

On the fresh water and land TORTOISES of the United States. By THOMAS SAY. Read October 12th, 1824.

Of the fresh water and land tortoises inhabiting this country, the *CHELONURA serpentina*, *EMYS concentrica*, *punctata*, and *picta*, the *CISTUDA pensylvanica*, *odorata*, and *clausa*, as well as the *TRIONYX ferox* are well known, and are even familiar to every naturalist who has devoted any attention to the Reptilia. They are all strongly characterized by nature and cannot be readily misunderstood or confounded with each other. But there are several of our species, which, either from their rarity in this region, from the obscurity of their characters, or from the want of differential descriptions, may readily be mistaken by the student. Such are the *EMYS scabra*, *reticulata*, *serrata*, *geographica*, *glutinata*, and I may add the *TESTUDO polyphemus*.

In order that these species may be better understood, I shall proceed to give specific definitions of all those above mentioned, which, inclusive of a new species of *EMYS*, described in this paper under the name of *biguttata*, present a list of all the species yet fully ascertained to inhabit this country.

TESTUDO.

1. *T. polyphemus*, Daudin. Above depressed; anterior plates of the sternum elongated into a dilated projection, which surpasses the front of the superior shell; *tail* obsolete; *nails* depressed, quadrate; *jaws* denticulated.

EMYS.

2. *E. serrata*, Daudin. *Shell* oval, longitudinally wrinkled; first vertebral plate urceolate; anterior marginal scutum slender, its length equal to three times its breadth; posterior marginal scuta serrated; a blackish spot on the marginal scuta beneath: *jaws* remarkably denticulated.

3. *E. reticularia*, Latreille. *Shell* ovate; first vertebral plate quadrate, a little wider before; posterior marginal scuta entire, lateral ones beneath with three black spots over the suture of the sternum; *sternum* very narrow, elongate-oval: *jaws* unarmed.

4. *E. geographica*, Lesueur. A vertebral carina which is prominent and acute at the posterior tips of the plates; first plate suburceolate, angulated before; anterior marginal scutum slender, anterior plates of the *sternum* and posterior marginal scuta of the superior shell very concave: *jaws* unarmed.

5. *E. scabra*, Linn. *Plates* sculptured with very numerous, concentric and radiating, impressed lines, giving a granulated appearance to the whole

surface ; a large black spot on each plate of the *sternum* : *jaws* not denticulated ; *superior mandible* emarginate at tip ; *inferior* one acute.

6. *E. centrata*, Latr. *Shell* somewhat ovate, carinate excepting on the last plate ; plates with concentric circles, either simply coloured or deeply impressed ; posterior marginal scuta crenate ; anterior one quadrate : *skin* whitish, with very numerous blackish spots : *jaws* simple.

7. *E. picta*, Linn. Dark brownish, plates of the shell margined with yellow : *head*, and particularly the *throat*, lineated with yellow ; *jaws* denticulated.

8. *E. punctata*, Schoepff. *Shell* dark brown or blackish, with remote bright yellow, round spots ; anterior costal scuta very narrow, linear : *superior jaw* emarginated ; *inferior jaw* acute.

9. *E. * biguttata*, Nobis. *Shell* oblong-oval, slightly contracted in the middle, each side ; anterior marginal scuta very narrow, linear : *occiput* with two very large fulvous spots : *superior jaw* emarginate ; *inferior jaw* acute : *tail* rather long, simple.

10. *E. glutinata*, Daud. *Shell* similar to that of the *CISTUDA odorata*, excepting that the *sternum* is immoveable. *Daudin*.

CISTUDA.

11. *C. clausa*, Linn. *Shell* elevated, convex, oval ; anterior vertebral plate somewhat urceolate ; ante-

rior marginal scuta very small; *sternum* bivalvular, completely closing the shell; *suture* before the middle: *superior mandible* hooked, *inferior* one elevated at tip and acute: *tail* short.

