

Eagles, I had the use of a very fine series, formed of Mr. Anderson's birds as well as my own. This collection, numbering between 30 and 40 birds, is, I believe, the finest there is; for I have not heard of even Mr. Hume possessing the half-changed striped birds. It was very pretty to see how this striped bird changed gradually into the old black one, and to see, on the other hand, how remarkably distinct *A. bifasciata* was from *A. crassipes* in every stage. Beyond the fulvous on the back of the head the two birds have nothing in common, except that they are of very similar size.

3. On the Genus *Chelymys* and its Allies from Australia.

By Dr. J. E. GRAY, F.R.S. &c.

[Received February 28, 1872.]

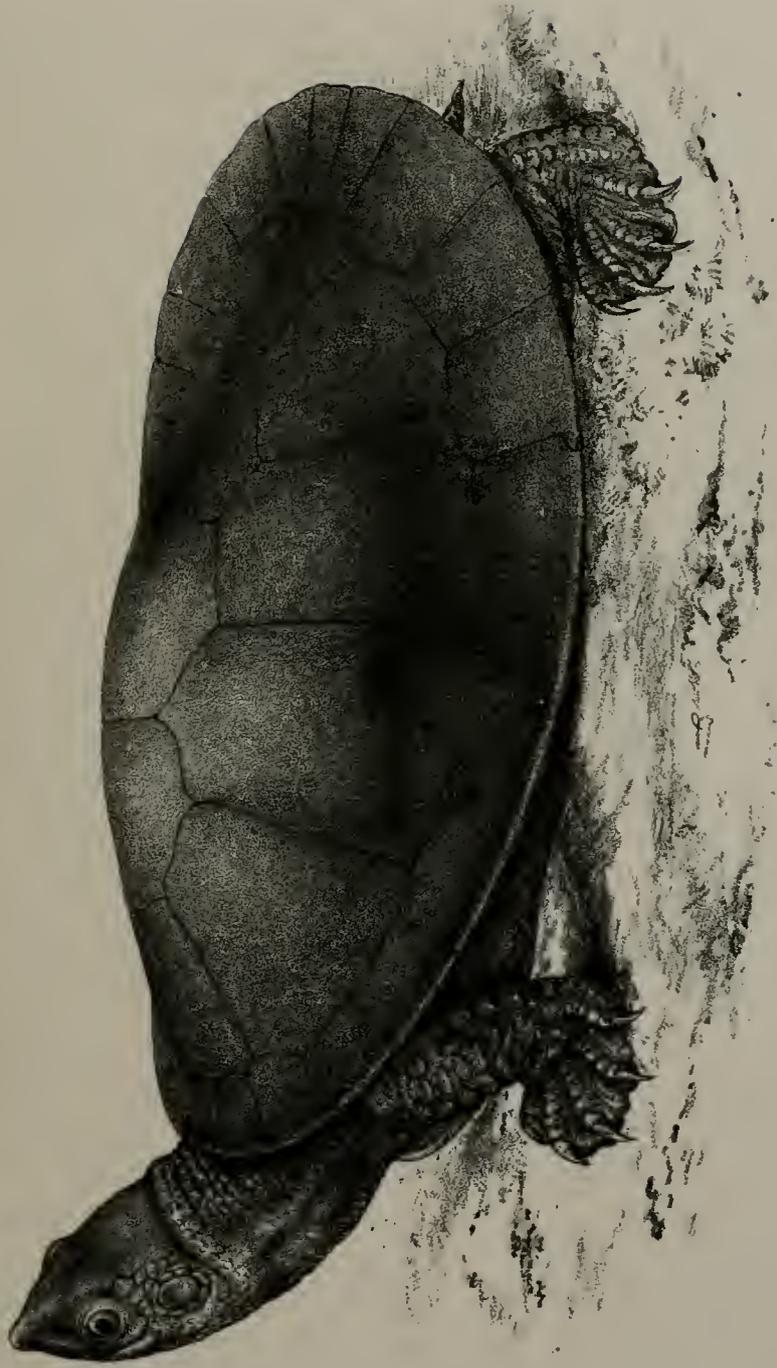
(Plates XXVII.-XXIX.)

