly, and each with two or three black spots on the abdomen. The tail is black, with three or four yellow rings; the tip is yellow.

Dimensions. Length of head, 7 lines; greatest breadth of head, 5 lines; length of body, 20 inches. In the specimen described, there were 212 abdominal plates, and 32 pair of sub-caudal scales or bifid plates.

Habits. They are found, in common with the Coluber coccineus, living under ground in the fields where the sweet potato (Convolvulus batatas) is cultivated; and are frequently dug up by the labourers when harvesting the potatoes in

autumn. The individuals I have seen have been of very mild character, and could not be induced to bite under any provocation whatever. Indeed, although possessed of poisonous fangs, they are universally regarded as innocent snakes, and are constantly handled with impunity, never to my knowledge having injured any one. It is worthy of remark that this animal, which is the northern representative of the dreaded Elaps lemniscatus of South America, should be so gentle and harmless, although possessed of the same instruments of destruction.

Geographical Distribution. The range of the Elaps fulvius may, for the present, be said to begin in North Carolina and southern Virginia, whence it extends through Georgia, Florida and Alabama to the south-western and western states, where it seems to be widely distributed. I have received specimens from Red river; and Audubon, in his magnificent work on Ornithology, has given a good drawing of one taken in Louisiana; and Professor Green, of Philadelphia, has one that was brought by Lewis and Clark from the Upper Missouri.

General Remarks. The Elaps fulvius was first described in the twelfth edition of the Systema Naturæ of Linnæus, from a specimen sent him by Dr. Garden, under the specific name fulvius, which it has ever since borne. Linnæus erred, however, greatly in his description of the colours of the animal, which he says are black and yellow rings. This arose, doubtless, from his having observed the colours of a specimen that had been preserved in alcohol; yet his description has been universally copied by naturalists.

It is a matter of much doubt which of our reptiles Catesby's Bead-snake was meant to represent. It must, I think, be either the Coluber coccineus of Blumenbach, or the Elaps fulvius; the disposition of the spots on the back agrees best with the former; yet the colours, red, black and yellow, belong to the latter animal, which he probably had in view, though they are not disposed in rings. This, however, would be no evidence that it is not the same snake, as Catesby is notoriously incorrect in his colouring; so much so, that few of his snakes could be recognised by the colour alone he assigns them; for there is quite as much

resemblance in colour, in my opinion, between his Bead-snake and the Elaps fulvius as there is between his Water Viper and the living Trigonocephalus piscivorus, or his small Rattlesnake and the Crotalophorus miliarius. Yet Dr. Garden's criticism* on his works, in a letter to Linnæus, is too severe: "It is sufficiently evident that his sole object was to make showy figures of the productions of nature, rather than to give correct and accurate representations. This is rather to invent than to describe; it is indulging the fancies of his own brain, instead of contemplating and observing the beautiful works of God."

Catesby did much for natural history, though his drawings were done in the infancy of art, as applied to this subject, and those of his reptiles and fishes are the very worst part of his work.

It may furthermore be said, that this animal has been from time immemorial called in Carolina the Bead-snake, as the Coluber guttatus has been known under the name of the Corn-snake.

* Smith's Correspondence of Linnæus, &c., vol. i. p. 300.

II. NON-VENOMOUS SERPENTS.

I.—*Non-Venomous Serpents, with sub-caudal bifid plates or scutella.*

Family. COLUBEROIDEA.

CHARACTERS.

The individuals of this family have all the general and particular characters given above, as appertaining to the order Ophidia, and family Serpentes, or true Serpents;—as superior, maxillary, and palate bones armed with teeth disposed in four rows; jaws dilatable, &c. &c. And in addition to these—

1. The head is covered with plates.

2. The body is much elongated, covered above with scales, and with plates below.

3. The tail is in general very long, with bifid plates below, or scutella, as they are frequently termed.

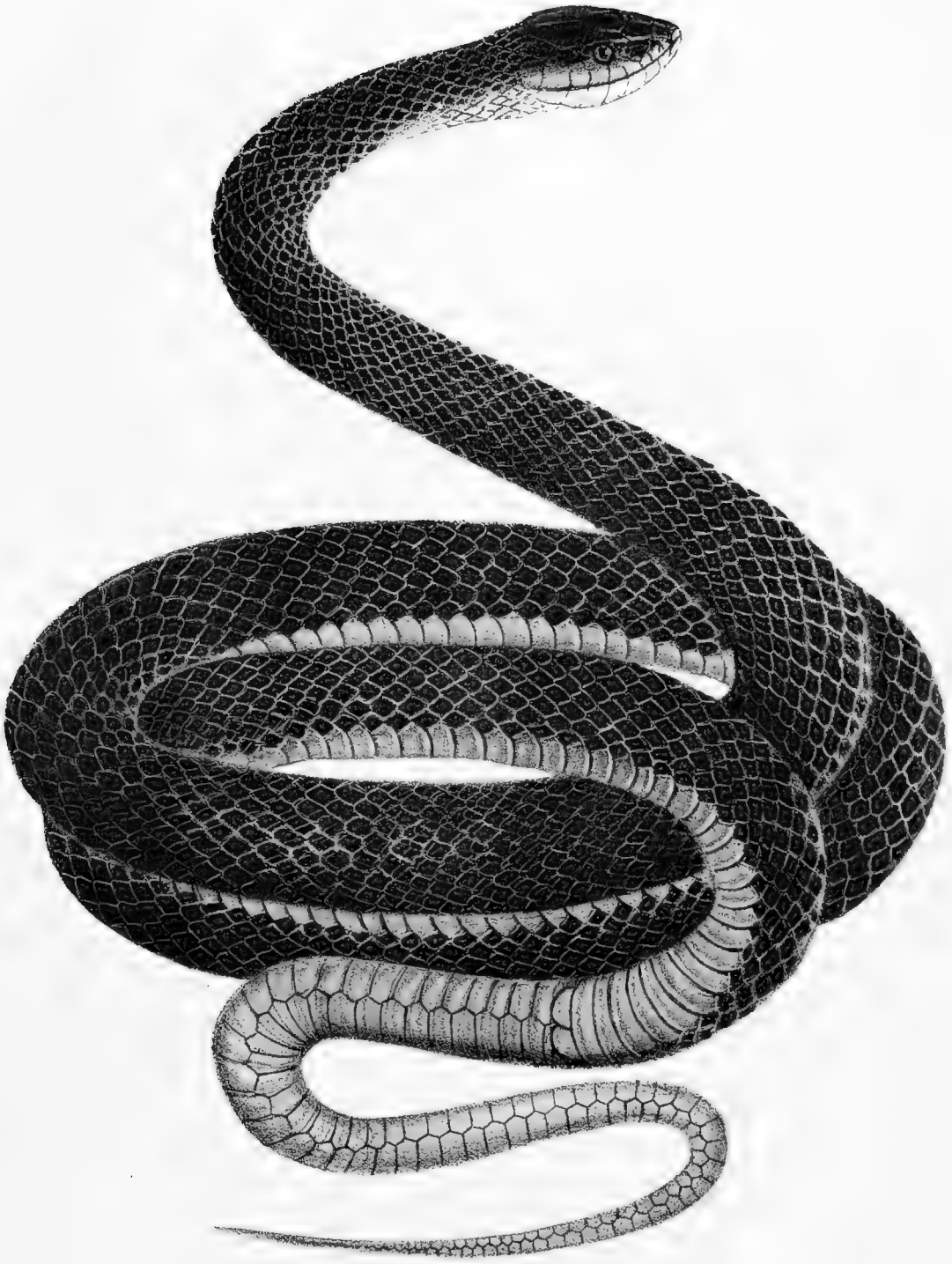
4. There is no hook near the vent, nor any rudiment of posterior extremities, as in Boa and other non-venomous serpents.

Remarks. The members of this family are exceedingly numerous, and though they differ from each other in several respects, yet they have so many characters

in common, that it is not easy to seize upon any sufficiently distinct and important to arrange them in separate genera. Thus the teeth, which are the basis of such arrangements in the mammalia, are here nearly similar in all—simple, solid, and fixed to the bones—consequently do not afford characters sufficient for classification.

Other characters have, consequently, been sought, as the form of the head, whether distinct or not from the body—the form of the cephalic plates—the shape of the body—the number of abdominal plates—the form of the dorsal scales, whether carinated or not; the number of sub-caudal scutellæ or bifid plates, &c. These characters, though of less consequence than those drawn from the teeth of mammalia, are here tolerably constant.

In fact, it is the want of obvious determinate characters, proper for the establishment of genera, that has led to so much confusion in this department of herpetology by introducing a useless number of genera, almost as many as there are individuals in the family.



Coluber constrictor.

Mes. Martin del. P.S. Duval Lith. Phil

COLUBER.—*Linnæus. Cuvier. Wagler.*

Genus Coluber.—Characters. Head elongated, distinct from the neck, and covered with plates above; snout rather rounded; eyes large, pupil round; two posterior orbital plates; loral plate single; body elongated, and ribs so articulated with the vertebræ that the animal cannot flatten itself during life; tail generally long, and always with bifid plates or scutellæ below.

Remarks. To avoid the introduction of a useless genus, where the only difference between the animals that I have as yet observed, is in having scales slightly carinated, it will be necessary to arrange the Colubers in two sections—those with smooth scales, and those with scales slightly carinated.

I.—*Colubers with Smooth Scales.*

COLUBER CONSTRICTOR.—*Linnæus.*

Plate XI.

Characters. Head oval, long; snout prolonged and rather pointed; body and tail long and slender; colour above, uniform bluish-black; abdomen slate-colour, tinged with blue; chin and throat silver-white, with occasional black spots. Pl. 176. Sc. 94.

Synonymes. Black Snake, *Catesby*, Carol., &c., vol. ii. p. 48, pl. xlviii.
Coluber constrictor, *Linnæus*, Syst. Nat., tom. i. p. 385.
Black Snake, *Kalm*, Trav., Foster's Trans., vol. ii. p. 202.

Black Snake, *Pennant*, Arct. Zool. Suppl., p. 92.
Le Lien, *Lacépède*, Hist. Nat. des Serp., tom. ii. p. 309.
Coluber constrictor, *Gmelin*, Syst. Nat. Lin., tom. i. part iii. p. 1109.
Coluber constrictor, *Latreille*, Hist. Nat. Rept., tom. iv. p. 178.
Coluber constrictor, *Daudin*, Hist. Nat. des Rept., tom. vi. p. 402.
Coluber constrictor, *Shaw*, Gen. Zool., vol. iii. part ii. p. 464.
Natrix constrictor, *Merrem*, Versuch eines Syst. der Amphib., p. 108.
Coluber constrictor, *Fitzinger*, Neue Class. der Rept., p. 57.
Coluber constrictor, *Harlan*, Med. and Phys. Res., p. 112.
Black Snake, *Vulgo.*

Description. The head is elongated, oval, with the snout somewhat prolonged and rather pointed; the vertical plate is pentagonal, broader and rounded in front, narrower and with an acute angle behind. The superior orbital plates are long, very large, projecting, and quadrilateral in form, rather larger posteriorly; the occipital are also very large, irregularly pentagonal, broadest before, with three articulating facets for joining with the vertical, superior, and posterior orbital plates. The frontal are pentagonal, with their internal borders broadest, and narrower externally, where they pass in behind the nasal plates to the loral, which is large and of square form; the anterior frontal are sub-round; the rostral is rather elongated and pointed anteriorly, and is very regularly triangular, with its basis down and its apex upwards. There are two nasal plates, of which the anterior is quadrilateral, and slightly concave behind; the posterior is nearly of the same size and form, but more semi-lunated or crescentic on its anterior margin, to accommodate the nostril. The anterior orbital plates are two in number, the inferior small, the superior very large, making a considerable portion of the front of the orbit, and then ascending between the frontal and superior orbital to the same horizontal plane as the frontal plate. There are two small posterior orbital plates, the upper is irregularly quadrilateral, the inferior is semi-lunated or crescentic. There are seven large irregularly quadrilateral labial plates on each side, increasing in size from the snout to the angle of the mouth, the third and fourth of which make the inferior wall of the orbit of the eye.

The nostrils are lateral, very large, near the snout, and open outwards and a little backwards. The eyes are large and bright; the pupil black, and the iris of the darkest grey. The neck is contracted.

The body is very long, slender, and covered with large, smooth, hexagonal scales above, and with broad plates below. The tail is also long and slender, and at times may be used as a prehensile instrument.

Colour. The whole superior surface of the Coluber constrictor is of beautiful bluish-black; the abdomen and tail are bluish-slate; while the chin and throat are pure silver-white, sometimes marked with a few black spots.

Dimensions. Length of head, 1 inch 8 lines; length of body, 47 inches; length of tail, 16 inches: total length, 5 feet 3 inches 8 lines. In the specimen above described there were 176 broad abdominal plates, with a double one before the vent, and 94 bifid plates under the tail. Black Snakes are said at times far to exceed these dimensions; the longest I have ever seen was 6 feet 1 inch.

Habits. The Coluber constrictor is an extremely active snake, climbing with facility, and running with great rapidity; whence it is not uncommonly called the "Racer." The Black Snake frequents shady places, covered with thick shrubs, on the margins of streams or ponds of water; though it often leaves these coverts and seeks the borders of old fields, or rocks, or even the way-side, to bask in the sun.

It feeds on mice, toads, &c., or on small birds; and, as it is an excellent climber, is frequently seen on trees in search of their nests. It is a bold and daring serpent, enters barns and out-houses without fear, and has been known to destroy young chickens. It is said to suffocate its prey, like the Boa constrictor, in its folds, which is at least doubtful; I have often seen it take its prey both in the native state and in confinement, which it always did by seizing it with the mouth.

In the breeding season it is extremely irascible, and will frequently attack persons passing at a distance of several steps; its tail then quivers with rage, making a quick vibratory motion, which in forests and among dry leaves sounds not unlike the Rattlesnake; it now elevates the head one or two feet from the ground, and darts upon its adversary; luckily its bite is harmless, and not more painful than the scratch of a pin.

It will even descend from trees to attack its enemy if teazed, as I have more than once experienced when in search of reptiles; yet I have never seen it endeavour to twine itself around the legs, as is commonly supposed. Even in confinement it carries with it the same irascible temper, is easily provoked, quarrels with its fellow prisoners, and bites at whatever may be offered it.

The same power of charming its prey has been attributed to the Black, as to the Rattlesnake, and with still less appearance of reason; for this is a nimble animal, and can pursue his prey, while the Rattlesnake must lie in wait for his. It is remarkable that the birds most commonly found "charmed," according to Dr. Barton,* are the cat-bird (Turdus Carolinensis), or red-winged blackbird) (Icterus phœniceus). These birds choose thick and shady places on the margins of streams for their residence, and generally build their nests on shrubs, as the alder, &c.; the latter bird not unfrequently takes the precaution to select such bushes as are on small islands, or such as have their roots surrounded by water, and thus her home is more secure. Now the Black Snake chooses precisely the same localities, knowing, probably, the haunts of its prey. The serpent begins the war by besieging the nest; the old bird, aware of its intention, attacks it with "fluttering and uncertain motions, accompanied by a plaintive cry of distress, and is then said to be charmed." The snake is at last either driven off, or it succeeds in its enterprise, captures the young, and not unfrequently the old bird is killed in the struggle and devoured; though the birds most commonly found in the stomach of the Black Snake are young, and frequently unfledged.

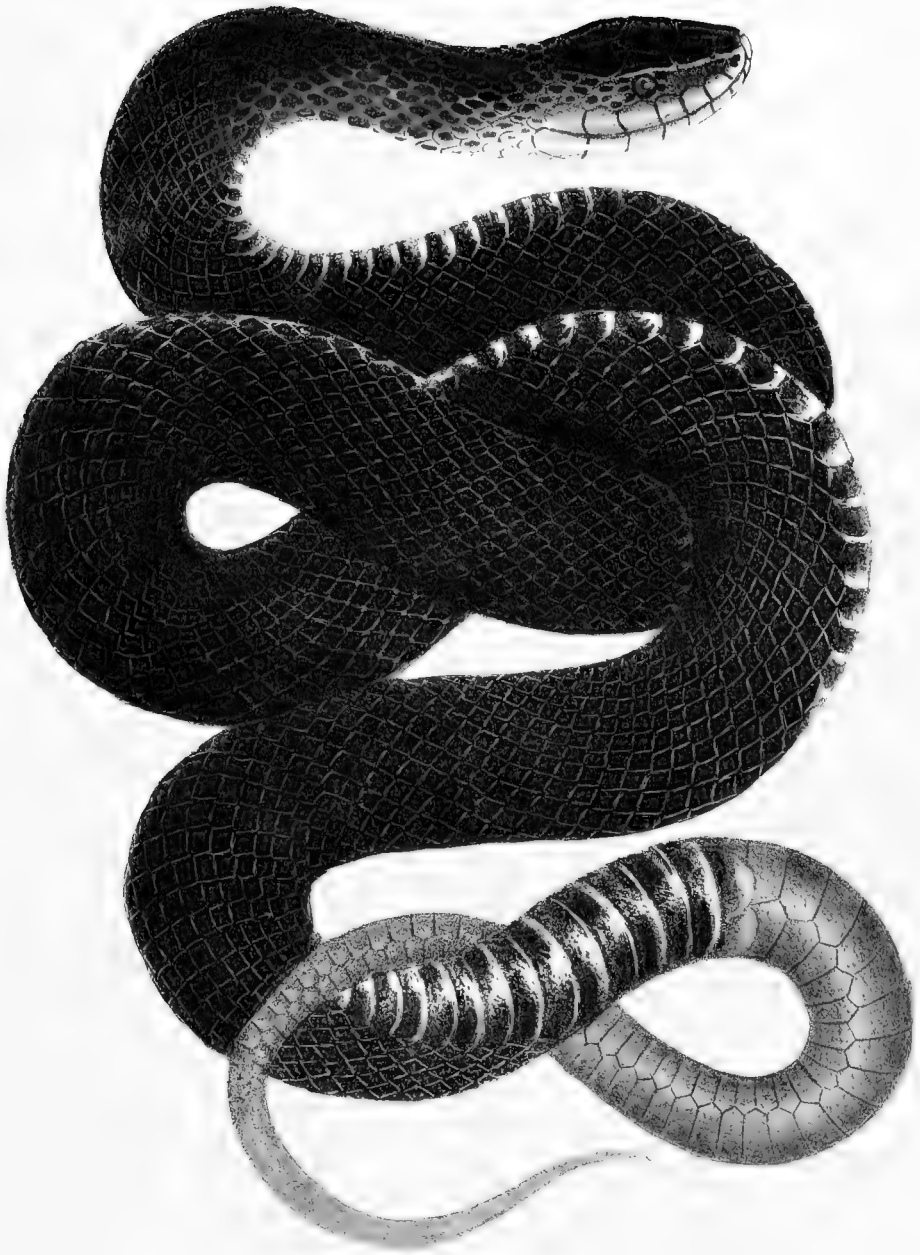
* Trans. Amer. Phil. Soc., vol. iv. p. 103.