12. *C. pensylvanica*, Linn. *Shell* oval, convex; anterior vertebral plate very narrow behind, and gradually dilated before; marginal scuta remarkably narrowed, anterior one extremely small, quadrate; *sternum* with but eleven plates; bivalvular, intermediate portion immoveable; behind deeply emarginate, the posterior angles rounded: *superior mandible* hooked at tip; *inferior* one at tip elevated and acute: *tail* unguiculated.

13. *C. odorata*, Latr. *Shell* oval, convex; anterior vertebral plate very narrow behind, and gradually dilated before; marginal scuta remarkably narrowed, anterior one extremely small, quadrate: *sternum* with but eleven plates, anterior portion moveable, valvular; behind emarginate, the posterior angles acute: *mandibles* simple, rounded at tip.

CHELONURA.

14. *C. serpentina*, Linn. *Shell* subovate, depressed; *plates* with small elevated points and lines; posterior plates, each with a somewhat acute prominence; vertebral plates six, lateral ones five; posterior marginal scuta deeply serrated; anterior scutum elongated, transverse: *superior mandible* hooked, acute: *tail* elongated, compressed, serrated.

TRIONYX.

15. *T. ferox*, Linn. *Sternum* with two callosities; small smooth tubercles on the anterior and posterior part of the cartilaginous covering of the body: *tail* hardly longer than the extremity of the cartilaginous covering.

Observations on the species.

1. *TESTUDO polyphemus*. This is a true land tortoise, both as respects its generic characters and its habits, and is well known in the region which it inhabits, by the name of *Gopher*. It is altogether limited to the southern states, and more particularly Georgia, and the Floridas, where it prefers arid situations, and burrows deeply in the sand. On the bank of the river St. John, Mr. T. Peale and myself dug about ten feet, guided by one of their burrows, before we arrived at its termination and secured the inhabitant. The species is readily distinguished from any other, by its depressed form and the remarkable projection of the anterior plates of the sternum; and although these plates vary in their proportional degree of prominence and width in different individuals, yet they always surpass the anterior line of the superior shell; in some instances, however, they may not exceed in proportional magnitude those of the *T. covi*, Daud. The tail also offers a very remarkable character. It is so extremely short.

thick, and obtusely convex, that at first view the animal appears to be altogether destitute of a tail properly so called. As this member does not extend to the termination of the superior shell, we may consider the *polyphemus* as the beginning of a series in which the length of the tail is estimated; the *CHELONURA serpentina* occupying the opposite extreme in this family. Referring only to the posterior member of the *polyphemus*, we might readily conclude that Linné had this species in view when he described the *CISTUDO carolina*, but the remainder of his description and more especially his reference to a figure of a monstrous or mutilated individual of the *C. clausa*, in Edwards' Natural History, page 205, is conclusive on this point. Good specimens are in the Philadelphia Museum, one of which is living.

SYNONYMES.

Gopher, BARTRAM'S TRAVELS.

TESTUDO polyphemus, DAUD. in SONN. BUFF. Nat. Hist. Rept. vol. 2, p. 256.

The *TESTUDO denticulata*, Linn. is said by several authors to be a native of Virginia, but I have not met with it, neither is it known to the inhabitants of that state; its native country must therefore be considered as doubtful.

2. *EMYS serrata*. The largest of the North American species of this genus, and closely allied to the *reticulata* and *geographica*. On the superior

shell are generally numerous longitudinal wrinkles or elevated lines, which give it a remarkable appearance; but as these do not exist in all the specimens, we must have recourse to other markings to distinguish this species. On comparing the *serrata* with the *reticulata*, we observe, that the posterior part of the shell is more or less serrated, whilst that of the other is simple; that the jaws are denticulated, whilst those of the *reticulata* are unarmed; that many, and sometimes nearly all of the marginal scuta have a blackish subocellate spot on their inferior surface, whereas in the *reticulata* these spots are but three in number, and are confined to those scuta which are immediately above the connecting suture of the sternum. The *serrata* is frequently brought to the Philadelphia market as an article of food.

The largest specimen I have seen we obtained in East Florida; it measures about 17 inches.