Chelymys of Australia, in its more extended sense, forms with *Platemys* from Tropical America a group differing from all the other *Hydraspidae* in having a solid skull with a broad square face and crown, with the temporal muscles on the side, and a broad auri-occipital arch. The American genus *Platemys* is somewhat like the Australian genus *Elseya*, but differs from it in many particulars sufficiently to show that it is a distinct genus.

For many years only a single species, called *Emys macquaria* by Cuvier, was known; but as the country has been more searched we have gradually become acquainted with several very distinct species, which in the 'Annals and Magazine of Natural History' for 1867 (vol. xx. p. 44) I separated into two genera, *Chelymys* and *Elseya*, the former having no beard on the chin, whilst the latter has two distinct beards, but no nuchal shield.

In the 'Annals and Magazine of Natural History' for 1871 (viii. p. 117) I separated the genus *Euchelymys* from the latter because it had a narrow nuchal shield as well as two beards. We have since received from Mr. Krefft several more specimens of these animals—which has induced me to revise the characters of these genera, and also to examine and figure the skulls of two of them, as well as the other parts of the skeleton. I am now in doubt whether the existence of a narrow nuchal plate is a sufficient character for the establishing of a genus or species; but I must leave this question to be solved by the discovery and examination of more specimens. As yet we have only a single specimen with a nuchal plate; and, as far as I have had an opportunity of judging, I think it may probably be an accidental malformation of a comparatively common species without a nuchal plate, of which there are several specimens in the Museum collection.

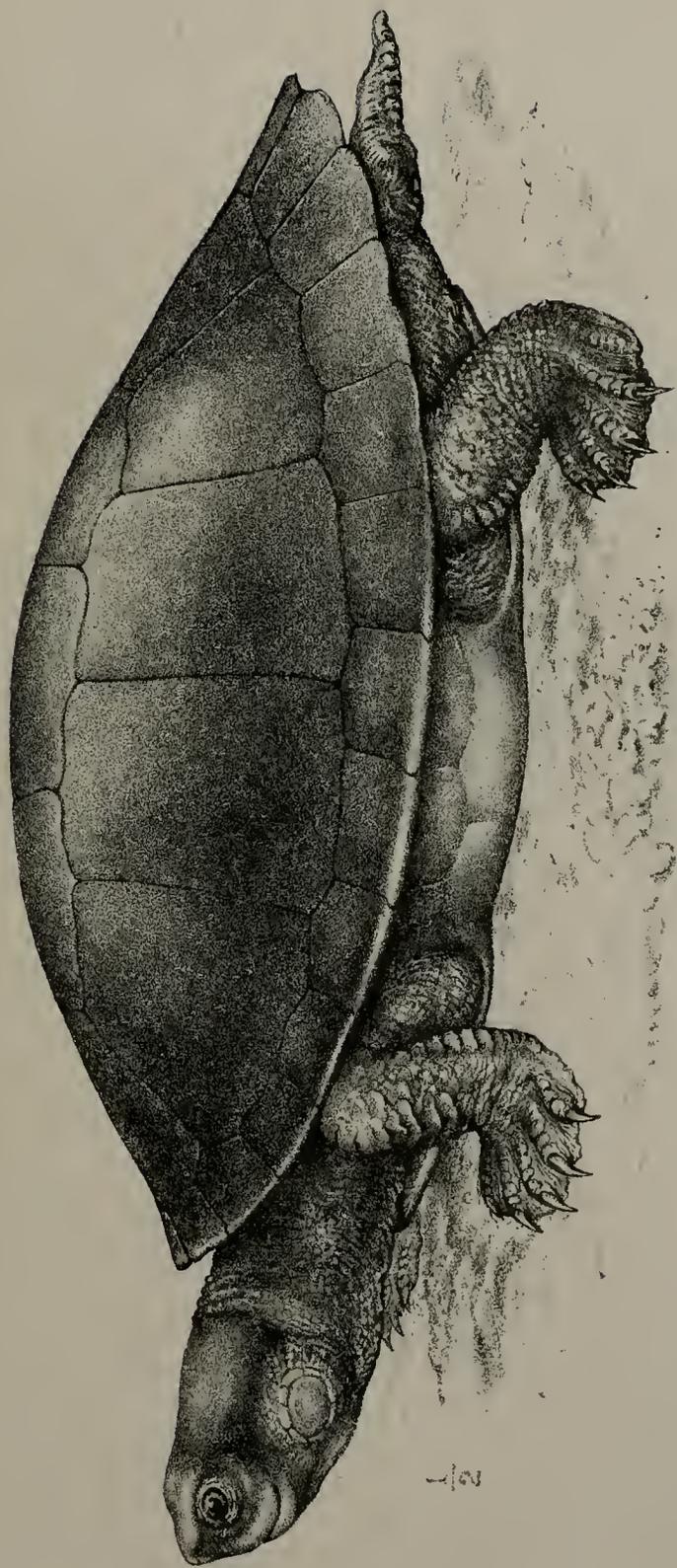
The Australian genera have solid, rather thick, skulls, unlike the