Sometimes the old bird by her cries calls in the assistance of her neighbours, to drive away the aggressor. I have seen more than a dozen birds, thus engaged with a large Black Snake, that had probably just committed some depredation, but was now quietly stretched on a rock, basking in the sun; and it was not a little singular that birds of very different genera, and those seldom seen together, all united in this warfare against a common enemy, and finally compelled him to seek shelter among some low, thick shrubs, by the violence of their assault.

Another remark of Dr. Barton, on "fascination," is worthy of attentive observation; he says, "as far as he could learn after many inquiries, that the season of the year at which any particular species of bird has been seen under the influence of the fascinating power of a serpent, corresponds with the exact time of their '*incubation*' or rearing their young."

Geographical Distribution. The Coluber constrictor is found in nearly all parts of the United States, and may be regarded as the most common of our serpents. Kalm met with it as far north as latitude 43; thence it reaches to the shores of the Gulf of Mexico; nor is it confined to the Atlantic states, but abounds in the western country; Say found it even as high as Engineer Cantonment on the Missouri, and I have received specimens from Louisiana and Arkansas.

General Remarks. Catesby first described the Black Snake, and accompanied his description with a very good figure. Kalm subsequently gave a long account of it in his travels, but he seems very credulous, and relates several absurd stories as to its habits. Linnæus, by some great oversight, in the tenth edition of his Systema Naturæ, confounded this animal with the Heterodon simus; which error, however, he corrected in his twelfth and last edition.



Coluber obsoletus

COLUBER OBSOLETUS.—*Say.*

Plate XII.

Characters. Body above, black, beneath, whitish, with large sub-quadrate black spots; confluent and pale bluish near the tail; throat and neck pure white; sides with red marks between the scales. Pl. 228. Sc. 84.

Synonymes. Coluber obsoletus, *Say*, in Long's Exped. to Rock. Mount., vol. i. p. 140.
Coluber obsoletus, *Harlan*, Med. and Phys. Res., p. 112.

Description. The head is sub-ovate, elongated, and covered with plates above, which, as far as they can be studied in a dried specimen, are of precisely the same size and form as in the Coluber constrictor. The nostrils are lateral, large, and near the snout. The body is very long and slender, and is covered above with small, smooth, sub-hexagonal scales, bipunctured at their tips.

Colour. The head is black above; the chin and throat pure white; the eye is large, the pupil blackish, and the iris deep bluish-black, surrounded by a silvery circle. The body above is black, the anterior half with a series of continuous red spots formed upon the skin between the scales, many of which have white marginal dashes near their bases. These red spots are not perceptible unless the skin be dilated so as to separate the scales. Abdomen white, slightly tinged with yellowish-red, dotted with black points, and spotted with large, oblong, quadrate marks, continuous and plumbeous near the tail. Sometimes the spots are wanting on the anterior half, but the posterior half and tail are always plumbeous.

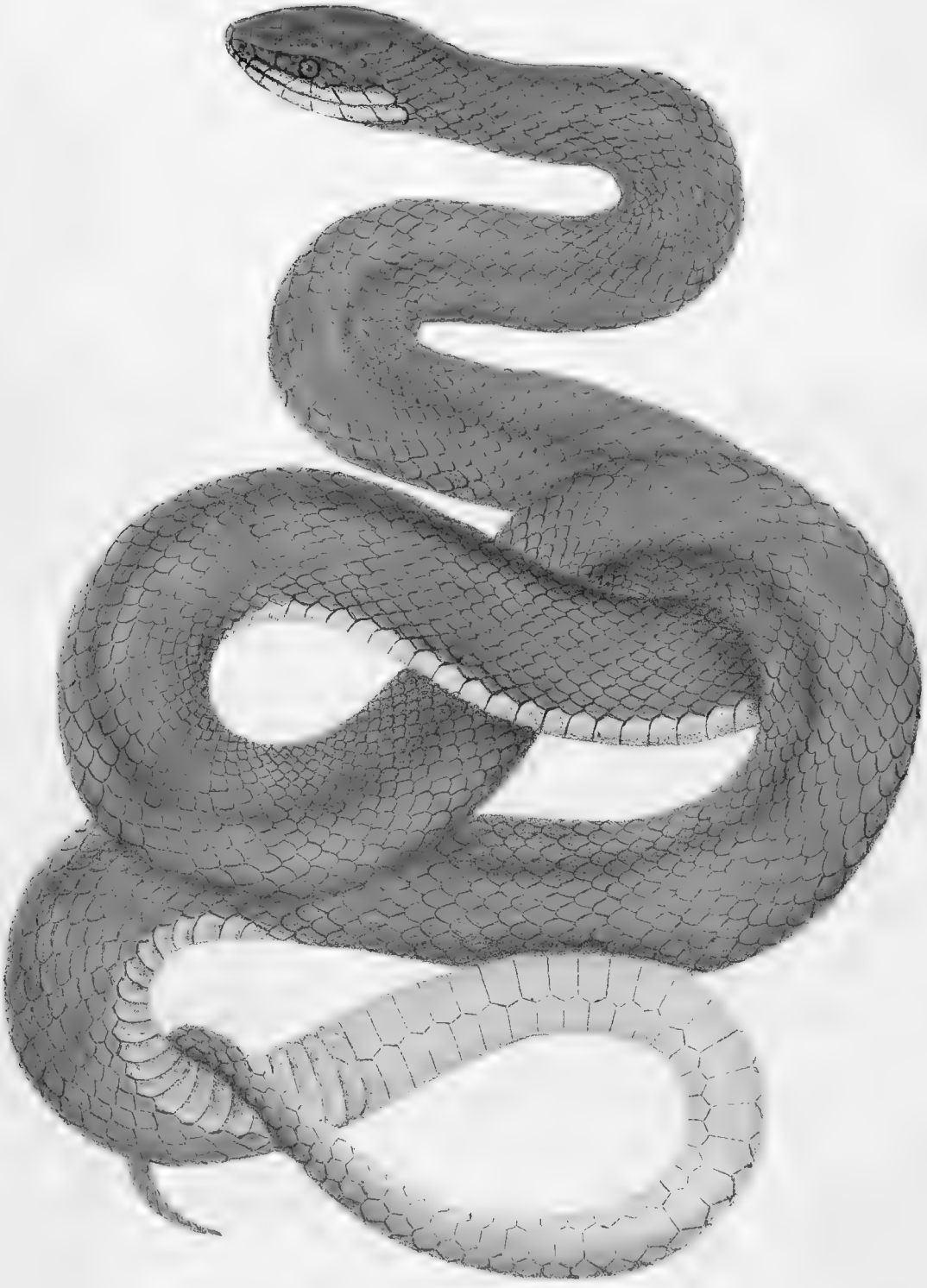
Dimensions. Length of head, 1 inch 6 lines; length of body to vent, 4 feet; length of tail, 10 inches 2 lines: total length, 4 feet 11 inches 2 lines. There are 228 abdominal plates and 84 sub-caudal bifid plates.

Habits. I know nothing of the habits of the Coluber obsoletus.

Geographical Distribution. This serpent is common on the borders of the Missouri river from the vicinity of "Isle au Vache" to Council Bluff.

General Remarks. The Coluber obsoletus was first described by Say, and though it bears a strong resemblance to the Coluber constrictor, yet it may be distinguished from it by the difference in the number of the abdominal plates and sub-caudal scales; by the scales of the back being smaller, by their being bipunctured at the tip, and by the red marks on the body.

I have never seen but a dried specimen of this animal, brought from near the Rocky Mountains. Yet Mr. Peale, the naturalist, who accompanied Say, and saw the animal in life, informs me that the colours of the above plate are correct.



Coluber testaceus

J.B. Richard. del.

F.N. Duval, Lith. Pictave.

COLUBER TESTACEUS.—*Say.*

Plate XIII.

Characters. "Body above, pale sanguineous or testaceous; beneath, sanguineous, immaculate." Pl. 198. Caud. Sc. 80.

Synonymes. Coluber testaceus, *Say*, in Long's Exped. to Rock. Mount., vol. ii. p. 48.
Coluber testaceus, *Harlan*, Med. and Phys. Res., p. 113.

Description. The head is sub-ovate, elongated, the snout prolonged slightly and rounded. The form of the head, as well as the plates that cover it, and the disposition of the eyes and nostrils, appear in the preserved specimen to be precisely similar to those of the Coluber constrictor. The body is long and slender, and is covered with large, smooth, hexagonal scales above, and with broad plates below. The tail is long and slender.

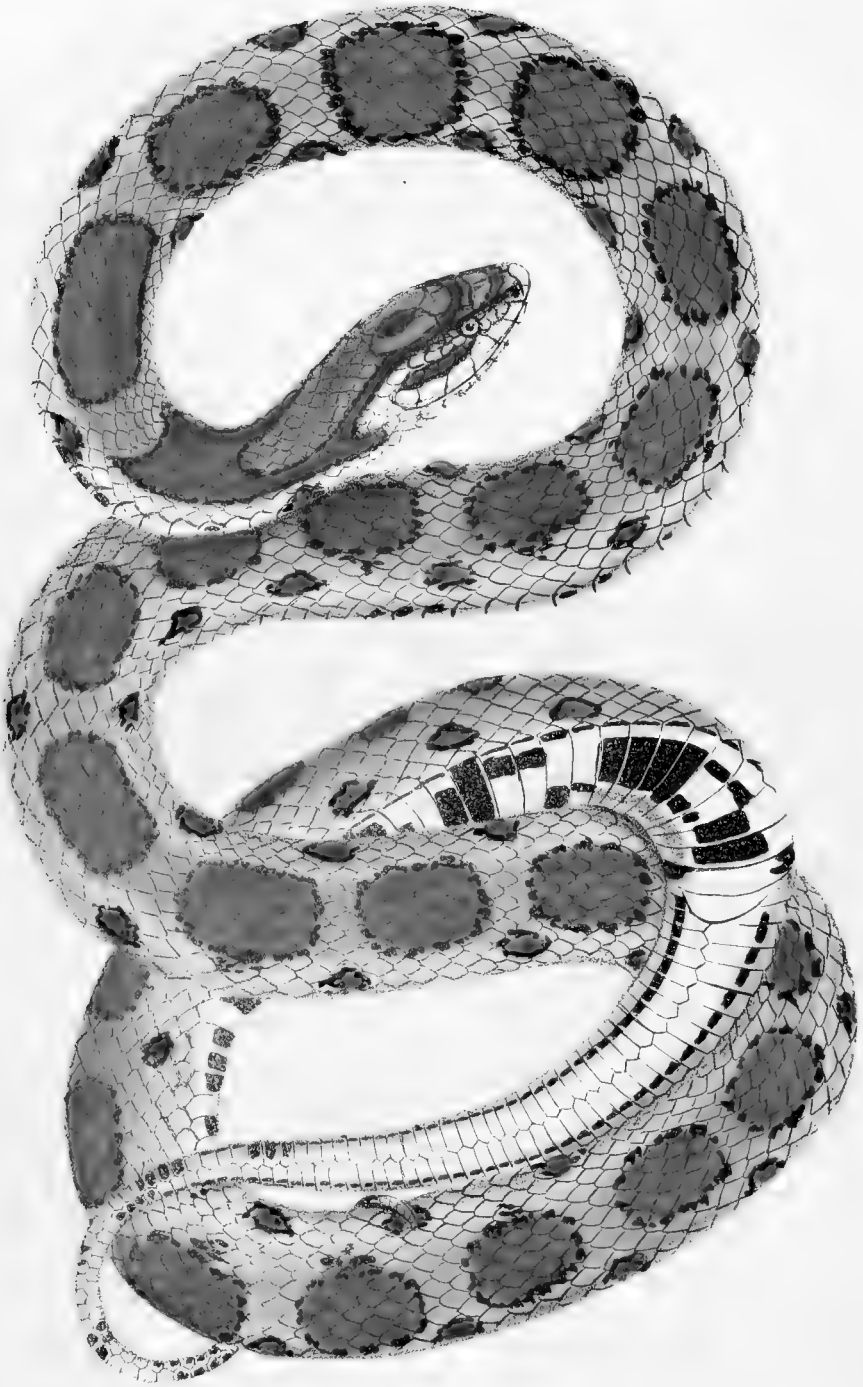
Colour. The whole superior surface of the animal is pale brick-dust colour, or "pale sanguineous;" the abdomen and inferior surfaces are brighter red, or "sanguineous."

Dimensions. Length of head, 1 inch 8 lines: total length, 5 feet 2 inches.

Habits. Though a long snake, it moves with great rapidity in search of its prey, or to avoid its enemy.

Geographical Distribution. The Coluber testaceus has as yet been observed only near the Rocky Mountains.

General Remarks. This reptile was first observed by Say, who gave of it a very imperfect description. I have seen but one specimen, which had been preserved for a long time, though yet in a perfect state, from which the accompanying plate was taken. The colour may be relied on, according to Mr. Peale, the naturalist, who accompanied Say, and saw the animal alive.



Coluber guttatus.

COLUBER GUTTATUS.—*Linnæus.*

Plate XIV.

Characters. Head moderate, narrow, elongated; snout obtuse; colour above reddish-brown, marked with oblong transverse spots of brick-dust colour, with darker borders; abdomen white, marked with alternate quadrilateral black spots. Pl. 126. Sc. 64.

Synonymes. Coluber guttatus, *Linnæus*, Syst. Nat., vol. i. p. 385.
Corn-snake, *Catesby*, Carolina, vol. ii. p. 55, pl. lv.
Coluber guttatus, *Gmelin*, Syst. Nat. Lin., tom. i. p. 1110.
La mouchetée, *Lacépède*, Hist. Nat. des Serp., tom. ii. p. 282.
La tachetée, *Lacépède*, Hist. Nat. des Serp., tom. ii. p. 329.
Coluber molussus, *Daudin*, Hist. Nat. des Rept., tom. vi. p. 269.
Coluber guttatus, *Daudin*, Hist. Nat. des Rept., tom. vi. p. 261.
Coluber maculatus, *Daudin*, Hist. Nat. des. Rept., tom. vii. p. 217.
La couleuvre cannelée, *Latreille*, Hist. Nat. des Rept., tom. iv. p. 110.
Coluber Carolinianus, *Shaw*, Gen. Zool., vol. iii. p. 460.
Coluber pantherinus, *Merrem*, Beyträg. ii. s. 49, tab. xxi.
Natrix pantherinus, *Merrem*, Versuch eines Syst. der Amphib., p. 102.
Coluber guttatus, *Harlan*, Med. and Phys. Res., p. 126.
Coluber floridanus, *Harlan*, Med. and Phys. Res., p. 124.
Coluber maculatus, *Harlan*, Med. and Phys. Res., p. 125.
Coluber molossus, *Harlan*, Med. and Phys. Res., p. 126.
Corn-snake, *Vulgo.*

Description. The head is narrow and elongated, the snout obtuse. The vertical plate is pentagonal, with its largest border forwards, and an acute angle

behind. The superior orbital is elongated, quadrilateral, with its outer margin but slightly projecting. The occipital plates are irregularly triangular, with their apices rounded and their bases directed forwards, and joined to the vertical and superior orbital. The frontal plates are pentagonal, and broadest internally and narrow externally, where they join a small rhomboidal loral plate. The anterior frontal are sub-round; the temporal are small and variable. The rostral is pentagonal, large, projecting and obtuse. There is one large anterior orbital and two small posterior orbital plates. The upper jaw is covered with eight quadrilateral plates, two of which (the fifth and sixth) form the lower margin of the orbit.