SYNONYMES.

TESTUDO *serrata*, DAUDIN in Sonnini's BUFF. 2. p. 148, pl. 21, fig. 1, 2, (the description indicates the *reticulata*.)

TESTUDO *rugosa*, SHAW, Zool. v. 3, pt. 1. p. 28, pl. 4. (the *serrata* of this author p. 51, pl. 9, is a different species.)

3. *E. reticularia*. This species is far less frequent than the preceding, and the only specimen I have seen belongs to the Philadelphia Museum. This specimen responds very well with Daudin's figure.

SYNONYMES.

TESTUDO *reticularia*, LATR. *hist. nat. des Rept.*

TESTUDO *reticulata*, DAUD. in Sonnini's BUFF. 2, p. 144, pl. 21, f. 3, (his description indicates the *E. serrata*.)

4. *E. geographica*. An inhabitant of the North Western lakes and their tributaries, as well as of the waters of the Mississippi; but it is probably not found in the more northern waters which flow into the Atlantic.

SYNONYME.

TESTUDO *geographica*, LESUEUR *Journ. Acad. Nat. Sc.* vol. 1, p. 86, pl. 5.

5. *E. scabra*. Authors seem to have seen only the shell of this species as they have not noticed the colour of the skin of the animal; this colour is uniform, dark greenish-brown above, and fulvous beneath.

The *scabra* is found as far north as Maine, it is not common in Pennsylvania, but in some parts of the country it is rather abundant; and my friend Prince Charles Bonaparte informs me that in the vicinity of Bordentown, New Jersey, it occurs frequently, and is known by the name of fresh water terrapin. The shell of a specimen which he sent me, measures nine inches in length. This is certainly the largest I have seen; and the fact is the more particularly worthy of note, as the species has hitherto been stated to be only about three inches long.

SYNONYME.

TESTUDO *scabra*, LINN. *Syst. Nat.* (not of some other authors.)

6. *E. centrata*, is the animal so well known here by the name of "Terrapin." It is held in high estimation as a delicate food, and is generally served up on the tables of our public eating houses, boiled in the shell.

The *centrata* prefers the vicinity of the sea, and is never found far in the interior of the country, or remote from brackish water.

Like the *clausa* it varies in a remarkable degree. The concentric lines of the plates of the shell are sometimes simply of a darker colour than the general surface, whilst in other specimens they resemble deep grooves sculptured into the shell.

SYNONYMES.

TESTUDO *centrata*, LATR. *hist. nat. des Rept.* DAUD. in Sonnini's BUFF. 2, p. 153.

TESTUDO *concentrica*, SHAW, *Zool.* 3, pt. 1. p. 43, pl. 9.

7. *E. picta*. One of the handsomest of all the known species of EMYS, and at the same time the most abundant of any other in the United States. They lay for hours on logs or other objects that float on, or project into the water, from whence they dive into the water on the approach of any thing that alarms them. In old specimens a suture is very visible on the anterior part of the

sternum, concentric to the junction of the three anterior sutures as depicted on Pl. 4 of Schoepff's work. This suture is not seen in young specimens.

SYNONYMES.

TESTUDO *picta*, LINN. GMEL. *Syst. Nat.* SCHOEFF. *hist. test.* p. 23, pl. 4. DAUD. in SONNINI'S BUFF. 2, p. 164. SHAW, *Zool.* 3, pt. 2, p. 24, pl. 10, fig. 1.

8. *E. punctata*. As well as the preceding species, this is in no danger of being mistaken for any other; its markings are perfectly distinct and striking. It is also a common species, and seems to prefer clear flowing streams.

SYNONYMES.

TESTUDO *punctata*, SCHOEFF. *hist. test.* p. 28, pl. 5. DAUDIN in SONNINI'S BUFFON, 2, p. 159, pl. 22.

TESTUDO *guttata*, SCHNEIDER. SHAW, *Zool.* 3, pt. 1, p. 47. pl. 10, f. 2.