C. Berjeau. del et lith.

CHELYMYS VICTORIÆ

MontenBros. imp.

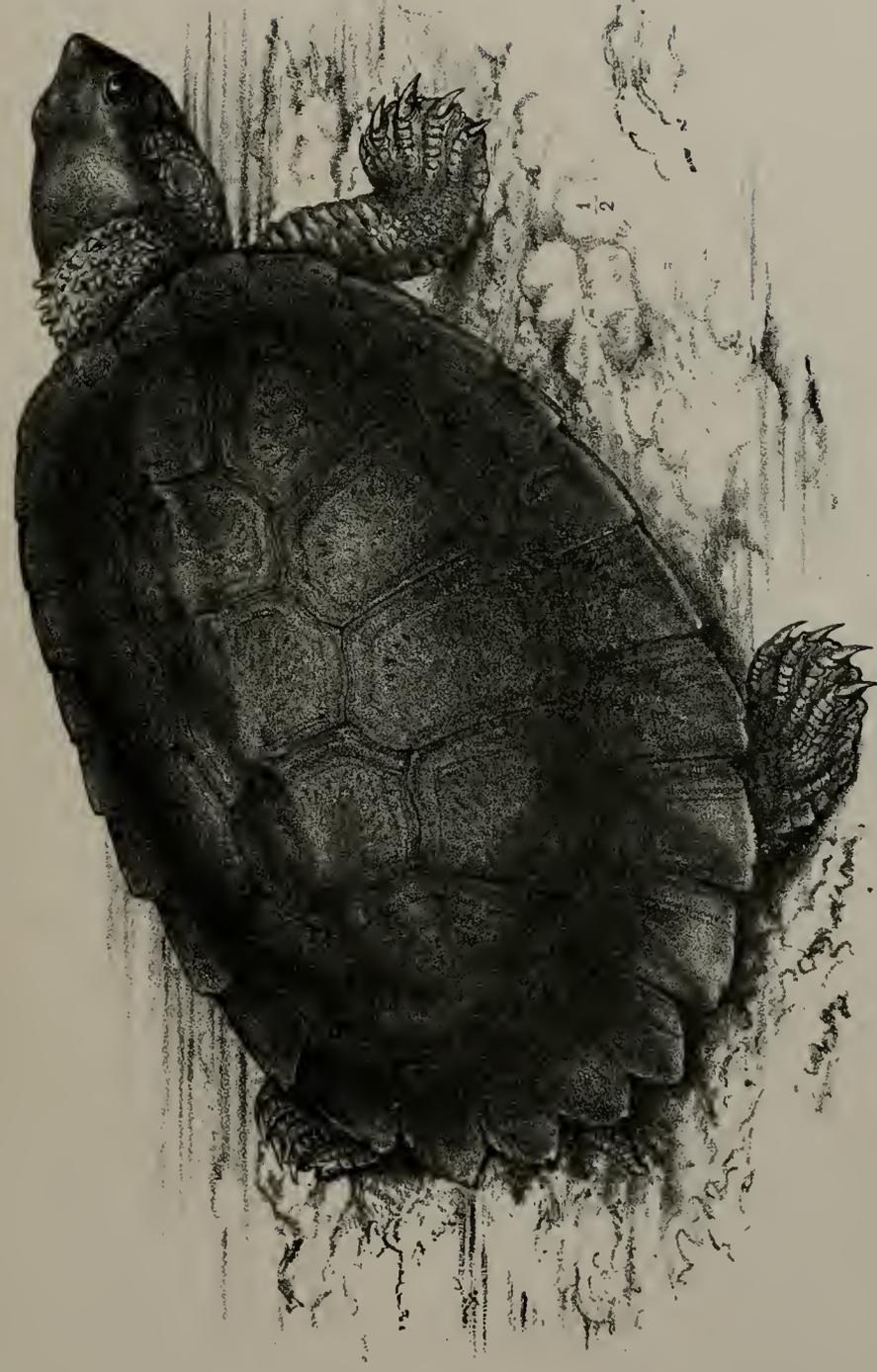


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C. Berjéau del. & lith.

CHELYMYS KREFFTII

Mintern Bros. imp.



C. Bergeau del. et lith.

ELSEYA LATISTERNUM

Mintern Bros. imp.

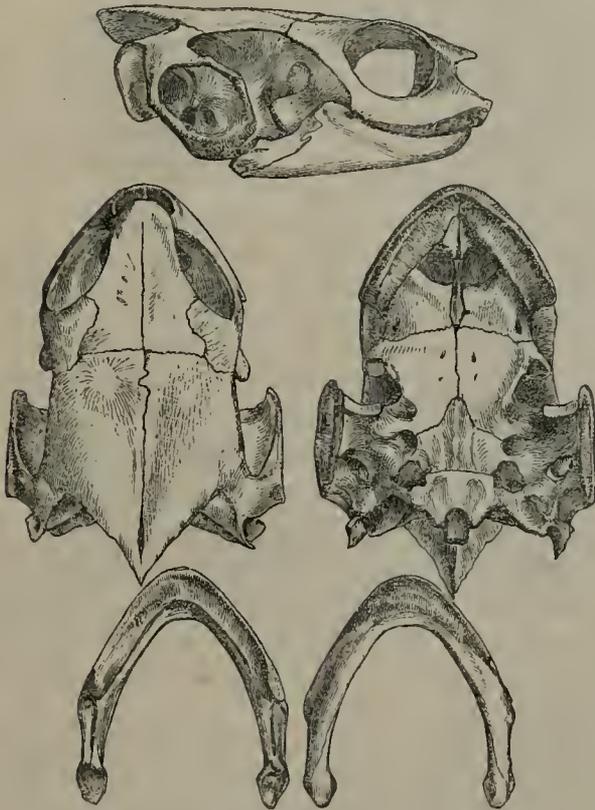
thinner skulls of the American genus *Platemys*. They may be divided thus:—

- I. *Head covered with a skin, which is reticulated over the temples; nuchal plate distinct; neck smooth, reticulated.*
1. CHELYMYS. Chin not bearded; nuchal plate generally broad; occiput like the crown. (Fig. 1, p. 505, skull.)
2. EUCHELYMYS. Chin two-bearded; nuchal plate narrower; sides of occiput with two oblong, subtriangular, diverging, hard plates.
- II. *Head and temporal muscles covered with a hard bony sheath; nape spinose; chin two-bearded; nuchal plate none (or, rarely, very small and narrow).*
3. ELSEYA. (Fig. 3, p. 507, skull).

1. CHELYMYS.

Head covered with a smooth skin, reticulated and divided into

Fig. 1.



Skull of *Chelymys victoria*.

small plates over the temples. Chin without any beard; nape smooth, reticulated; legs with small scales. Nuchal shield broad and well developed. Crown and occiput nearly square, scarcely dilated behind; hinder edge produced in the middle. Vertebral shields of the adult quite as long as broad.

Skull depressed, without any zygomatic arch, and with a large tympanic opening; forehead and crown broad, flat, produced behind in the middle of the occiput. Basisphenoid transverse, shorter and broad, with a triangular projection on the front edge, produced behind the hinder part of the palatine bones. The basioccipital oblong, transverse, as broad as the sphenoid.

I am inclined to think that more than one species were included under the name of *Chelymys macquaria* in the Catalogue and Supplement, some even belonging to what is now regarded as another genus, as they have two beards, which were overlooked in the stuffed specimens.

* *Thorax ovate, more or less depressed, with the hinder margin expanded. Head of moderate size.*

1. CHELYMYS MACQUARIA.

B.M.