The nostrils are lateral, large, near the snout, and open between two nasal plates, of which the anterior is quadrilateral, and the posterior pentagonal. The eyes also are lateral and rather small; the pupil black, the iris reddish. The neck is cylindrical, contracted, smaller than the head. The body is greatly elongated. The tail is small, and tapers to a point.

Colour. The head is of a brick-dust colour above, with two bands of a much darker shade bordered with brown; the larger of these lines forms a semicircle, the convexity of which is near the snout, and the two ends passing across the eyes terminate at the occiput. The other forms an oval on the top of the head, following the figure of the anterior; in the midst of this is an oval spot of the same colour as the circles. The whole superior surface of the body is light brown, in which appears a reddish tinge; along the back is a row of large sub-quadrate spots of a deep brick-dust colour, bordered with the darkest brown. The sides are of a lighter shade than the back, with small spots; these also are lighter than the spots on the superior surface. The abdomen is silver-white, with black squares irregularly dispersed and of unequal size; two or three close together occur on one side, and then on the other. Below the vent is a longitudinal line on each side, formed by a black spot on each scale; these become irregular, and meet across as they arrive at the tip.

Dimensions. Length of head, 1 inch 2 lines; breadth of head, 7 lines; length of

body, 39 inches; length of tail, 7 inches; greatest circumference of body, 3 inches 11 lines: total length, 47 inches 9 lines. They sometimes grow to a greater size than this—I have seen one nearly six feet in length.

Habits. The Coluber guttatus is very commonly observed about the road side early in the morning or at the dusk of evening: unlike most snakes, concealing itself during the day. It is very gentle and familiar, frequenting the neighbourhood of settlements, and at times entering houses; and is, according to Catesby, "a great robber of hen-roosts."

Geographical Distribution. At present I can only give North Carolina as the northern boundary of the Coluber guttatus; beyond this its place is supplied by the Coluber eximius of Dekay, which it much resembles.

General Remarks. The Coluber guttatus seems to have been a great stumbling-block to herpetologists, as may be seen by the great number of its synonymes. It is clearly described in the twelfth edition of the Systema Naturæ, and no mention is made of it in any of the previous editions. Linnæus described it from a specimen furnished him by Dr. Garden, and at the same time refers to Plate lx. of Catesby, though with doubt. What he did doubtingly, others have done boldly. Plate lx. of Catesby is the Bead-snake, and not the Coluber guttatus of Linnæus; but his Plate lv. is the Corn-snake, and agrees with the Coluber guttatus in every respect.

We next find this animal described by Lacépède, under the name la Mouchetée; his description is good, and there can be no doubt of his meaning, for he refers to the Coluber guttatus of Linnæus; but he again errs in supposing the Bead-snake of Catesby to be identical with it. Lacépède again describes the same animal under the name Coluber maculatus, (la Tachetée,) from a specimen procured in Louisiana; the description of the colours agree perfectly well with the Coluber guttatus, but its abdominal plates are less numerous. Lacépède

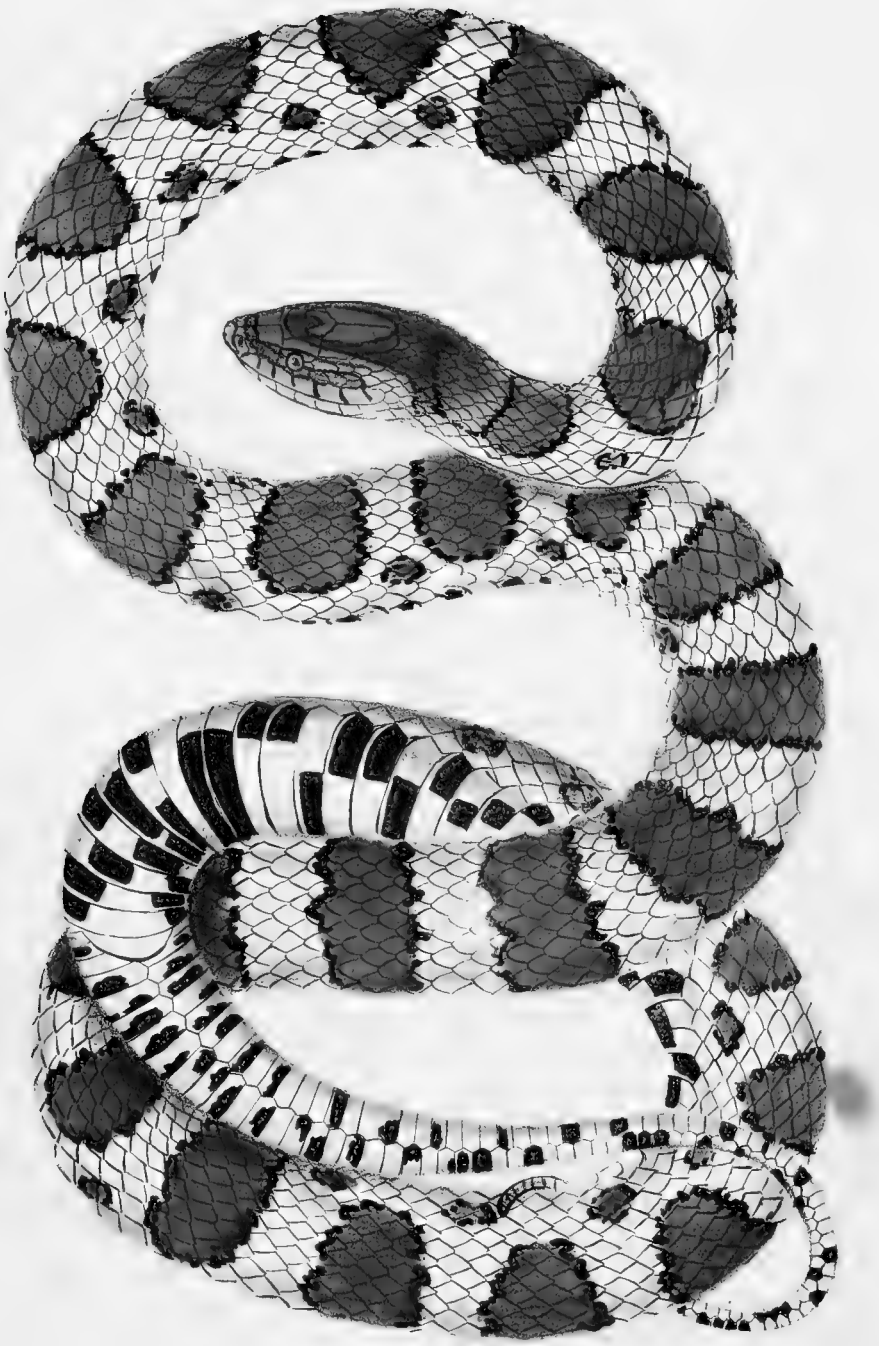
himself supposes he is describing the Corn-snake, as he refers to Plate lv. of Catesby, and says they are common in Carolina and Virginia.

Latreille, at the end of his description of the Coluber molossus, gives an account of a serpent brought from Carolina by Bosc, which he thinks is closely allied to the Coluber guttatus; with which it is indeed identical, as may easily be seen by referring to his description; but to increase the stock of names, he calls it "la Couleuvre cannellée."

It is not a little singular that Bosc, who says he furnished this animal for Latreille, should have confounded it with the Hog Nose, to which it bears not the slightest resemblance. It can only be accounted for by supposing that some other serpent fell by accident into Latreille's hands instead of the one intended; for there cannot be the least doubt that his description refers to the Coluber guttatus —a more correct one cannot be given; nor does it contain the slightest hint by which we can suppose that any Heterodon is meant.

There can be no doubt that the Coluber molossus of Daudin is the Coluber guttatus of Linnæus, from the number of its plates, disposition of its colours, &c.; especially as he says Bosc found it in Carolina, adding that it resembles the Boa constrictor.

Merrem, generally very accurate, overlooked the Coluber guttatus of Linnæus, and described the same animal as a new species, under the name Coluber pantherinus. Of this, one may easily be satisfied by a reference to his description, which is full and minute, but especially by looking at the figure accompanying it, which is excellent; the colour only is faulty, being evidently taken from an animal preserved in alcohol. The Coluber Floridanus is only another name for the same animal, as Dr. Pickering pointed out to me, in the Museum of the Academy of Natural Sciences, the specimen which has added this synonyme, and though much bleached, it is clearly identical with the Coluber guttatus.



Coluber eximius

15.

COLUBER EXIMIUS.—*Dekay.*

Plate XV.

Characters. Head rather short; snout rounded; body above milk-coloured, with a triple series of dark spots; vertebral range largest, and transversely oval; lateral series smaller, sub-round, with a lighter spot in the centre; abdomen silver-white, each plate marked with one or more quadrilateral black spots, so arranged as to give a tessellated appearance. Pl. 198. Sc. 47.

Synonymes. Coluber eximius, *Dekay*, manuscript.
Coluber eximius, *Harlan*, Med. and Phys. Res., p. 123.
Coluber calligaster, *Harlan*, Med. and Phys. Res., p. 122.
House Snake or Milk Snake, *Vulgo.*

Description. The head is rather short, with the snout rounded; the vertical plate is short, very large, nearly triangular, broad in front, and acute angled behind, with two facets for joining with the occipital plates, which makes it obscurely pentagonal; the superior orbital plate is large, irregularly quadrilateral, broadest behind and slightly projecting; the occipital plates are large, very broad and pentagonal; there are two temporals, quadrilateral, of which the upper is smaller; the frontal plates are hexagonal and large, with their internal margins broadest, and the external reaching between the anterior orbital and posterior nasal to a square loral plate; the anterior frontal are quadrilateral and broadest externally; the rostral plate is short, thick, and rounded in front and above, and concave below; there are two nasal plates, the anterior quadrilateral, incurvated behind; the posterior is elongated, sub-hexagonal, and joined behind to a small, quadrilateral, loral plate, situated in front of the anterial orbital, which is single

and very large; there are two posterior orbital, of quadrilateral form and nearly of equal size; there are seven labial on each side, quadrilateral, and increasing in size from the rostral plate to the angle of the mouth; of these, the third and fourth make the inferior wall of the orbit of the eye.

The nostrils are large, near the snout and lateral, but open a little upwards. The eyes are large, with the pupil dusky, and the iris pale grey. The neck is contracted.

The body is elongated, but tolerably robust, and covered with smooth, rather small, hexagonal scales above, and with broad plates below. The tail is rather short, thick at its root, but soon becomes cylindrical and smaller, ending in a horny tip.

Colour. The Coluber eximius resembles much the Coluber guttatus in the disposition of its colours, though it varies greatly from it in its tints; the ground colour of the whole superior surface of the animal is a shining milky-white, often with a reddish tinge; the anterior part of the head is marked with a few not very distinct dusky spots, and has a well marked transverse dusky band reaching from the anterior extremity of one superior orbital plate to the other, and occupying about half the posterior part of the frontal plates; another line, smaller, but of similar colour, descends backwards to the angle of the mouth; the crown of the head, as well as its occipital region and neck, is occupied by a large dusky blotch, with a small white spot near its anterior border, and a larger one, elongated, resembling somewhat the letter V in its centre; this dark blotch is so arranged as to leave before it a transverse white bar, which includes the two posterior thirds of the superior orbital plates, from the posterior part of which descends on each side over the temples a lateral line of similar colour to behind the angle of the mouth. The upper lip is milky-white, with the posterior part of each plate margined with dusky.

The body above is milky-white, often tinged with red; along the vertebral line

is a series of ovoid dusky blotches, sometimes with irregular margins, and always bordered with black, and most extensive in the transverse direction, in which it differs from the Coluber guttatus. These blotches are sometimes so extensive that they give the serpent an appearance of being banded with black and white; alternating with these dusky bars on the flanks is a second series of sub-round spots, smaller and blacker than those of the back. There is often a third series lower down and still smaller.

The abdomen is silver-white, each plate being marked with one or two black spots; if there is a single spot on the plate, it is oblong, quadrilateral, large, and placed near the centre; when there are two spots, they are regularly quadrilateral, and are situated near the lateral extremities of the plate. These spots give to the whole inferior surface of the animal a beautiful tessellated appearance of black and white; which well merits the name of calligaster, that Harlan says was given by Say to the western variety of this animal.

Dimensions. Length of head, 11 lines; length of body, 30 inches; length of tail, $5\frac{1}{2}$ inches: total length, 36 inches 5 lines. In the specimen here described there were 198 abdominal plates, and 47 sub-caudal scales. This animal is said at times to exceed 4 feet in length.

Habits. The Coluber eximius is gentle in its habits, feeding on field-mice, various insects, &c. It approaches without fear the habitations of men, and is hence not uncommonly called the House Snake; it also frequents dairies and cellars where milk is kept; and this, from a mistaken notion of its robbing the dairy-women, has given rise to another name, "Milk Snake."

Geographical Distribution. The range of the Coluber eximius seems to be confined to the northward of the 37th parallel of latitude; south of this, in the Atlantic states, I have never heard of its existence; its place is there supplied by another and closely allied species, the Coluber guttatus. North of this line it is however abundant; I have seen it in Maine and Rhode Island; Dr. Storer in

Massachusetts; Dr. Dekay in New York; Dr. Hallowell in Pennsylvania; Dr. Geddings in Maryland. West of the Alleghanies the Coluber eximius was observed by Dr. Pickering in Illinois, and by Say high up the Missouri; how far south it may run down the valley of the Mississippi, I have at this moment no means of determining; but it may be remarked that reptiles are there much less confined in their geographical range than they are in the Atlantic states.

General Remarks. The Coluber eximius, though so common in the northern states, was only a short time since recognised and described as a distinct species by Dr. Dekay, an excellent herpetologist, and one who has done much in ophidiology. Say seemed to consider the serpent he observed in Missouri as new; but I am not aware that he described it as such. Dr. Harlan, however, gave a description of it from specimens in the Philadelphia Museum, and under the name calligaster, from the beautiful arrangement of colours on the belly. I have examined these specimens, and can pronounce them identical with the Coluber eximius, having a few plates more.

The general resemblance between the Coluber eximius and the Coluber guttatus, is so great as to lead several excellent naturalists to consider them identical; yet there are many differences, which, though small if taken alone, when combined are sufficient to establish these animals as separate and distinct species. To give a better notion of their differences, I have had the two animals drawn nearly in the same position.

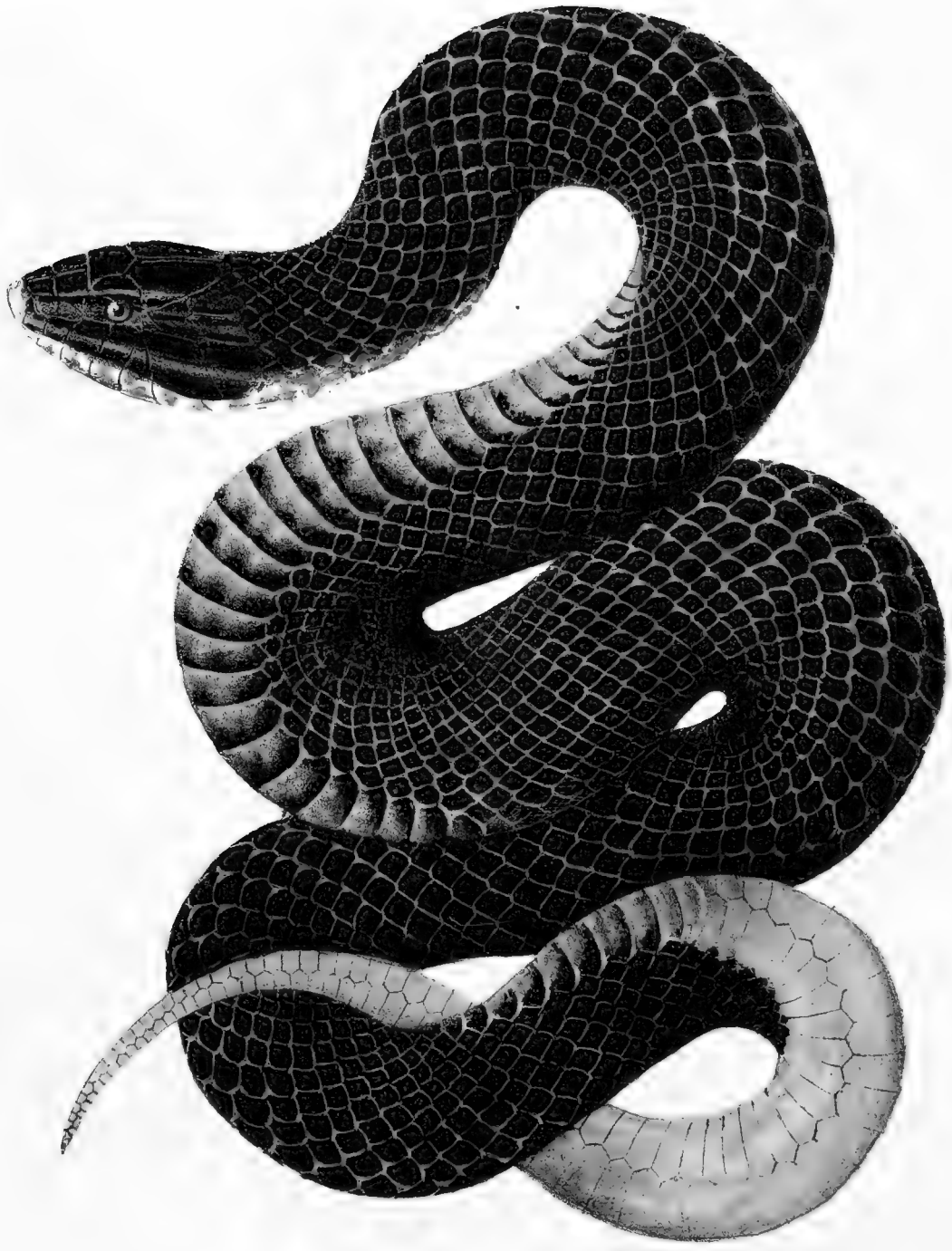
1. The head of the Coluber eximius is shorter and more rounded in front.