9. *E. * biguttata*. *Shell* convex, linear-oval, slightly wider behind, a little contracted each side at the middle, and with a hardly elevated dorsal carina; *plates* concentrically wrinkled, and with obsolete radiating lines; dark brown or blackish, obsoletely varied with yellow; *vertebral plates* subequal, wider than long; *costal plates*, excepting the fourth, which is small, subequal, the anterior one somewhat largest; *marginal scuta* twenty-five, anterior one linear, its length equal to double its breadth: *sternum* blackish, varied with yellow and

with twelve plates, of which the two anterior ones are smallest, triangular, with rectilinear sutures; lateral angles a little prominent, and at their anterior junction somewhat emarginate; second and third pairs of plates subequal; fourth and fifth larger, subequal; sixth much smaller, broader than long, widely emarginate behind: *head* blackish, varied with yellow in short undulated lines, particularly on the inferior jaw, which is much curved upward at tip and acute: superior jaw deeply emarginate at tip, each side of which is a slight obtuse dentiform prominence: *occiput* with two very large, bright, fulvous spots: *tail* as long as the hind feet, thick at base, and gradually tapering to the tip, which is unarmed.

Length of the shell, three inches and four-fifths; greatest breadth nearly two inches and four-fifths; breadth in the middle, two inches and two-fifths.

This new species is by no means common; I have as yet seen but few individuals, one of which is in the collection of the Academy.

10. *E. glutinata*. This species has not yet fallen under my observation, and we have no other information respecting it than what is recorded by Daudin. He informs us that it is so closely allied to the *odorata* as to be with difficulty distinguished from that species, by any other character than that of the immoveable condition of the extremities of the sternum, which, in the *odorata*, are valvular. Whether or not immobility of the sternum

may be the consequence of advanced age, or a permanent specific trait, must be left for future determination.

SYNONYMES.

TESTUDO *glutinata*, DAUDIN in SONNINI'S BUFFON, 2 p. 194, pl. 24, f. 4, (the sternum.)

TESTUDO *pennsylvanica*, *sterno immobili*. SCHOEPPF, pl. 24, fig. B, p. 110.

11. *CISTUDO clausa*. Familiarly known to almost every one by the name of land tortoise; it is that species on the inferior shell of which many persons are in the habit of cutting the initials of their names together with the date of the year.

It exhibits so great a variety in the form, number, and distinctness of the yellow spots in different individuals, that it is not common to find two in which these markings are nearly similar. Amongst the varieties, there appears to be every degree of gradation from large spots occupying a greater portion of the whole surface of the superior shell, to obsolete spots, or to small ones covering but a very small portion of the surface; some specimens have been found altogether immaculate. Moreover, as in the *E. concentrica*, the plates are sometimes sculptured with impressed concentric lines; in other specimens they are perfectly glabrous, and between these two extremes a complete connexion may be traced. So great is the variation in these respects, that it appears to me

necessary to have some other character than colour, pointed out on the *E. virgulata* of Daudin, in order to prove it a species and not a mere variety of the *clausa*, as I believe it to be, as well as the *E. carolina* of Linné.

This species certainly belongs to the genus EMYS, as formerly characterized, although it does not, at least as far as I have observed, ever enter the water voluntarily, and is therefore as exclusively a land tortoise as the TESTUDO *polyphemus* itself. The *clausa* does, however, exhibit a predilection for moisture, as Mr. Titian Peale has observed, by exposing itself to every fall of rain, whilst its companion in the same enclosure, the *polyphemus*, invariably seeks shelter under the same circumstances.

A very beautiful variety occurs on the arid prairies of the Arkansa. A specimen brought by Major Long's exploring party is in the collection of the Philadelphia Museum; the yellow lines and spots on its shell are unusually vivid and well defined, contrasting strongly with the general black colour: the sternum is also black brown, with numerous bright yellow lines. If the *virgulata* be justly entitled to specific distinction, this variety, and in fact several others, must also be separated.

SYNONYMES.