Emys macquaria, Cuvier, R. A. vol. ii. p. 11.

Hydraspis macquaria, Gray, Synopsis Rept. p. 40.

Emydura macquaria, Bonaparte, Tab. Analyt. p. 8.

Platemys macquaria, Duméril and Bibron, Erpétol. Générale, & Cat. Méth. p. 21.

Chelymys macquaria, var. 1, Gray, Cat. Shield Rept. p. 57.

Hydraspis australis, Gray, in Gray's Travels in Western Australia, vol. ii. p. 445, tab. vi.

Hab. Australia, Macquarie River (*Gould*, 1840).

The species was originally named by Cuvier from a specimen in the Paris Museum said to have been brought from the Macquarie River by MM. Lesson and Garnot; and the first four names quoted are derived from this specimen. I am inclined to suppose that Mr. Gould's specimen, which I described in Capt. Gray's narrative, may be the same species, as it is from the same river.

2. CHELYMYS VICTORIÆ. (Plate XXVII.)

B.M.

Hydraspis victoriæ, Gray, Zool. Misc. p. 55.

Chelymys macquaria & var., Gray, Cat. Shield Rept. p. 57; Suppl. Cat. Shield Rept. p. 76, fig. 25 (head); P. Z. S. 1856, p. 31.

Var. 1. Shell depressed, expanded.

Var. 2. *marmorata*. Back more solid and convex, marbled.

Var. 3. *sulcata*. Back with a central groove, shields obscurely longitudinally grooved.

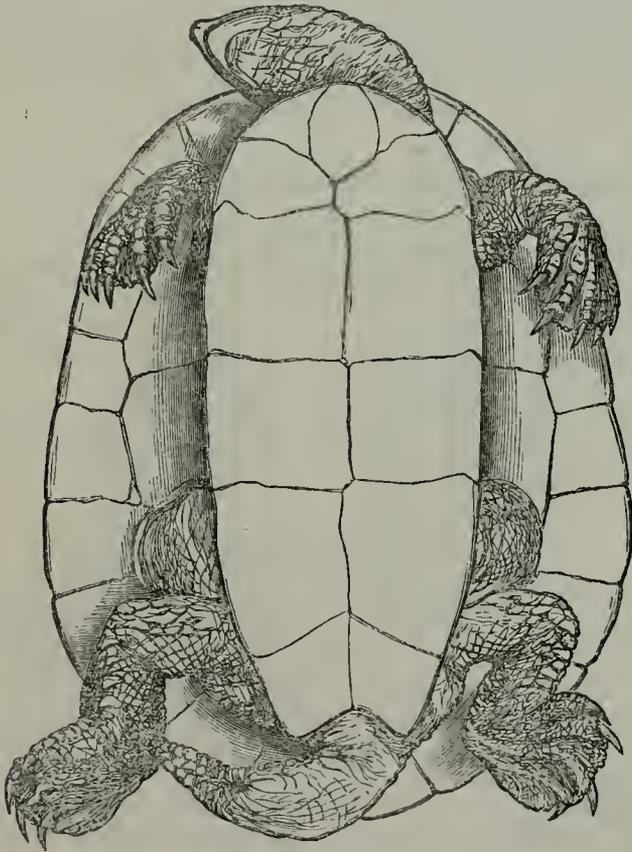
Hab. N.W. coast of Australia, Victoria River (*Capt. W. Chambers, Mr. Gould*); east coast of Queensland, Burnett River (*Mr. Krefft*).

This species appears to have a very extensive geographical distri-

bution. There are several specimens in the British Museum brought from the Victoria River by Capt. William Chambers and Mr. Gould, and more lately several specimens in spirit from Burnett River on the east coast of Queensland. It is remarkable that the specimens received at the same time from the Victoria and Burnett rivers present such variation in form that one is induced to believe that they are referable to two species. Having only one or two specimens of the one from the Macquarie River, we have not the means of deciding whether the same variations occur in that river.

The specimens agree in having a lead-coloured head, with a broad streak from the middle of the hinder part of the orbit to the upper front margin of the tympanum, and a similar, rather broad, streak from the angle of the mouth to the underside of the tympanum.

Fig. 2.



Chelymys victoriae, from Krefft's photograph.