2. The body is shorter in proportion, and the tail much more so, and is thicker, and the number of the abdominal plates and bifid sub-caudal plates do not agree.

3. The disposition as well as the tint of the colour is entirely different in life; but when the two animals have been kept in alcohol, then the colours become more alike.

4. They differ in habits; the Coluber guttatus selects old fields and dry places, while the Coluber eximius prefers rocky or shady spots for his abode.

5. They differ also much in their geographical distribution; the one being peculiar to the south, the other as much so to the north.



Coluber Couperi

J.H. Richard del.

J.B. Duval Lith. Phil.

COLUBER COUPERI.—*Holbrook.*

Plate XVI.

Characters. Head rather small, but distinct from neck, elongated, sub-oval, flattened above and at the sides; snout obtuse, slightly projecting; body thick; tail slender; colour above deep bluish-black, with a metallic lustre in the sun; throat bluish-white, with blotches of pale red.

Synonyme. Indigo Snake, or Gopher Snake.

Description. The head is rather small for the size of the animal, though distinct from the neck; it is sub-oval, narrow, flattened above, and at the sides, with the snout elongated and rounded anteriorly. The vertical plate is short, broad, pentagonal, broadest before. The superior orbital are sub-trigonal and large, broadest externally. The frontal plates are broad and pentagonal. The anterior smaller and quadrilateral. The occipital are very large. There are two small pentagonal, posterior orbital plates, behind which are three temporal plates, the posterior largest. The anterior orbital is single, large, and incurvated posteriorly for the orbit. The loral plate is single.

There are two large nasal plates, the anterior smaller, quadrilateral, and the posterior pentagonal. The rostral plate is large, sub-triangular, round in front, but not much projecting. There are seven large superior labial plates, of which the sixth and seventh are largest, and the third and fourth are pentagonal, and form the lower wall of the orbit.

The nostrils are large, lateral near the snout, and open upwards, outwards, and

a little backwards. The eyes are large, with both pupil and iris black. The neck is contracted, but less so than in the Black Snake. The body is elongated, but stout, and covered above with very large, smooth, hexagonal scales, and with broad plates below. The tail is of moderate length, and slender.

Colour. The head above is blue, or bluish-black; the throat is of a bluish-white colour, with blotches of reddish flesh-colour. The superior surface of the animal is of a deep, bright bluish-black, of a beautiful metallic lustre in the sun; the anterior part of the abdomen of a light bluish slate-colour; the posterior part is of a darker shade, but of the same colour.

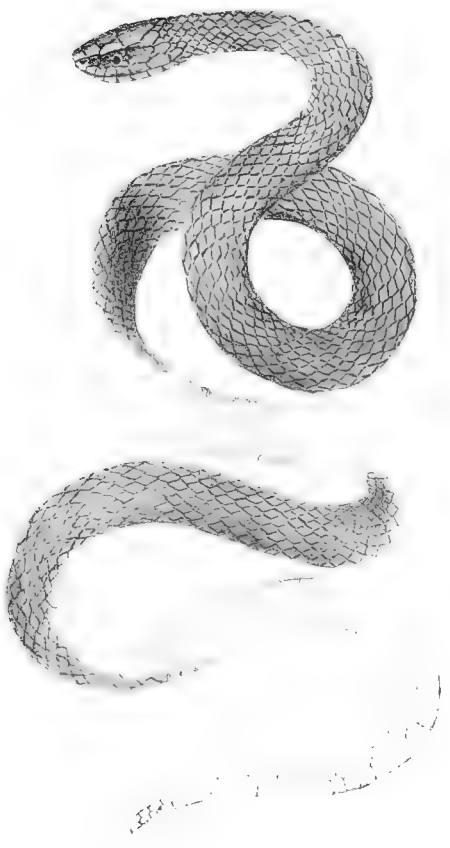
Dimensions. Length of head, 2 inches, width, 18 lines; length of body, 75 inches, circumference, 7 inches; length of tail, 12 inches. In this specimen there were 186 abdominal plates, with a single one before the vent; and 62 bifid caudal plates. This snake frequently exceeds eight feet in length, and individuals have been seen ten feet long.

Habits. J. Hamilton Couper, Esq. of St. Simon's Island, Georgia, to whom I am indebted for a knowledge of this animal, says, "The Indigo Snake, or Gopher, combines strength and activity. Its movements are confined to the surface of the ground, in which they are free, and, for so large a snake, rapid. It is perfectly harmless, frequenting the neighbourhood of settlements, where it is usually unmolested, from its inoffensive character, and the prevalent belief that it destroys the Rattlesnake, which it attacks with courage. It is often found occupying the same hole with the Gopher (Testudo polyphemus), whence it receives one of its names. Although a harmless snake, it is a bold one, and when provoked, it faces its enemy with courage, vibrating its tail rapidly. It is, however, so mild in character that it may be domesticated; and an instance is mentioned of the negro children of a neighbouring plantation being in the habit of holding on to the tail of one whilst it wandered about the yard."

Geographical Distribution. "I have only seen it in the dry pine hills, south

of the Alatamaha; and I have never met with it in the low grounds even of the same vicinity."

General Remarks. Although in several respects resembling the Black Snake, it differs from it so very materially, that the two snakes cannot be confounded even by the most careless observer. Indeed, I only place this serpent provisionally among the Colubers, as I have not as yet had an opportunity of examining the anatomy of the animal.



Coluber vernalis

COLUBER VERNALIS.—*Dekay.*

Plate XVII.

Characters. Head elongated, sub-oval, distinct; snout rounded; body long, cylindrical, covered above with smooth, oblong, rhomboidal scales; grass-green above, yellowish-white below. Pl. 128. Sc. 89.

Synonymes. Coluber vernalis, *Dekay*, MS.
Coluber vernalis, *Harlan*, Med. and Phys. Res., p. 124.

Description. The head is elongated, sub-oval, with the snout somewhat rounded. The vertical plate is hexagonal, large, and broadest in front, with an acute angle behind; the superior orbital is elongated, quadrilateral, narrow before, broader behind, and slightly projecting over the eye. The occipital plates are very large, pentagonal, and broadest before; the frontal are large, pentagonal, broad internally, narrow externally, where they unite with a single quadrilateral loral plate. The anterior frontal are smaller and quadrilateral; the rostral plate is short, broad, pentagonal, rounded above and in front, and slightly concave below. The nasal plate is single, elongated and quadrilateral; there are two small, quadrilateral anterior orbital; the posterior orbital are two in number, small and quadrilateral; the inferior wall of the orbit is completed by the third and fourth superior labial, of which plates there are seven on each side, quadrilateral, and increasing in size from the chin towards the angle of the mouth.

The nostrils are large, lateral near the snout, and open outwards, a little upwards and backwards, in the midst of a single large nasal plate. The eyes are large and bright; the pupil black, the iris golden. The neck is contracted.

The body is cylindrical, and covered above with small elongated, rhomboidal, smooth scales, and with plates below. The tail is long, thick at its root, but soon becomes slender.

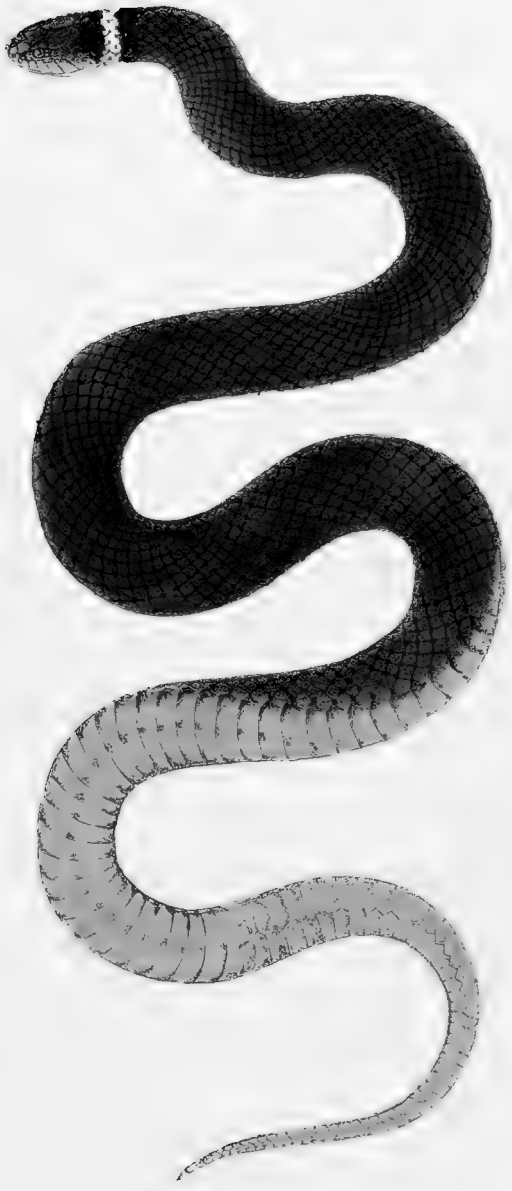
Colour. The head above is beautiful grass-green; the jaws are yellowish-white, tinged with green. The body and tail above are coloured like the head; the belly is yellowish-white.

Dimensions. Length of head, 7 lines; length of body to vent, 12 inches; length of tail beyond the vent, 7 inches: total length, 19 inches 7 lines. They sometimes reach a greater size. In the specimen here described, there were 128 abdominal plates, and 89 sub-caudal bifid plates.

Habits. This is a very gentle animal, and can be handled with impunity; it seeks meadows of high grass, where crickets and grasshoppers abound, on which it feeds, and is mostly found on the ground, though I have at times seen it stretched on the branches of low shrubs, as the dwarf willow, &c.

Geographical Distribution. The Coluber vernalis seems peculiarly a northern animal; it is first seen in Maine; it is abundant in Massachusetts, Connecticut, New York and Pennsylvania; but I have never yet heard of its existence as far south as Virginia.

General Remarks. This serpent, from its similarity of colour, seems to have been confounded with the Leptophis æstivus by herpetologists, until Dr. Dekay observed that its scales were smooth,—that it was a smaller animal;—that the proportion of its different parts were not the same, and that it was entirely a northern reptile; and applied to it the specific name of vernalis.



Coluber punctatus

. . . t by J.H Richard

P.S Duval. Lith Phil.a

COLUBER PUNCTATUS.—*Linnæus.*

Plate XVIII.

Characters. Head large, flattened; body above bluish-black; abdomen orange colour, with three longitudinal rows of spots; beneath the tail yellow, immaculate. Pl. 132. Sc. 49.

Synonymes. Coluber punctatus, *Linnæus*, Syst. Nat., vol. i. p. 376.
Little Black and Red Snake, *Edwards*, Glean. Nat. Hist., vol. iii. p. 289.
Another small snake, *Edwards*, Glean. Nat. Hist., vol. ii. p. 291.
La Ponctuée, *Lacépède*, Hist. Nat. des Serp., tom. ii. p. 287.
Coluber punctatus, *Latreille*, Hist. Nat. des Rept., tom. iv. part ii. p. 136.
Coluber punctatus, *Gmelin*, Syst. Nat. Lin., vol. i. pars iii. p. 1089.
Coluber punctatus, *Daudin*, Hist. Nat. des Rept., tom. vii. p. 178.
Coluber torquatus, *Shaw*, Gen. Zool., vol. iii. p. 553.
Natrix punctatus, *Merrem*, Versuch eines Syst. der Amphib., p. 131, spec. 162.
Natrix Edwardsii, *Merrem*, Versuch eines Syst. der Amphib., p. 136, spec. 195.
Homolosoma punctata, *Wagler*, Natürlich. Syst. der Amphib., p. 191.
Spilotes punctatus, *Swainson*, Lard. Cyclop. Rept., p. 364.
Coluber punctatus, *Harlan*, Med. and Phys. Res., p. 117.
Calamaria punctata, *Schlegel*, Phys. des Serp., tom. ii. p. 39.

Description. The head is rather small, flattened, and rounded at the snout. The vertical plate is sub-triangular, with its basis forward and joined to the frontal; the superior orbital are quadrilateral and elongated, with their outer margins projecting but slightly. The occipital are irregularly triangular, broadest in front, and joined to the vertical, the superior orbital and superior posterior

orbital plates. The frontal plates are irregularly pentagonal, broadest within and smallest without, where they join a large and regularly quadrilateral loral plate. The anterior frontal plates are two in number, and are smaller and quadrilateral in form. The rostral is triangular, with its basis below and its apex above, and rounded. There are two nasal plates; the anterior is quadrilateral, with its posterior margin incurvated, and the posterior pentagonal hollowed before for the nostril. The upper jaw is covered with eight large square plates, increasing in size to the angle of the mouth; two of these (the fourth and fifth) ascend to form the inferior wall of the orbit. There are two posterior orbital plates, the superior of which is the longer, and only one anterior orbital.

The nostrils are lateral and near the snout. The eyes are large, the pupil dark, the iris grey. The neck is contracted, and smaller than the head. The body is elongated, sub-cylindrical, rounded above, and covered with smooth scales; the abdomen is flattened, and covered with plates. The tail is delicate and pointed.

Colour. The head is of a greyish-black colour, with a transverse blotch of yellowish-white on each side of the occiput, uniting to form a ring; the lips are white. The upper surface of the body is the same colour as the head; but this varies a good deal—sometimes almost black, at others approaching a chestnut-brown, finely dotted with grey. The abdomen is reddish-yellow, with three parallel rows of dark spots of sub-triangular form, with their apices turned forward, one row of which runs in the mesial line. The tail is of similar colour with the body, both above and below, but wants the sub-triangular spots.

Dimensions. Length of head, 5 lines; length of body, 6½ inches; length of tail, 2 inches; circumference of body, 9 lines. In the individual here described there were 132 abdominal plates, and 49 sub-caudal scales. I have seen one 14 inches long.

Habits. The Coluber punctatus is a very timid animal, living great part of the time concealed under the bark of trees, or old logs and stones. It emerges from

its hiding-place towards the dusk of evening, or after rain, when the insects on which it feeds have been washed from their hiding-places.

Geographical Distribution. The Coluber punctatus inhabits the Atlantic states from Maine to Florida inclusive.

General Remarks. The first notice of this animal is to be found in the Gleanings of Natural History, by George Edwards,* where may be seen an excellent plate of it. He says it was sent to him by his friend Bartram, from Pennsylvania; that "its upper side, except a white ring round the neck, is of shining jet black; the belly, or under part, is of a fine light red, and the eyes flame-colour." A second specimen was also sent him, the "upper side of which was chestnut-colour, and the under side deep yellow."†

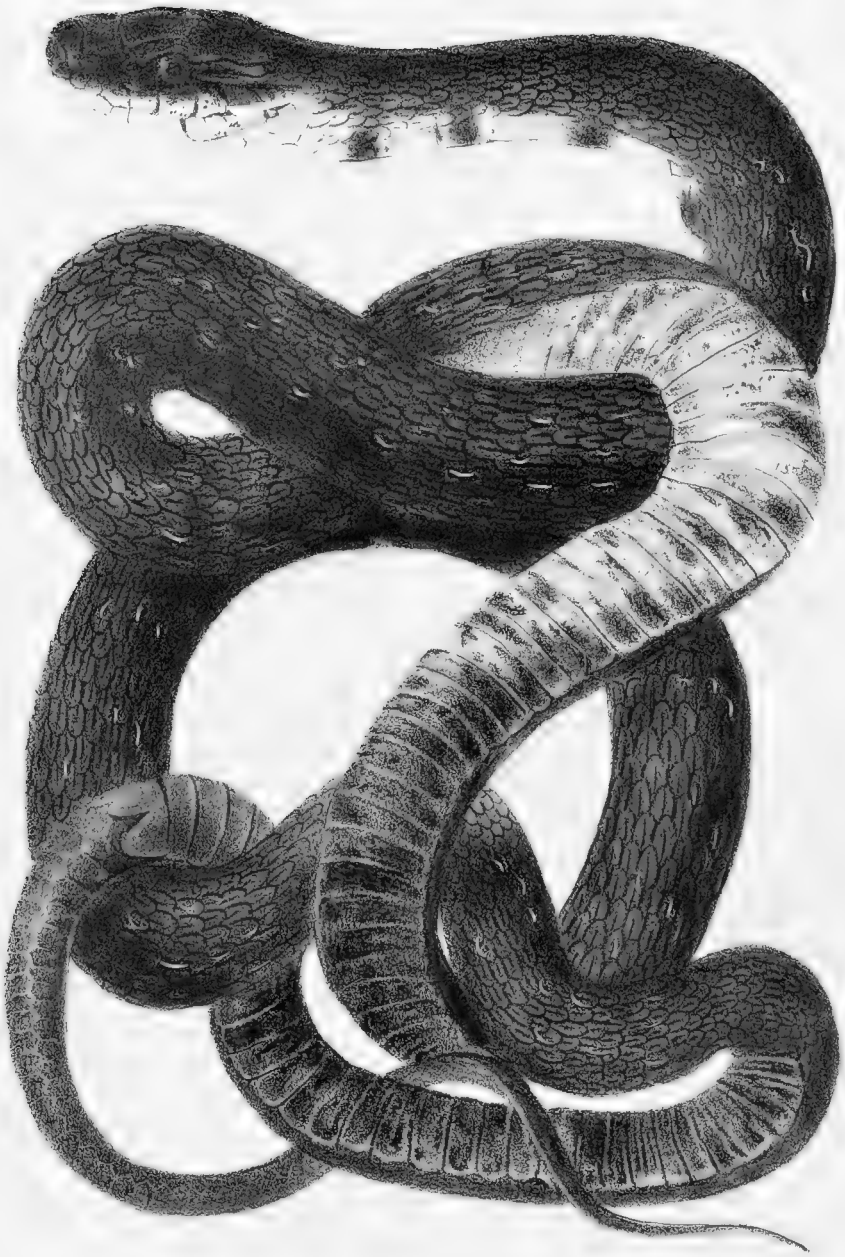
Linnæus next gave the characters very distinctly of this animal, from a specimen furnished him by Dr. Garden. Other naturalists only copied him, till Bosc observed it in Carolina, and communicated a very full description of it to Latreille, which was afterwards copied by Daudin.