TESTUDO *clausa*, LINN. GMEL. SCHOEPFF. *Hist. test.* p. 32.
pl. 7. DAUDIN in SONNINI'S BUFFON, *Reptiles*, vol. 2. p. 207.

pl. 23, fig. 1, 2. SHAW, *Gen. Zool.* vol. 3, pt. 1, p. 36, pl. 7.
(the figure taken from Edwards'.)

TESTUDO *carolina*, LINN. GMEL.

TESTUDO *caroliniana*, SCHNEID. SCHILD. p. 334.

TESTUDO *tessellata*, *minor caroliniana*, EDW. *nat. hist.* p.
205.

La courte queue, LACEP. *hist. nat. Quad. ovip.* vol. 1, p. 169.

TESTUDO *virgulata*, DAUDIN in SONNINI'S BUFF. *Reptiles*,
vol. 2, p. 201, pl. 23, f. 3, 4.

12. *C. pensylvanica*. Inhabits ditches and other turbid waters. It is sometimes taken by the hook and line. A variety was found by a detachment of major Long's exploring party on Bowyer creek, a tributary of the Missouri. The upper shell is altogether similar to that of specimens found in the vicinity of this city, but the sternum is proportionally much wider; the femoral plates are much more elongated backward, and the junction of the caudal plates is but very slightly emarginated at tip.

SYNONYMES.

TESTUDO *pensylvanica*, LINN. GMEL. SCHOEPFF, p. 107. t. 24. SHAW, *Zool.* vol. 3. pt. 1, p. 60, pt. 14, f. 2. (the shell he figures as a variety on pl. 15, is a distinct species, and probably not of this country.) *Enc. Meth.* pl. 5, fig. 1. Daudin in Sonnini's Buffon, 2, p. 182, pl. 24, fig. 1, 2.

13. *C. odorata*. With the general appearance and form of the *pensylvanica*, this is certainly a perfectly distinct species. Daudin, who separated

it, has given a very good figure in Sonnini's Ed. of Buffon. Waving other equal or more important differences, the form of the apex of the upper mandible, is alone sufficient to show that the *odorata* is entitled to rank as a species. In the *pensylvanica* this part is rather abruptly prolonged vertically, so as to conceal much of the tip of the inferior mandible, as in the *clausa*, *CHELONURA serpentina*, &c. whereas in the present species the upper mandible is not at all prolonged, but the tip is perfectly simple and rounded.

The *odorata* is generally known by the name of "stink-pot," from its musky odor; it is a very common inhabitant of ditches and other turbid waters, and is very troublesome to those who angle in such situations. Some persons are so well acquainted with its nibble, as to be able to distinguish it from that of the various kinds of fishes. It affects the hook in a sluggish manner, and sometimes remains firmly attached for a considerable interval, without giving any motion to the cork which floats on the surface.

SYNONYMES.

TESTUDO *odorata*, DAUD. in SONN. BUFF. 2, p. 189, pl. 24, f. 3, (sternum.) he quotes LATR. *hist. nat. des Rept.* 1, p. 122.

14. *CHELONURA serpentina*. A common species, inhabiting large muddy ponds, ditches, and other waters of slow current. In winter it approaches holes in the ice, and is then taken by the harpoon, for culinary purposes. It is exposed for sale in

our markets under the name of "snapping turtle." It is prevented from biting by a piece of twine which is passed between the jaws and drawn tight around the sides of the body. It constitutes the chief ingredient of the more common kind of "turtle soup" of our taverns and oyster cellars.

Mr. J. E. Calhoun informs me that it is distinguished by the negroes of South Carolina, by the name of *Coutta*, probably from its similarity to an unknown species of Africa.

In some situations where this species abounds, it is very destructive to young ducks, seizing them by the feet and dragging them under water, for the purpose of devouring them.

SYNONYMES.

TESTUDO serpentina, LINN. GMEL. *Syst. nat.* SCHOEFF, *hist. test. p. 32, pl. 6*, DAUDIN in SONNINI'S BUFFON, 2, p. 98, f.