In general the gullet and throat below this line are white; but in some they are more or less varied with lead-colour. The thorax in all the specimens is much more oblong and convex than in the specimens received from Segou, on the Macquarie River; but they vary

both in the outline of the thorax and in the convexity of the back very considerably. The smallest is the broadest, with the back of the shell much elevated in the centre. Indeed no two of the specimens are alike in form and convexity, which induces me to believe that they all belong to one variable species.

** *Thorax oblong, convex, high. Head large.*

3. CHELYMYS KREFFTII. (Plate XXVIII.)

B.M.

Thorax oblong, scarcely broader behind, very convex. The second, third, and fourth vertebral shields as long as or rather longer than broad; the second and third nearly square, with only a slight angle near the middle of each side; the fourth contracted behind; the first nearly square, rather broader than long, and rather broader in front. Thorax convex, elevated from the margin, the lateral processes convex. Head large, above olive, with a broad white streak from the back of the orbit to the upper front margin of the tympanum; a broad white streak from the angle of the mouth to the lower part of the tympanum. Beaks very strong and convex. Upper part of neck slightly granular.

Chelymys krefftii, Gray, Ann. & Mag. Nat. Hist. 1871, viii. p. 336.

Hab. Burnett River.

One specimen (Krefft's MS. no. 9) is coloured very much like the others received from Mr. Krefft, but differs in being oblong and very convex, instead of being broadly ovate and much more depressed, and in the form of the vertebral plates. It also differs in having a much larger head compared with the size of the body.

It has been suggested that this may only be a difference of sex; but it is very curious that, out of a large series, it should be the only one of the sex that has come to us.

2. EUCHELYMYS.

Head covered with a continuous soft skin, which is reticulated over the temporal muscles, with an oblong, triangular, diverging hard plate on each side of the occiput. Chin with two beards. Back of the neck netted, slightly tuberculated or convex. Forehead and crown nearly square, scarcely dilated behind; hinder edge of occiput scarcely sinuated. Thorax convex, solid; cavity contracted in front; nuchal shields narrow, well developed; vertebral shields broad, the fifth as broad as or broader than the others. Fore legs with large transverse scales in front and with keeled scales on the outer margin.

Euchelymys (part.), Gray, Ann. & Mag. Nat. Hist. 1871, viii. p. 118.

I first established this genus in the 'Annals and Magazine of Natural History' for August 1871, placing the two species together, because they both had nuchal plates; but I believe now that the second species was founded on an abnormal specimen of *Elseya*.

EUCHELYMYS SULCIFERA.

B.M.

Thorax dark olive-brown, marbled with white below; vertebral shields irregularly longitudinally sulcated, with a central continued longitudinal groove; neck slightly warty above, dark olive, with a white streak from the angle of the mouth under the ear on each side.

Chelymys macquaria, var., Gray, P. Z. S. 1856, p. 371; Ann. & Mag. Nat. Hist. 1863, xii. p. 98; Suppl. Cat. Shield Rept. p. 75.

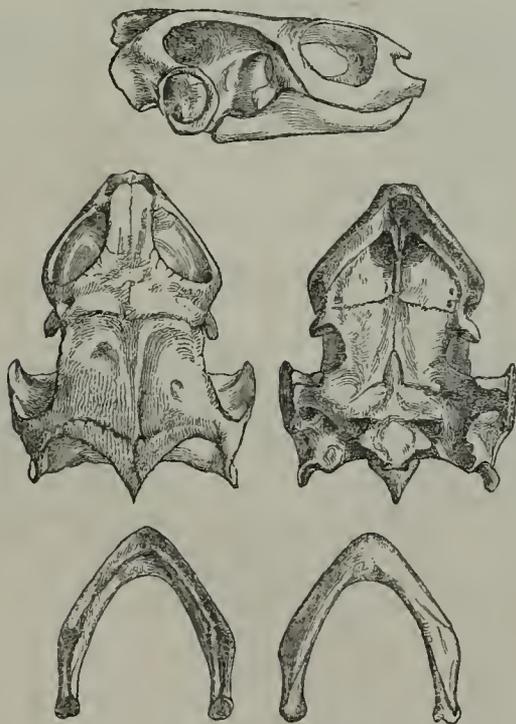
Euchelymys sulcifera, Gray, Ann. & Mag. Nat. Hist. 1871, viii. p. 118.