Merrem, from the plate to which he refers in Edwards, being without the three longitudinal rows of dark spots that Linnæus gives as one of the distinctive marks of his animal, as well as from its having a collar or ring, not mentioned in Linnæus, thought it a new species, and called it after Edwards. Yet there is no doubt that the Natrix punctatus and the Natrix Edwardsii of Merrem are one and the same animal. Indeed, I have more than once seen individuals of this species without the rings at the neck, and as frequently without the spots; and Say has seen the central row double.

This serpent has been arranged in very different genera by different naturalists. Some have placed it in Calamaria; others in Coronella; others in Homolosoma;

* Gleanings of Natural History, vol. iii. p. 289. † Ibid., p. 290.

others in Spilotes. For the present I shall leave it in that of Coluber, where it was first placed by Linnæus, from the type of which it differs only in having the head a little shorter, though the plates are the same in number, and nearly in form, the neck a little less contracted, the tail shorter, &c., all of which might be useful in settling a species, but cannot determine a genus.



Coluber Alleghaniensis.

On Stone by S Cichowski *P.S Duval Lith Phila*

II.—*Colubers with Carinated Scales.*

COLUBER ALLEGHANIENSIS.—*Holbrook.*

Plate XIX.

Characters. Above, shining black; beneath, white on the throat, becoming clouded with brown on the anterior part of the abdomen, and entirely slate-colour towards and beneath the tail. Head elongated, rather large, distinct from the neck; body very long; scales on the back carinated, on the flanks smooth; tail rather short. Pl. 235–40. Sc. 78–84.

Description. The head of this serpent is elongated and large; and the mouth is also large. The vertical plate is pentagonal, short and broad; the superior orbital plates are large; the frontal large, irregularly pentagonal, broadest internally, and extending externally between the anterior orbital and posterior nasal to the loral plate, which is of trapezoid form, and small. The anterior frontal are small and rhomboidal in shape; the nasal are also large and somewhat trapezoidal, the one lunate before and the other behind for the nostrils; the rostral above is triangular, rounded in front and broad; the temporal are variable, sometimes consisting of two or three narrow plates, or their place is chiefly occupied by the last labial plates, very much enlarged; the posterior orbital are two in number; the anterior orbital is single and very large.

The nostrils are lateral, a little removed from the snout, and open outwards and backwards. The eyes are rather large, the pupil black, the iris brown.

The neck is small; the body much elongated, sub-caudal, and tapering at each extremity. The scales are oblong-oval and bipunctate at the apex; those on the back have a distinct carina; the four or five inferior rows on each side are smooth; on the tail they are broader and hexagonal in form. The tail is rather short and tapering.

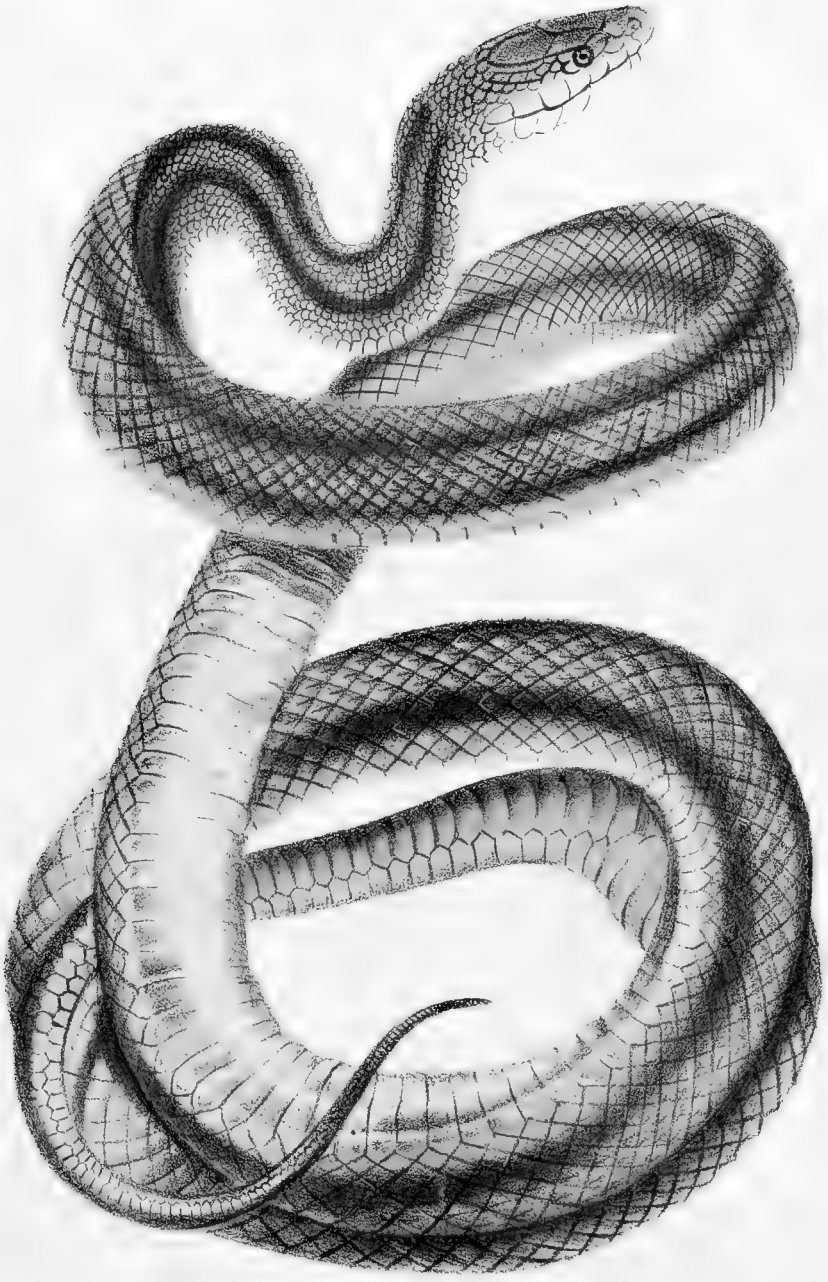
Colour. The head is black above; the marginal plates of both upper and under lip are silver-white, edged with black; the throat also is silver-white. The body above is intense black, glistening or polished; but in a certain light a mixture of brown can be perceived on close inspection, without however any definable pattern; many of the scales have marginal dashes of white, which become visible when the skin is extended; towards the tail, however, the scales are entirely black. Beneath, the anterior part of the abdomen is white, clouded with brown, and the posterior part and tail entirely slate-colour.

Dimensions. Length of the head, to the commencement of the small scales, 15 lines; body, 4 feet 5 inches; tail, 9 inches: total length, 5 feet 3 inches. Circumference of the body in the thickest part, 4 inches. The specimen figured had 235 abdominal plates and 78 pairs of sub-caudal scales; a second, 240 plates and 84 scales.

Geographical Distribution. This serpent was first observed on the summit of the Blue Ridge, in Virginia, by Mr. George Robbins, of Philadelphia. Dr. Wilckens, of New York, has also favoured me with a specimen from the Highlands of the Hudson; and I have received many from the mountains of Carolina, so that it is probable its range extends throughout the Alleghanies.

Habits. The animal in confinement seemed of an exceedingly mild and gentle disposition; forming in this respect quite a contrast with its fellow prisoners, two individuals of the common Black Snake (Coluber constrictor), who maintained at all times their original wildness. It lived several months, and is now deposited in the Museum of the Academy of Natural Sciences at Philadelphia.

General Remarks. The Coluber Alleghaniensis is readily distinguished from the Black Snake by its carinated scales; still the two species bear a general resemblance, and might readily be confounded without proper examination.



Coluber-l-villatus

Dr Stone Del & Lithowski *P.S Duval Lith Phil^a*

COLUBER QUADRIVITTATUS.—*Holbrook.*

Plate XX.

Characters. Body very long, above greenish clay-colour, with four longitudinal brown bands; beneath yellowish; head distinct; scales on the back carinated, on the flanks smooth; tail one-fifth of total length. Pl. 233. Sc. 90.

Synonyme. Chicken Snake, *Bartram*, Travels in Florida, &c., p. 275.

Description. The head is elongated and oval, with the vertical plate pentagonal, short and broad; the superior orbital plates are large; the frontal large, irregularly pentagonal, broadest internally, and extending externally between the anterior orbital and posterior nasal to the loral plate, which is of trapezoid form, and small. The anterior frontal are small and rhomboidal in shape; the two nasal are also large and somewhat trapezoidal, the one lunate before and the other behind for the nostrils; the rostral above is triangular, rounded in front and broad; the posterior orbital are two in number; the anterior orbital is single, very large and sub-quadrilateral; the inferior wall of the orbit is completed by the fourth and fifth superior labial plates, of which there are eight.

The nostrils are large, lateral near the snout, and open a little backwards. The eyes are large, the pupil dusky, and the iris greyish-yellow. The neck is contracted and covered with smaller scales.

The body is elongated, fusiform, and covered above with hexagonal scales; the superior rows carinated, the inferior smooth. The tail is moderately long and round.

Colour. In its colours, however, this snake differs widely from the Coluber Alleghaniensis, and the pattern is invariable so far as my observation extends. The whole superior surface in the young animal is of a greenish clay-colour, marked with four longitudinal dark brown stripes, the two superior ones reaching from the occiput to the extremity of the tail. In old individuals, the general colour is brown, and the dark longitudinal bands are less obvious. The inferior surface is yellowish throughout, sometimes a little clouded towards the sides. The scales of the back and sides are frequently sprinkled with minute blackish dots, and many have marginal dashes of white, which become visible when the skin is extended, and give the animal a reticulated appearance. The skin between the scales is blackish.

Dimensions. Length of head, 14 lines; length of body, 3 feet 6 inches; of tail, 10 inches: total length, 4 feet 5 inches. In the above specimen there were 233 abdominal plates, and 90 sub-caudal scutella. It grows, however, to the length of six or seven feet.

Geographical Distribution. It is found from North Carolina to Florida, and westward as far as the Mississippi; being entirely unknown in the northern and middle states.

Habits. This animal is by no means rare in South Carolina; frequenting the vicinity of houses, and sometimes making its way into the cabins of the negroes. It is, however, perfectly innoxious, though in bad repute with respect to young chickens. Bartram suggests that it might be rendered useful in destroying rats, as it is easily tamed and soon becomes familiar.

General Remarks. This animal, though described by Bartram so long ago as 1791, has not since been noticed by any systematic writer. It is closely allied to the last animal in its general form, but its colour and markings, as well as its geographical distribution, are entirely different.

Schlegel thinks this snake may prove identical with the Coluber Alleghaniensis, to which, indeed, it bears considerable resemblance in form; but its colours are entirely different and are constant; its habits and geographical distribution are not the same: the Coluber Alleghaniensis lives constantly on the ground, but the Coluber quadrivittatus I have often met with on trees; the one belongs to the mountains, the other lives on the plains.

CORONELLA.—*Laurentius.*

Genus Coronella.—Characters. Head moderate, much less distinct from the neck than in Coluber, but covered with the same number of plates; snout short, rounded; rostral plate very concave below; loral plate single; superior orbital plate not projecting over the eye; nostrils lateral; teeth small, numerous, curved; posterior ones rather larger; body sub-cylindrical, larger in the middle; scales smooth; tail short.

Remarks. This genus, as established by Laurentius, embraced a great many serpents, widely different in their characters. Boié limited it to such as resemble in their forms the Coronella lævis, the type of Laurentius' genus. I would still further restrict it to such serpents as differ from the true Colubers in having the head shorter, and but slightly larger than the neck; where the plates of the head and face, though precisely the same in number, differ much in proportional development of certain parts. Thus they are all generally shorter, and the superior orbital projects so slightly over the eye, that it can be but partially seen from above, which approximates his to the next genus, Helicops, where the same eyes are superior. The loral plate is single, as well as the anterior orbital. The body is elongated, sub-cylindrical, larger in the middle, tolerably robust, and always covered with smooth scales; the tail is rather short, never more than one-third the length of the body. The animals of this genus seldom equal the Colubers in size, though some of them are of considerable dimensions. They are also much less lively and active, and are never seen on trees.

Coronella · getula.

CORONELLA GETULA.—*Linnæus.*

Plate XXI.

Characters. Head small; snout rather truncated; colour above beautiful shining raven-black, with about twenty-two white, narrow, transverse bars, bifurcating on the flanks to form a nearly continuous waving white line; tail barred, but without lateral lines; abdomen raven-black, with a shadowy tinge of white in certain lights. Pl. 215. Sc. 49.

Synonymes. Chain Snake, *Catesby*, Carolina, &c., vol. ii. p. 52, pl. lii.
Coluber getulus, *Linnæus*, Syst. Nat., tom. i. p. 382.
La chaine, *Lacépède*, Hist. des Serp., tom. ii. p. 300.
Coluber getulus, *Gmelin*, Syst. Nat. Lin., tom. i. part iii. p. 1106.
Coluber getulus, *Latreille*, Hist. Nat. Rept., tom. iv. p. 174.
Coluber getulus, *Daudin*, Hist. Nat. des Rept., tom. vi. p. 314, pl. lxxvii.
Coluber getulus, *Shaw*, Gen. Zool., vol. iii. part ii. p. 467.
Natrix getulus, *Merrem*, Versuch eines Syst. der Amphib., p. 196.
Pseudo-elaps getulus, *Fitzinger*, Neue Class der Rept., p. 56.
Coluber getulus, *Harlan*, Med. and Phys. Res., p. 122.
Chain Snake, Thunder Snake, King Snake, *Vulgo.*

Description. The head is small, short, and rather rounded at the snout; the vertebral plate is regularly pentagonal, broad in front and pointed behind; the superior orbital is oblong-quadrilateral, narrow before, broader behind, and but slightly projecting externally over the eye. The occipital plates are large and pentagonal; the frontal are irregularly hexagonal, with their narrowest border downward and outwards; the anterior frontal are regularly quadrilateral, a little broader without and narrower within. The rostral plate is broad, short, trun-

cated in front, and of pentagonal form, rounded above and slightly concave below; there are two quadrilateral nasal plates, nearly of the same size, the one slightly hollowed before, the other behind, to accommodate the nostril; the anterior orbital is single, large, and of pentagonal form, with a small square loral plate between it and the posterior nasal; there are two posterior orbital, very small and quadrilateral, behind which are two oblong, square temporal plates. The labial plates are seven in number on each side, all quadrilateral to the fifth, which is pentagonal, and of these the third and fourth make up the inferior wall of the orbit of the eye.

The nostrils are near the snout, very large, and open laterally. The eyes are rather small, with the pupil black, and the iris dusky. The neck is scarcely contracted, and is covered above with small smooth scales.

The body is elongated, robust, and covered with large, smooth, hexagonal scales above, and large plates below. The tail is short, thick at the root, but soon becomes small, and ends in a horny point.

Colour. The Coluber getulus is one of the most beautiful of our Snakes, and its colours are of most singular pattern. The ground of the whole superior surface of the animal, the head as well as the body and tail, is of the richest shining raven-black; the rostral plate is white in the centre, and every other plate about the head is marked with one or more white or milky-white spots; that of the vertical plate often resembles a transverse white line along its anterior part, while the labial have each similarly disposed spots, but of triangular form and variable magnitude, sometimes equal to half the size of the plate; the chin and throat are white, and have most of the plates margined with black.