TESTUDO serrata, PENN. *Arct. Zool. suppl. p. 97.*

15. *TRIONYX ferox*. An inhabitant not only of the rivers of Carolina and Georgia, as stated by authors, but it is found in nearly all the tributaries of the Mississippi, abundant in the Ohio, and of frequent occurrence in the smaller streams that discharge into the Missouri. It is also found in the streams that flow into the Lakes, and Dr. DeKay informs me, that it is found in the state of New-York, inhabiting some of the tributaries of Hudson's river. Its flesh is esteemed a nutritious and very delicate food; it is brought to the market of Pittsburg from June to December. Mr.

Speakman informs me that he has kept individuals upwards of a year, and that although they were very active, yet, with the exception of young ones, he never knew them to attempt to bite. They are chiefly taken with the hook and line, and are known by the name of "soft shelled turtle."

Although this species has been called by the several names of *ferox*, *La molle*, and *Tortue de Pennant*, yet Mr. Geoffroy has thought proper to apply another name, (v. Ann. du Mus. vol. 14, p. 17.) In a note on page 12, of the same volume, that distinguished naturalist observes, that as he has not seen the shells of the *T. ferox* and *euphraticus*, his figure 2, pl. 5, may represent that of one of those species, but he is of the opinion that it does not, because the shells of those two species are described to be more convex. In this opinion Mr. Geoffroy appears to me to be perfectly correct; the shell of the *ferox*, belonging to the collection of the Philadelphia Museum, though probably not more convex than that of the *subplanus*, is yet of a different form, from that of his figure, being longer in proportion to its width, and the ends of the ribs project further beyond the circumference of the shell.

SYNONYMES.

TESTUDO *ferox*, LINN. GMEL. *Syst. nat.* PENNANT *Philos. Trans. Lond.* vol. 61, p. 266, pl. 10. DAUDIN in Sonnini's BUFFON, 2 p. 69.

La Molle LACEP. *hist. nat. des Quadr. ovip.* vol. 1, p. 137. pl. 7. *Ency. Meth.* pl. 5. f. 3.

ADDENDA ET CORRIGENDA.

- Page 8, line 24, f. ~~di~~hedral read trihedral.
- 26, 4, for 322, read 323.
24, for *there*, read *this*.
- 27, 14, for 16, read *16
- 30, 23, for *Polytmus* read *Orthorhynchus*.
- 31, 7, dele "referring to."
- 34, 4, add *T. fuscus*, Gmel. Lath.
3 from the bottom, for *aquatius* read *aquaticus*
- 36, 4, for 568, read 556.
- 47, 21, add *E. ferruginea*, Gmel. Lath. female.
- 59, 2, from the bottom, for *Passerina* read *Spiza*.
last line, dele the *.
dele the 9th line.
- 60, dele the 9th line.
- 63, 9, dele *and Emberiza feruginea*.
11, dele *numerous*.
dele last line.
- 143, 2 from the last, dele "2."
- 152, 17, for 3, read 2.
- 169, 5, from the bottom, for *his*, read *this*.
- 170, 14, for *exteriore* read *exteriori*.
last line, for *with the*, read *with*.
- 182, 18, for *But we*, read *We*.
- 197, 3, for 84, read 85.
8, for 89, read 87.
- 199, 15, for *Black-pole*, read *Black-poll*.
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- 208, 11, for *Cistudo*, read *Cistuda*.
last line, for *reticulata* read *reticulariu*
passim the same.
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- 214, 9, for *Cistudo*, read *Cistuda*.
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- 231, 6, for 9.20, read 92.0.
8, for 98.0, read 88.0.
- 254, 3 from the bottom, for *canadensisatric apillus*, read
atricapillus canadensis.
- 262, 13 and 14, dele *Vieill. pl.* 28.
- 274, 2, for *this genus* read *the genus Icterus*.
- 275, 12, insert 56, before *Picus*.
- 313, 19, for *punctipes* read *meraca*.
- 351, 3, dele *and figured*.