The body is marked by about twenty-two nearly equidistant transverse white bars or rings. These rings are narrow, embracing two or parts of three scales; nor do they surround the body, but bifurcate at the flanks, so that one portion runs to join the ring placed in front, and the other to join the ring behind, and thus produce nearly a continuous waving white line on the flanks, beginning at the

neck and terminating at the vent, and nearly at right angles with the transverse bars. Alternating with the dorsal bars, the waving line is increased in size below, to form an irregular white blotch, reaching to the abdomen, which in other respects is coloured nearly like the back, but is more shining, and with a strong tinge of violet. The tail has but four or five transverse rings or white bars, and wants entirely the waving lateral line.

Dimensions. Length of head, 1 inch 2 lines; length of body, 36 inches; length of tail, 5 inches. In the specimen here described there were 215 abdominal plates and 39 sub-caudal bifid plates. It must be remarked, however, that the animal at times exceeds the dimensions above given. Dr. Binney saw one in Georgia over four feet; and I have recently received one from North Carolina 4 feet 2 inches in length.

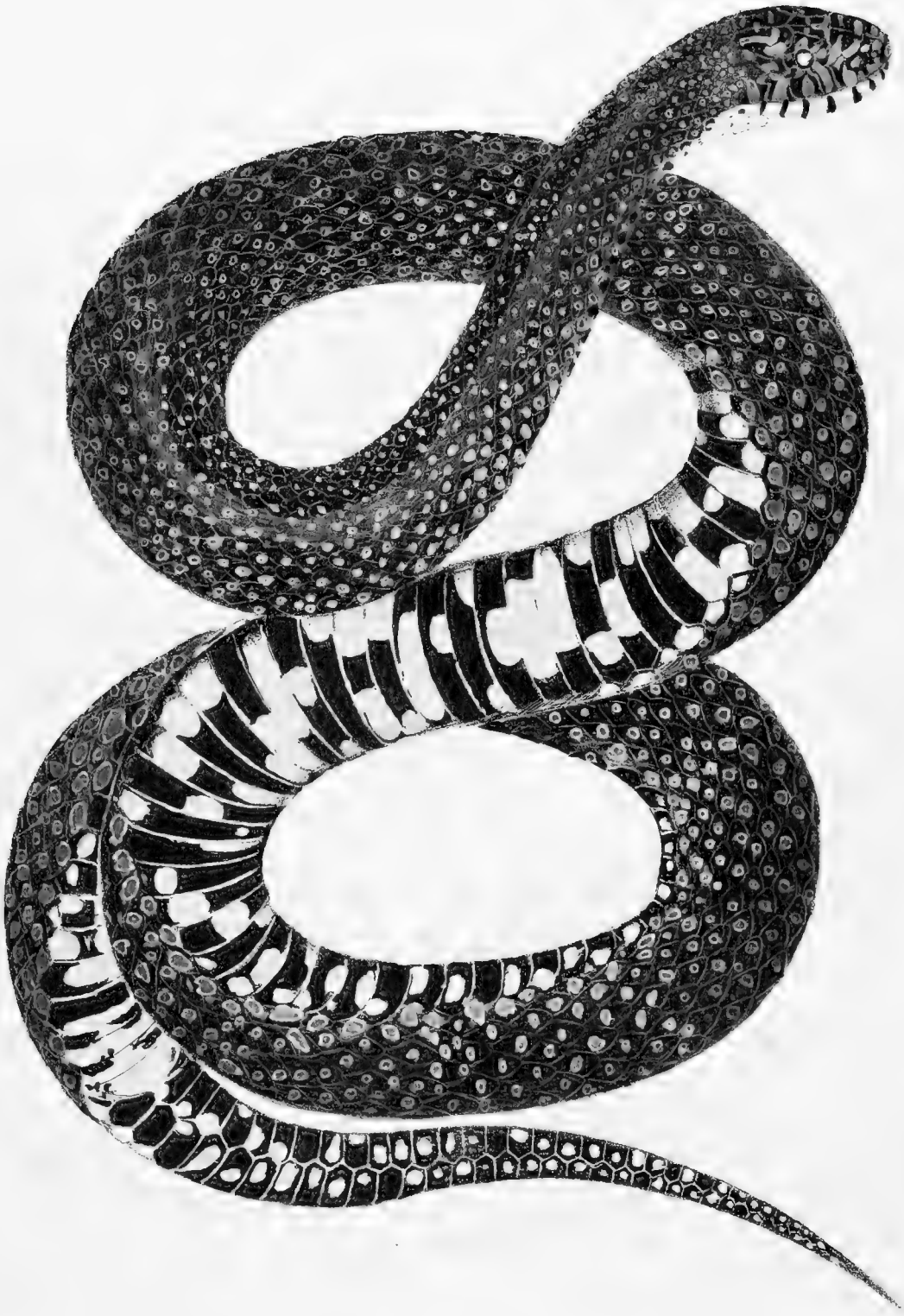
Habits. The Coronella getula is found abundantly in moist and shady places, though it never takes to water or to trees. It feeds on moles, small birds, or such reptiles as lizards, salamanders, toads, &c. that may fall in its way. It is commonly believed that this serpent is the great enemy of the Rattlesnake, though I believe there is no great evidence of the fact. My friend Dr. Binney, however, informed me that he once captured a fine specimen in Georgia, which he placed in a tin box with a full grown Crotalophorus miliarius; the next day, on examining the box, it was discovered that the King Snake had devoured its fellow prisoner. It would have done the same to any other snake of similar size, under similar circumstances, and with the same appetite.

Geographical Distribution. This serpent is common enough in the Carolinas, where indeed it was first observed; thence its range extends as far north as New York, and as far south as Florida, inclusive; how much further west it may exist, I have no means at present of determining.

Daudin says he is certain that it inhabits Louisiana. The observations, however, of foreign naturalists, on the localities of our reptiles, must be received

with great caution, for they are led to suppose the animals inhabit the neighbourhood of the ports from whence they are shipped; thus we have it said that the "Anolius," the "Green Turtle," the "Iguana," &c., are natives of the more northern states; some of which are not even found on the continent of North America.

General Remarks. The history of this serpent is plain enough; it was first described by Catesby under the name Chain Snake, and accompanied with a drawing, not very good to be sure, but sufficiently accurate to make it certain that it refers to the animal now under consideration. It next appears in the twelfth edition of the Systema Naturæ as the Coluber getulus, with a single reference to Catesby, and this specific name it has ever since borne, although different naturalists have arranged it in very different genera.



Coronella Sayi.

J.H. Richard, del.

P.S. Duval sc.

CORONELLA SAYI.—*Schlegel.*

Plate XXII.

Characters. Head small, oval, rather rounded at the snout; body elongated, robust; above bluish-black, tinged with violet; each plate and scale marked with a milk-white spot. Pl. 205. Sc. 53.

Synonymes. Coluber Sayi, *De Kay*, manuscript.
Coluber Sayi, *Schlegel.* Phys. des Serp., tom. ii. p. 157.

Description. The head is small, oval, short, with the snout rather rounded. The vertical plate is triangular, with the basis broad and directed forwards, and the apex pointed and turned backwards; the superior orbital are oblong, pentagonal, broader behind, of the same length as the vertical, and slightly project over the eyes. The frontal plates are large, pentagonal and broadest internally; the anterior frontal are also large, but smaller than the posterior, quadrilateral, with their posterior and inferior angles prolonged. The rostral plate is hexagonal, rounded above, concave and slightly projecting below; the nasal plates are two on each side, nearly quadrilateral; the anterior hollowed behind and the posterior concave before to complete the nostrils; the loral plate is single and rhomboidal in form. There is a single anterior orbital plate, quadrilateral and elongated, most extensive vertically, and two very small posterior quadrilateral orbital; the occipital plates are large, broad, elongated and pentagonal. The upper jaw is covered with seven large, quadrilateral labial plates on each side, of which the fifth and sixth are largest, and the third and fourth make the inferior wall of the orbit of the eye.

The nostrils are lateral and near the snout. The eyes are prominent, the pupil dark, the iris grey. The neck is but slightly contracted.

The body is cylindrical, and covered with smooth sub-hexagonal scales above, as well as on the neck, where they are much smaller. The tail is short, thick at its root, but soon becomes smaller, and terminates in a horny point; the scales of the tail are large, but shorter in proportion than those of the back.

Colour. The head is bluish-black above; each plate with one or more yellowish-white oblong spots; the superior labial plates are yellowish or milky-white, each with a black border at either end, where two adjoining plates meet, which gives a banded appearance to the upper jaw. Every scale of the neck, body and tail is marked with a milky-white oblong spot, most commonly in the centre, but sometimes near the border, so that those of neighbouring scales come nearly in contact, or three or four appear in clusters together; these spots are largest low down on the flanks. The plates of the throat and abdomen are milk-white, each with a black spot, either a square or parallelogram; sometimes these spots are placed in the centre of the plate, and at others near their lateral extremities. In the posterior half of the body the black prevails; the last plate is however entirely white.

Dimensions. Length of head, 1 inch 3 lines; greatest breadth, 1 inch; length of body, 40 inches; length of tail beyond vent, 6 inches 2 lines: total length, 3 feet 11 inches 5 lines.

In the specimen here described there are 205 abdominal plates, and 53 sub-caudal scales, with a small horn at the tip of the tail.

Habits. I am ignorant of the habits of this serpent, never having seen but one specimen alive.

Geographical Distribution. The Coronella Sayi seems to be widely extended

in the valley of the Mississippi; for I have received it from Louisiana, high up Red river, from Missouri, from Arkansas, and also many specimens from Alabama; which, for the present, I must put down as its northern limit.

General Remarks. Dr. De Kay was the first herpetologist who noticed it as a distinct species, and communicated his observations to Say and other naturalists, who regarded it only as a variety of the Coronella getula, to which it certainly bears a striking general resemblance; yet on minute examination there will be found sufficient difference to constitute them distinct species.

The head of this animal is rather smaller, with the snout more prolonged than in the Coronella getula; the colours are differently disposed; the body is shorter and the tail longer in proportion; and their geographical distribution is widely different; the Coronella getula being found seven or eight hundred miles farther north in the Atlantic states than the Coronella getula; whereas, if they were but varieties, we might expect to find both animals in the same localities.

Schlegel was the first naturalist who published a description of this beautiful animal, in his excellent work entitled "Essai sur la Physionomie des Serpens."

Coronella rhombo-maculata.

J H Richard del

P S Duval, Lith Phil

CORONELLA RHOMBO-MACULATA.—*Holbrook.*

Plate XXIII.

Characters. Head short, small; body elongated, covered with smooth scales above and plates below; superior surface chestnut-brown, with a vertebral series of rhomboid light brown spots; abdomen salmon-coloured. Pl. 211. Sc. 45.

Description. The head is small, short, with the snout truncated. The vertical plate is broad and regularly pentagonal, acute-angled posteriorly; the superior orbitals are elongated, quadrilateral, broader behind, narrower before, and of the same length as the vertical, and project but slightly over the eye. The occipital are large, pentagonal, and receive the acute angle of the vertical plate; the frontal are large, pentagonal, broad above and narrow below; the anterior frontal are smaller, quadrilateral, and larger below than above. The rostral plate is pentagonal, blunt before, broadest and slightly concave below; there are two nasal plates, quadrilateral, nearly of the same form and size; one is lunated before and the other behind. The anterior orbital plate is single, quadrilateral, slightly lunated behind, and large, with a square loral plate in front; there are two pentagonal posterior orbital, the upper rather larger; the inferior wall of the orbit is completed by the third and fourth labial plates, of which there are six, increasing in size from the snout to the angle of the mouth; the first is trapezoidal, the second quadrilateral, and the rest are all pentagonal.

The nostrils are lateral near the snout, and open a little upwards and backwards. The eyes are rather small, the pupil dusky, with the iris hazel. The neck is slightly contracted.

The body is elongated, cylindrical, covered above with smooth hexagonal scales, largest on the flanks, and with broad plates below. The tail is short, thick at the base, but soon becomes small, and terminates in a horny point.

Colour. The head above is of a uniform chestnut-brown; the lips are lighter, with a dark line at the place of junction of the several plates. The body and tail are chestnut-brown, with vertebral rhomboid spots of light reddish-brown; these spots near the tail have a narrow dusky margin; the throat, as well as the belly and tail, are salmon-coloured, more or less bright.

Dimensions. Length of head, 10 lines; length of body to vent, 24 inches; length of tail beyond the vent, 4 inches: total length, 28 inches 10 lines. The specimen here described had 211 abdominal plates and 45 sub-caudal scales, with a horny tip at the tail.

Habits. I am unacquainted with the habits of this animal, never having seen but two specimens.

Geographical Distribution. As yet I can give only Georgia and Alabama as the residence of this animal.

General Remarks. To my friend Professor Horner, of the University of Pennsylvania, I am indebted for the first specimen of this serpent that I ever saw, which he received from Georgia.

Coronella doliata.

J.H. Richard, del.

P.S. Duval, Lith. Phila.

CORONELLA DOLIATA.—*Linnæus.*

Plate XXIV.

Characters. Head small, flattened above, with the snout rounded; neck slightly contracted; body elongated, rather slender; scarlet above, and marked with black rings, in pairs; between each pair is a white ring. Pl. 174. Sc. 40.

Synonymes. Coluber doliatus, *Linnæus*, Syst. Nat., tom. i. p. 379.
Coluber doliatus, *Gmelin*, Syst. Nat. Lin., tom. i. pars iii. p.
Natrix doliatus, *Merrem*, Versuch eines Syst. der Amphib., p. 129.
Coronella coccinea, *Schlegel*, Phys. des Serp., tom. ii. p. 57, pl. ii. fig. 11.

Description. The head is rather small, flattened above, with the snout rounded; the vertical plate is pentagonal, with an acute angle behind; the superior orbital are oblong-quadrilateral, broadest behind, and not projecting over the eye; the occipital are polygonal, and very large; the frontal are broad and pentagonal, narrowest externally, where they descend to join a tolerably large quadrilateral, loral plate. The anterior frontal are also quadrilateral, smaller than the posterior, and broadest externally. The rostral plate is large, heptagonal, and concave below. There are two nasal plates, the posterior square, the anterior lunated behind for the nostril, which does not enter the posterior, but comes out at its anterior border. There is a single anterior orbital plate, oblong, slightly concave behind, and two small, sub-round, posterior orbital. The inferior wall of the orbit is made up of the third and fourth superior labial plates, of which there are seven.

The nostrils are lateral, and near the snout. The eyes are small, the pupil reddish-grey and bright. The neck is but slightly contracted, and is covered with small, smooth, sub-hexagonal scales. The body is long, tolerably stout, and

covered above with scales similar to those of the neck, but larger. The tail is rather short, thick at its root, but soon becomes smaller, and terminates in a tip.

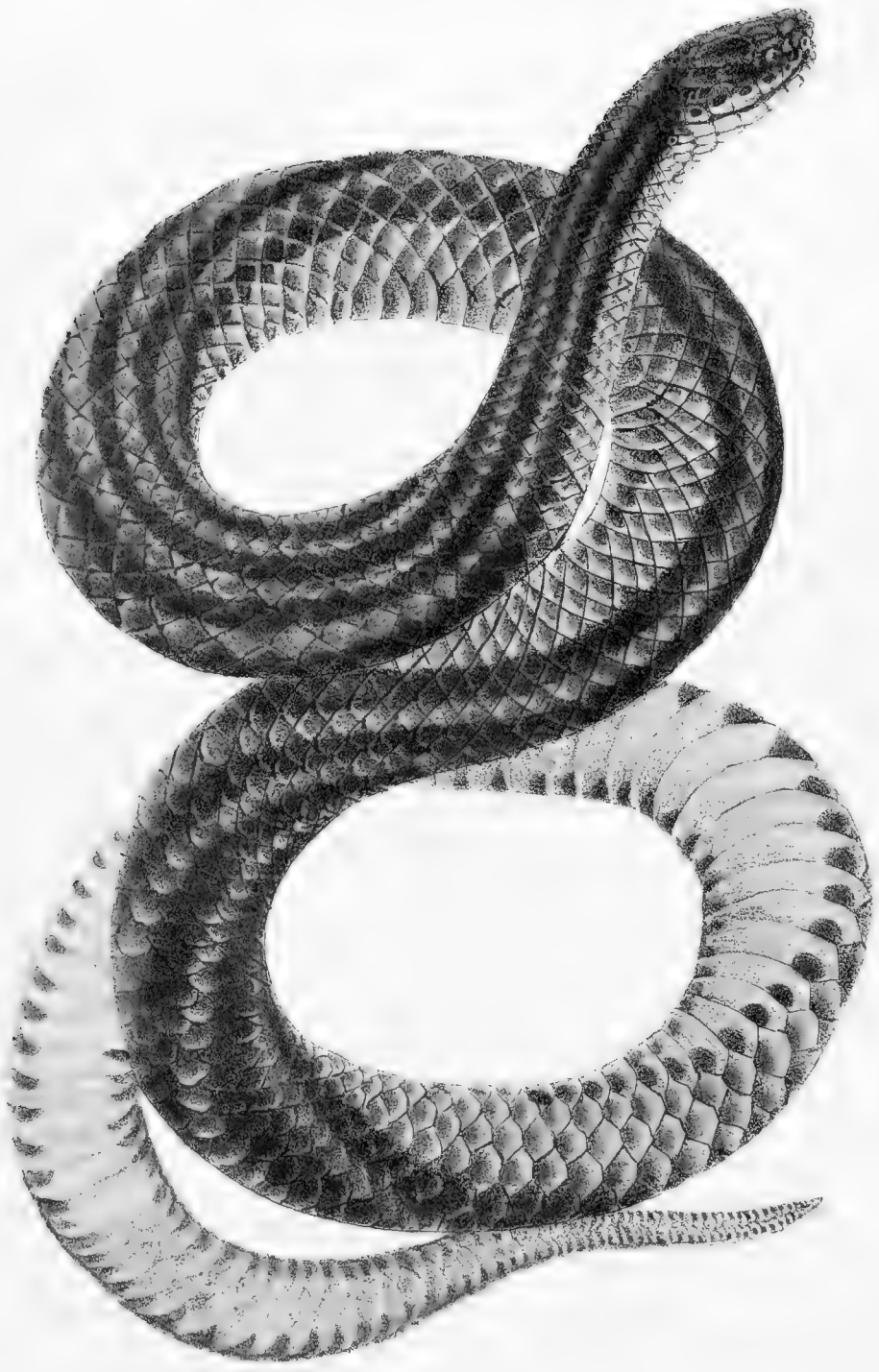
Colour. The anterior half of the head is light red, shaded with dusky; the posterior half is black, being included in the first black ring. The body is scarlet, banded with twenty-two pairs of jet black rings, with a white ring between each pair of black. These rings do not completely surround the body, as in Calamaria elapsoidea, but the lower part of the anterior ring of one pair is continued on the margin of the abdomen to the posterior ring of another pair; sometimes they nearly meet in the centre of the abdomen. The belly is white, marked with black bars and bands that communicate with the different rings of the back.

Dimensions. Length of head, 10 lines; of body, 11 inches; of tail, $2\frac{1}{2}$ inches. In the individual here described, there were 174 abdominal plates, and 40 subcaudal scutella.

Habits. I know but little of the habits of this animal, never having seen more than half a dozen living animals; they seem gentle and timid, and could not be provoked to bite.

Geographical Distribution. This serpent has been observed in the middle states by Dr. Harlan; by Troost in Tennessee, who furnished Schlegel with specimens; and I have seen it in Carolina and Georgia.

General Remarks. Schlegel received this animal from Professor Troost, of Nashville, and described it under the name of Coronella coccinea; at the same time he refers doubtingly to the Coluber doliatus of Lacépède. I have not the least doubt that this animal is identical with the Coluber doliatus of Linnæus, (whose specific name I have retained,) which he received from Dr. Garden; it differs only in colour, and this is easily accounted for by the action of the alcohol, in which the specimen was preserved. This bleached the red colour to white, but the black rings remained unchanged.



Helicops erythrogrammus

P.S. Duval, Lith. Phil.ª

HELICOPS.—*Wagler.*

Genus Helicops.—Characters. Head smaller than the neck, depressed; eyes superior; loral plate wanting; superior orbital plates not projecting; posterior orbital two; anterior single; mouth inferior, ascending at the angle; three or four posterior maxillary teeth largest; body robust, and covered above with smooth scales.

HELICOPS ERYTHROGRAMMUS.—*Daudin.*

Plate XXV.

Characters. Head short, depressed, small, and not distinct from the neck; nostrils superior, and placed near the snout; eyes small, directed upwards; body stout; superior surface bluish-black, with three longitudinal red lines, and a row of bluish-black spots on each side of the abdomen; tail short, one-eighth of total length. Pl. 178. Sc. 39.

Synonymes. Coluber erythrogrammus, *Daudin*, Rept., vol. vii. p. 93, tab. 83, f. 2.
Natrix erythrogrammus, *Merrem*, Versuch eines Syst. der Amphib., p. 117.
Helicops erythrogrammus, *Wagler*, Natürlich. Syst. der Amphib., p. 170.

Description. The head is short and depressed, smaller than the neck; and the mouth is also small. The vertical plate is short and pentagonal, presenting an acute angle backwards; the superior orbital is narrow and almost a parallelogram in shape; the occipital plates are large, polygonal, and broadest before; the frontal plates are quadrilateral, large, with the inferior and posterior angle forming a small part of the orbit of the eye; there are two posterior orbital

plates, the upper one large, the lower very small; the anterior orbital plate is quadrilateral, narrow, and elongated; the nasal plates are two in number, small and trapezoidal; the nostril plates are also somewhat trapezoidal; the rostral plate is very broad and irregularly hexagonal, broadest below, and slightly concave. There are seven superior labial plates, increasing in size from before to the sixth; the fourth and fifth complete the inferior wall of the orbit.

The nostrils are small, superior, and placed near the snout, open outwards, backwards, and upwards. The eyes are very small, superior, and are placed near the snout; the pupil is black, and the iris greyish-red. The body is somewhat depressed, elongated and fusiform, tapering at the head and tail. The scales are all smooth and shining, broad, obtuse, and somewhat hexagonal on the back, and nearly uniform in size throughout, the inferior row being a little larger.

Colour. The head is dark blue; the marginal plates of both the upper and lower lip are of a bright lemon-colour, each with a dark blue spot in the centre; the throat is bright lemon-colour for about an inch and a half, when it becomes of a pale straw-colour. A vertebral line of red begins at the occiput and runs to the tail; on each side of this is another longer line of the same colour, reaching to the extremity of the tail; each of these lines is of the breadth of a single scale, and between them are broad bands of bluish-black, the breadth of three scales; beneath the inferior longitudinal red line is another band of bluish-black, including two scales and a half; and next is a third red band consisting also of two scales and a half; the margins of the scales being straw-colour, give a lighter appearance to the latter band. The plates of the abdomen are flesh-colour, with their posterior margin pale straw-colour, and on each are two large rounded spots of indigo-blue, forming a line of blue spots on each side of the abdomen; a third spot is sometimes present in the middle of the plates.

Dimensions. Length of the head, $\frac{9}{10}$ of an inch; breadth across the temples, $\frac{3}{4}$ of an inch; circumference, $3\frac{1}{2}$ inches; length of head and body, 38 inches; tail, $5\frac{1}{2}$

inches: total length, 3 feet 7½ inches. I have seen one much larger. The specimen figured had 178 abdominal plates, and 39 sub-caudal bifid plates.

Geographical Distribution. This serpent is by no means uncommon in Carolina. I have often seen it near the banks of the Santee river. Dr. Ravenel has procured me specimens from the lower country, and Dr. Wurdeman, from Greenville, South Carolina.

Habits. This animal is found in swampy grounds and damp places, in holes in the earth, or under the stumps of old trees, and passes much of its time under ground, whence it is frequently turned out in ploughing, but never takes to the water. It frequents the banks of rice fields, where it lies in wait for its prey, the large rat that infests them, injuring at once the rice and the banks by burrowing in the soil. Spite of this essential service, the universal prejudice against the serpent tribe causes its destruction from all hands.

General Remarks. This beautiful serpent was first noticed by Palisot de Beauvois, who found it in the southern states, and communicated a specimen to Daudin, which he described as the Coluber erythrogrammus.

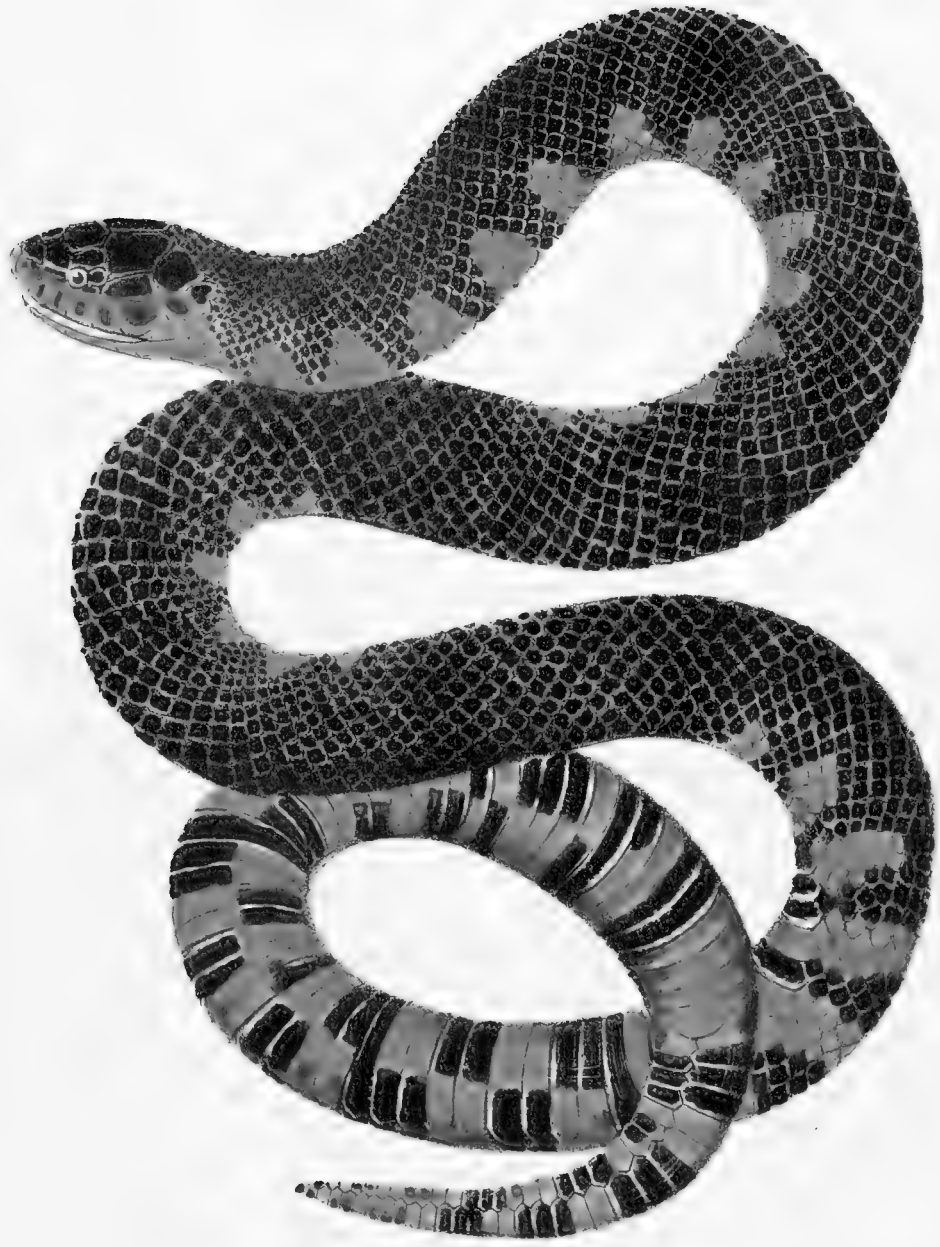
Schlegel supposes the Coluber erythrogrammus of Daudin is not identical with the animal now under consideration, but that it is the Coluber bipunctatus* (Tropidonotus sirtalis) of Latreille, which to me is inconceivable. Daudin's account agrees with our serpent, even to the markings on the belly, in every particular, except in having three vertebral rows of carinated scales. This arrangement is not mentioned in his specific characters of the animal; and it is possible that he might have been deceived in the matter, as his description was drawn up from a dried skin, or it might have been the result of hasty observation, as no such structure exists in any one of our Helicopes. Besides, Daudin says that his Coluber erythrogrammus attains the length of five feet, and I have seen

* Phys. des Serp., tom. ii. p. 320.

one nearly six, while the Tropidonotus bipunctatus (sirtalis) never reaches four feet in length. The two animals also differ entirely in colour, and this is even uncommonly well marked in Daudin's plate. The one has the body dusky, with pale yellow longitudinal lines; the other is bluish-black, with longitudinal lines of red, so remarkable as to afford a specific character;* an arrangement which never occurs in any serpent of this country, and as far as my observations have extended, never in any other.

Schlegel further believes that the Helicops erythrogrammus is a variety of the Homalopsis (Helicops) plicatilis, the result of climate, to which I can by no means consent, as they differ greatly in several particulars. The Helicops plicatilis is reddish-brown above, more or less shaded; the Helicops erythrogrammus is deep bluish-black, with three bright red longitudinal lines; the former has a single anterior frontal plate, the latter has two; the one inhabits South America, and the other is found only in the United States.

* Serpent á raies rouges.



Helicops abacurus.

HELICOPS ABACURUS.—*Holbrook.*

Plate XXVI.

Characters. Head short, thick, not distinct, but as large as the neck; eyes and nostrils superior and near the snout: body bluish-black above; flanks marked with transverse bands of bright red; beneath red, with black spots disposed with some regularity: tail very short, thick, conical, rounded at the apex with a slight point, one-tenth of total length. Pl. 195. Sc. 34.

Synonyme. Homalopsis Rheinwardtii, *Schlegel,* Phys. des Serp., tom. ii. p. 357.

Description. The head is short, thick, a little flattened above, and not distinct from the neck. The vertical plate is short, broad and pentagonal; the occipital plates are large, broad, and irregularly hexagonal; the superior-orbital are small, and nearly regularly quadrilateral; the frontal plates are almost square, with the posterior external angle lengthened, to form a part of the orbit; there is but one anterior frontal plate, large, triangular, with its apex forward and truncated; the nasal is also single, with the nostrils nearly in its centre; the posterior orbital are two in number; the anterior orbital is narrow, elongated and quadrilateral; the loral plate is wanting; the rostral plate is very broad, irregularly hexagonal, broadest transversely, and slightly hollowed below. There are seven labial plates, increasing in size to the sixth, which is very large; the third and fourth make the inferior wall of the orbit.

The mouth is small. The nostrils are latero-superior, and near the snout. The eyes are small, also directed obliquely upwards, and placed near the snout;

the pupil is black, and the iris grey, with a tinge of red. The body is elongated and almost cylindrical, tapering only towards the commencement of the tail; the scales are all smooth, shining, broad, and obtuse at the apex, and even more uniform in size than in the preceding species. The tail is remarkably short, conical, terminating rather abruptly in a slight point.

Colours. The head above is dark blue, with the plates tinged with red at their junction. The labial plates of the upper jaw are reddish, each with a dark blue spot in the centre; most of those of the lower lip are likewise spotted. The whole superior surface of the animal is bluish-black; the sides are marked with about sixty transverse blotches of bright red; these bands are sometimes continued across the abdomen, sometimes they are interrupted midway; and as they often terminate suddenly, and have well defined margins, these spaces contrasting with the deep black of the other portions, give a tesselated appearance to the inferior surface of the body; this is most striking at the tail, where it resembles in no slight degree the ornamental borders found on the walls of Pompeii.

Dimensions. Length of the head, 15 lines; breadth of the head, 11 lines; length of the head and body, 48 inches; tail, 5 inches; circumference, $3\frac{1}{2}$ inches: total length, 4 feet 5 inches.

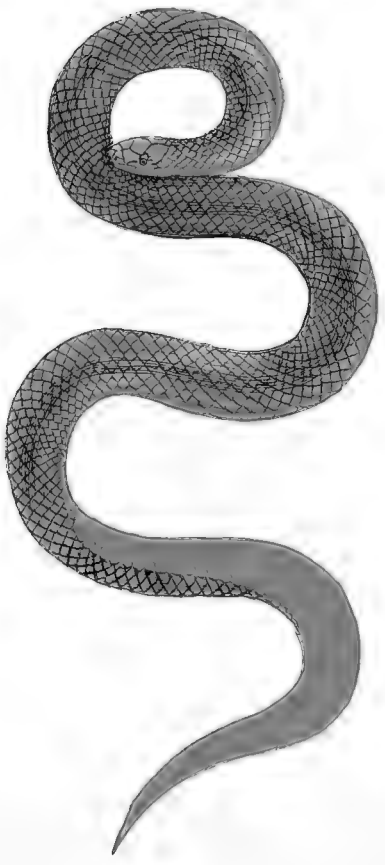
Geographical Distribution. I have seen this animal only in South Carolina; but Professor Green, of Philadelphia, has received it from the Mississippi, in the vicinity of New Orleans, where it is said to be abundant.

Habits. This serpent seems to be similar in its habits to the Helicops erythrogrammus; but it is rare and shy, consequently little can be said about it. I have never seen but three of them alive.

General Remarks. The Helicops abacurus is evidently very closely related to the preceding, and both have been very properly separated from Coluber.

It seems to me quite probable that this may be the Wampum Snake of Catesby, which I have never been able clearly to identify with any one of our serpents.

Schlegel has lately described this animal from a specimen procured near New Orleans, as the Homalopsis Rheinwardtii. The specific name cannot be retained, as that of abacurus has the right of priority.



Brachyorrhos amœnus.

J. Verreaux del. *P.S. Duval Lith. Pin.*

BRACHYORRHOS.—*Kuhl.*

Genus Brachyorrhos.—Characters. Head minute, not distinct from the neck, ovate; frontal plates large, extended over the eyes; anterior frontal small; no loral, but a large anterior orbital plate; superior orbital plate trigonal, small, not projecting, and placed over the posterior part of the orbit; nasal plate single, large, with the nostril nearly in the middle, over the first labial; mental plates, one pair; body small, rather depressed; abdomen broad; scales smooth; tail very short.

BRACHYORRHOS AMÆNUS.—*Say.*

Plate XXVII.

Characters. Head short, flat; snout truncated; neck not contracted; body slender, flattened, covered with smooth, sub-hexagonal scales, above light chestnut-brown, opalescent in some lights; abdomen bright salmon-colour. Pl. 120. Sc. 35.

Synonymes. Coluber amænus, *Say*, Journ. Acad. Nat. Scien. Philad., vol. iv. p. 237.
Coluber amænus, *Harlan*, Med. and Phys. Res., p. 118.
Calamaria amæna, *Schlegel*, Phys. des Serp., tom. ii. p. 31.

Description. The head is small and flat; the snout broad, and but slightly rounded; the vertical plate is very broad, sub-triangular, with its basis rounded, directed forwards, and its apex backwards; the superior orbital small, sub-trapezoidal, and slightly concave at its external border, and not projecting over the eye.

The occipital are pentagonal and very large, covering nearly one-half of the superior surface of the head; the frontal are irregularly pentagonal, and form the superior and anterior part of the orbit of the eye, broad, and most extensive transversely; the anterior frontal are small and oblong. The rostral is very short, rounded above and concave below; the nasal plate is single, quadrilateral, and very large; there is no loral plate. The anterior orbital is large, and a parallelogram in form; the posterior is pentagonal, and much smaller; and behind this are two oblong-square temporal plates, the anterior largest; the inferior wall of the orbit is completed by the third and fourth labials, of which plates there are five, the two anterior quadrilateral, the third and fourth pentagonal and larger, the fifth quadrilateral and largest of all.

The nostrils are small, lateral, near the snout, and open a little upwards, near the anterior part of the nasal plate. The eyes are small and exposed, the pupil black, with the iris dusky. The neck is not contracted.

The body is cylindrical, robust for the size of the animal, rounded above, flattened below, and covered with small, smooth, sub-hexagonal scales above, and with plates beneath. The tail is short, thick, conical, and ends in a horny point.

Colour. The whole superior surface of the animal, head, body, and tail, is of uniform very light chestnut-brown, opalescent in certain lights; the abdomen is bright salmon-colour.

Dimensions. Length of head, 5 lines; length of body to vent, 8 inches; length of tail beyond vent, 2 inches: total length, 10 inches 5 lines. In the specimen here described, there were 120 abdominal plates, the anal broad and double, and 35 sub-caudal bifid plates.

Habits. This serpent is mostly found under the bark of old trees, or under rocks, where small insects abound, on which it feeds.

Geographical Distribution. This serpent is found in all the Atlantic states, from New Hampshire to Florida, inclusive; thence it extends through Alabama, Mississippi, and Louisiana, from which state I have also received specimens.

General Remarks. Say was the first naturalist that observed this animal and described it as a distinct species, under the specific name amænus, which has here been retained.

Calamaria elapsoidea

CALAMARIA.—*Boie.*

Genus Calamaria.—Characters. Head small, hardly distinct from the body; mouth small; eyes minute; frontal plates lengthened to form part of the orbit; nasal plates two; no loral, but anterior frontal in some descends to labial; body small, and nearly of equal thickness throughout; tail very short.

CALAMARIA ELAPSOIDEA.—*Holbrook.*

Plate XXVIII.

Characters. Head small, size of the neck; body scarlet, surrounded by black rings, in the centre of which is a smaller white ring; no loral plate. Pl. 170. Sc. 38.

Description. The head is small and like that of the Elaps fulvius, and not very distinct from the body; it is short, with the snout rounded. The vertical plate is triangular and elongated, with the basis directed forwards and the apex backwards. The superior orbital are nearly quadrilateral, pointed anteriorly, and do not project much externally. The occipital plates are oblong, their inner margins straight, their outer margins rounded, broadest in front, and joined to the vertical and superior orbital plates. There are two temporal plates, small, nearly of the same size, and quadrilateral in shape. The frontal plates are pentagonal and broad internally, but pointed externally, where they descend to join the labial plates, as there is no loral; the anterior frontal are small, and nearly quadrilateral. The nasal plates are two in number, nearly quadrilateral,

one lunated behind and the other but slightly so before, for the nostril. The rostral plate is triangular, its basis below, and its apex above and rounded. There are two posterior orbital plates, nearly of the same size, the superior being but slightly the larger. There is but one anterior orbital plate, nearly a parallelogram, with its greatest extent in the vertical direction. The upper jaw is covered with seven plates, nearly quadrilateral; two of which, the third and fourth, form the lower margin of the orbit of the eye.

The nostrils are large, lateral, and placed at the junction of the two plates. The eyes are small but prominent, as the superior orbital plates are not projecting; the pupil is dark, the iris reddish. The neck is cylindrical, and slightly contracted.

The body is a regular cylindroid, a little flattened on the abdomen to near the tail, when it suddenly decreases in size to terminate in a small acuminate tip.

Colour. The head is black, with a small spot on each frontal plate; a white band begins at the occiput and descends to the throat, becoming broader in its descent. The ground of the colour of the body is of a beautiful red, surrounded by eighteen jet black rings; between each pair of rings is a narrow white one. The borders of all these rings are very distinct and entire.

Dimensions. Length of head, 5 lines; length of body, 9 inches; length of tail, $1\frac{3}{4}$ inches: total length, 11 inches 2 lines. The individual here described had 170 abdominal plates, and 38 sub-caudal bifid plates.

Habits. This animal is not common; I have met with but few of them, consequently know nothing of its habits. It is a beautiful and harmless little snake.

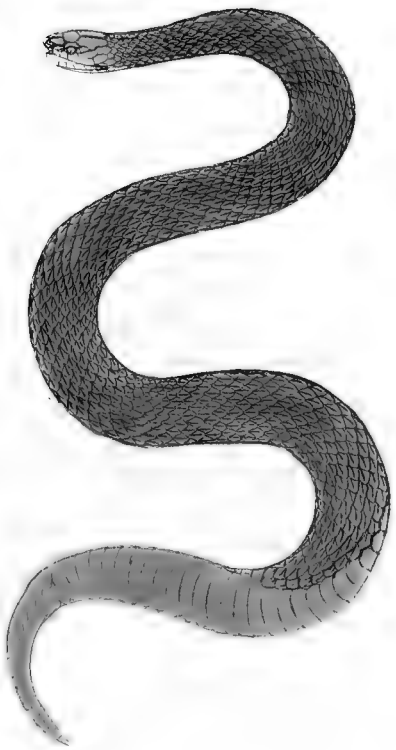
Geographical Distribution. As yet I can only give South Carolina and Georgia as the habitat of the Calamaria elapsoidea.

General Remarks. It is more than probable that Bosc had this animal in view when describing his "Couleuvre écarlate,"* (Coluber coccineus,) for his description agrees perfectly well: "body vermilion, with transverse bands of yellowish-white between black bands;" and, besides this, his figure of it corresponds to the one here given, in shape, size, and disposition of the colours. But there is still some confusion, for prior to this he had sent "the animal, accompanied by a description and drawing," to Latreille, who published them both in his Histoire Naturelle des Reptiles; in which he says of it, "the snout is obtuse and somewhat of the horse-shoe shape; under part of the body uniform white."

Yet in Bosc's description, quoted above, the rings are represented encircling the body, as in the Elaps fulvius, with which the animal seems to have been confounded, but from which it is entirely distinct in the arrangement of its teeth; there being in the Calamaria elapsoidea, palatine and maxillary teeth, but no fangs.

The disposition of the colour, too, is different, as may be seen on a careful examination; for in the Elaps fulvius we have certainly a crimson groundwork and black rings, but each black ring is bordered with a smaller yellow one, both anteriorly and posteriorly. Should, however, this animal be the Couleuvre écarlate (Coluber coccineus) of Bosc, still his specific name cannot be retained as it has been previously applied by Blumenbach to another serpent.

* Nouv. Dict. d'Hist. Nat., tom. vi. p. 395.



Calamaria striatula

CALAMARIA STRIATULA.—*Linnæus.*

Plate XXIX.

Characters. Head small, not distinct from the neck; snout rather pointed; body short, robust; tail very short, above reddish-grey, beneath pale salmon-colour. Pl. 130. Sc. 20.

Synonymes. Coluber striatulus, *Linnæus*, Syst. Nat., tom. i. p. 375.
Coluber striatulus, *Gmelin*, Syst. Nat. Lin., tom. i. pars iii. p. 1087.
Coluber striatulus, *Daudin*, Hist. Nat. des Rept., tom. vii. p. 200.
Coluber striatulus, *Latreille*, Hist. Nat. Rept., tom. iv. p. 84.
Natrix striatulus, *Merrem*, Versuch eines Syst. der Amphib., p. 118.
Coluber striatula, *Harlan*, Med. and Phys. Res., p. 117.
Calamaria striatula, *Schlegel*, Phys. des Serp., tom. ii. p. 43.
Brown Snake, *Vulgo.*

Description. The head is very small, rather pointed at the snout, and not at all distinct from the neck The vertical plate is sub-hexagonal and pointed behind; the superior orbital are narrow, rather long, and do not project over the eyes, which are consequently directed slightly upwards. The occipital plates are broad, elongated, and pentagonal. The frontal are elongated, pentagonal, broadest behind, and narrower where they are prolonged to form a part of the orbit; the anterior frontal is single, sub-trigonal, broadest behind. There are two nasal plates; the anterior is semicircular, concave behind; the posterior is quadrilateral, and concave before for the nostril. The anterior orbital plate is very large and a parallelogram in shape, and reaches to the posterior nasal, as there is no loral plate; the posterior orbital is single, triangular, its basis before and slightly

hollowed. The inferior wall of the orbit is completed by the third and fourth labial plates, of which there are five, the fourth and fifth very large. The neck is not contracted. The body is short, rather thick, and covered above with small sub-hexagonal scales, truncated posteriorly, and strongly carinated, the lower row only being smooth. The tail is very short and thick.

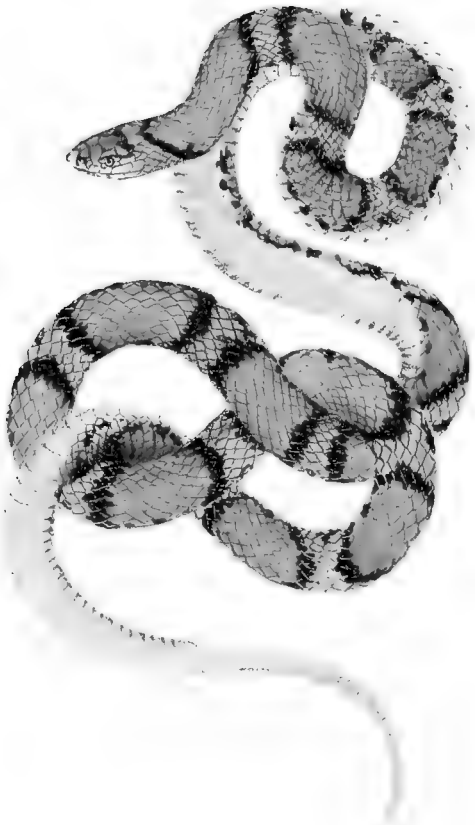
Colour. The whole superior surface of this serpent is reddish-brown; the inferior surface is pale salmon-colour.

Dimensions. Length of head, 4½ lines; length of body, 8 inches; length of tail, 2 inches: total length, 10 inches 4½ lines. In the individual here described there were 130 abdominal plates and 30 sub-caudal bifid plates.

Habits. This animal lives almost constantly under the bark of dead trees, or under rocks and stones, feeding entirely on insects.

Geographical Distribution. The Calamaria striatula inhabits the Atlantic states, from Maryland to Georgia.

General Remarks. Linnæus gave a short description of this animal from specimens sent him from Carolina by Dr. Garden. The first figure of the Calamaria striatula may be seen in Latreille's Histoire Naturelle des Reptiles, though it is but ordinary. Schlegel has lately given an excellent description of this serpent, from specimens found near New Orleans.



Rhinostoma coccinea

JH Richard del *CS Duval Lith Phila*

RHINOSTOMA.—*Fitzinger.*

Genus Rhinostoma.—Characters. Head short, small, and not distinct from the neck; rostral plate large, prolonged in front, sub-acuminate, ecarinate above; loral plate single; one anterior and two posterior orbital plates; superior orbital not projecting; mouth small; two posterior maxillary teeth next to the last are largest; body elongated and nearly cylindrical.

RHINOSTOMA COCCINEA.—*Blumenbach.*

Plate XXX.

Characters. Head small, short; rostral plate large; a trihedral pyramid; body above crimson, marked with about twenty yellow transverse bands, bordered with black; abdomen beautiful silver-white. Pl. 188. Sc. 39.

Synonymes. Coluber coccineus, *Blumenbach*, Licht. et Voigt, vol. v. p. 10, pl. 5.
Coluber coccineus, *Gmelin*, Syst. Nat. Lin., tom. i. part iii. p. 1097.
Coluber coccineus, *Daudin*, Hist. Nat. des Rept., tom. vii. p. 43, pl. lxiii. fig. 1.
Coluber coccineus, *Latreille*, Hist. des Rept., tom. iv. p. 148.
Coluber coccineus, *Harlan*, Med. and Phys. Res., p. 119.
Heterodon coccineus, *Schlegel*, Phys. des Serp., tom. ii. p. 102.

Description. The head is short, small, not quite so large as the body, with the snout prolonged and pointed. The vertical plate is irregularly rhomboidal,

very broad in front, and pointed behind, where it is received by the occipital plates; the superior orbital is single, oblong, hexagonal, and larger above than below, and instead of projecting over the eye, is concave on its outer margin. The occipital plates are two in number, broad, and larger in front, with two temporals of variable shape. The frontal plates are irregularly hexagonal, with the longest border joined to the vertical and loral, with three articulating facets externally for the anterior orbital, loral and posterior nasal plates; the anterior frontal are quadrilateral, larger below and smaller above. The rostral plate is large, thick, and sub-rhomboidal, with its summit prolonged and acuminated; the nasal plates are double, the anterior quadrilateral, the posterior pentagonal, with the nostril between them—the posterior is joined to the orbit by a large square plate. The loral plate is large and of pentagonal form; the posterior orbital are two in number, quadrilateral, and nearly of equal size. There are six large irregularly quadrilateral labial plates on each side of the upper jaw, the second and third of which form the inferior walls of the orbit of the eye.

The nostrils are lateral, and at a distance from the snout. The eyes are small; the pupil black, with the iris reddish-grey. The neck is not at all contracted. The body is elongated, cylindrical, and covered with smooth scales, and with broad plates below. The tail is short, thick, and pointed at its extremity.

Colour. The anterior part of the head is yellow, with a transverse black band just behind the orbits of the eye. The body, at first view, seems bright vermilion, marked with transverse black rings, placed in pairs, but separated from each other by a yellow ring; yet, if examined attentively, there will be found about twenty ovoid, beautiful crimson spots, each spot surrounded with a black border, and separated from the adjacent spots in front and behind by a transverse yellow band: at the extremity of each of these yellow bands is placed a dusky sub-round spot, often indistinct, making a lateral series alternating with the vertebral row. The throat and abdomen are beautiful silver-white.

Dimensions. Length of head, 6 lines; breadth of head, 6 lines; length of body, 17 inches; length of tail, 3 inches: total length, 21 inches.

Habits. The Scarlet Snake is very timid, and lives most of its time in concealment; seldom does it move abroad unless disturbed, or in search of its food, which is the various kinds of crickets, grasshoppers, &c.

Geographical Distribution. The range of the Rhinostoma coccinea is very limited. As yet I can only give, with certainty, from lat. 34°, in the Atlantic states, to the Gulf of Mexico.

General Remarks. The first account of this serpent may be seen in Lichtenstein and Voigt's *Magazin;** it is very accurate, and was furnished by Blumenbach. Gmelin copied it in his edition of the Systema Naturæ of Linnæus, and Dr. Garden is given as authority for the locality of the animal.

Daudin next gave not only a full and accurate description of the Rhinostoma coccinea, but he accompanied it with an excellent figure. The "Couleuvre écarlate" (Scarlet Snake) of Bosc† is quite another animal, doubtless the Calamaria elapsoidea, as both his description, as well as his plate, represent it as entirely surrounded with black bands, while in the Rhinostoma coccinea the whole abdomen is of beautiful silver-white.

I cannot, by any means, agree with Schlegel, the distinguished ophidiologist, in placing this serpent among the Heterodontes, because it differs from them in so many particulars. The Rhinostoma has the head small, short, and not dilatable at will. In the Heterodon it is broad, flat, triangular and dilatable. In one the body is sub-cylindrical, and always of the same size; in the other it is always more or less depressed, and can be flattened extremely.

* Vol. v. p. 10.

† Nouv. Dict. d'Hist. Nat., tom. xiii. p. 267, pl. xxxiii. fig. 3.

The rostral plate, though prolonged in both, is of very different form, and is carinated above in Heterodon, and not in Rhinostoma; even in their teeth they are not much more allied to Heterodon than to Tropidonotus. The posterior large maxillary teeth are much more erect here than in either of those genera.

In short, then, their whole "physionomie" in life is different. The small head—the slightly projecting superior orbital plates—the small eyes—give the Rhinostoma coccinea a mild and placid look, which really appertains to its character; while the broad, flattened head—the projecting superior orbital plates, like the Crotaloidea, gives an Heterodon the look of a bold, blustering fellow, as he is.