Hab. North Anstralia (*Stutchbury*, 1856).

3. ELSEYA.

Head covered with hard shields, which are incompletely divided into five large frontal and temporal plates; the nasal and frontal united, and with a small triangular central plate. The hinder part of the

Fig. 3.

Skull of *Elsesya latisternum*.

top of the head much wider than the front; the hinder edge rather sinuated on each side. Temporal muscles moderate, covered with reticulated scales. Chin with two beards. Back of the neck covered

with a few tubercles. Thorax depressed, dilated and reflexed on the side. Nuchal shield none (or abnormally very small and narrow). Fore legs with a few transverse scales.

The skull of *E. latisternum* depressed, broader behind; forehead and crown flat to the occiput, broad, becoming wider behind; the tympanic cavity rather produced, of moderate size; basisphenoid short, broad, transverse, with a small tapering central lobe in front, produced between the hinder part of the palatine bones. The basioccipital about as broad as long, rather lozenge-shaped, the front edge being rather arched, not so broad as the basisphenoid.

α. Front lobe of the sternum broad, with a subcircular outline, as broad as, or broader than, the hinder lobe.

1. ELSEYA LATISTERNUM. (Plate XXIX.)

B.M.

Front of the sternum broad, much broader on the hinder part, with a rounded outline; nuchal plate none; intermediate plate moderate.

Elseya latisternum, Gray, Ann. & Mag. Nat. Hist. 1871, viii. p. 292.

Var. 1. Underside of the shell pale yellow, rather darker on the margin of the shields. There are two specimens of this variety in the British Museum, from Cape York, North Australia, which were described in the 'Ann. & Mag. Nat. Hist.' for July 1867.

One of these specimens is peculiar for having a small linear extra shield on each side, on the outer part of the abdominal shield, which is unusually short in this specimen. To judge by the thickness and size of the tail, the two specimens appear to belong to two different species.

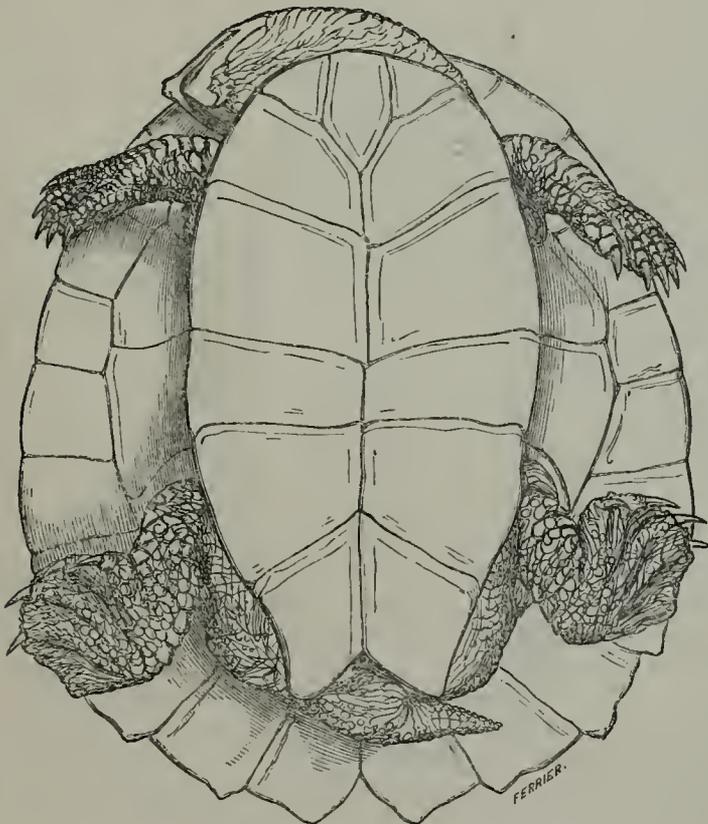
Var. 2. This differs in the sternum being pale greyish white, more or less marbled with dark brown. Two specimens of this variety were received from Mr. Krefft, who obtained them in the Burnett River, Queensland. They are exceedingly like the single specimen of *Euchelymys spinosa* in the British Museum; but they both have no indication of the narrow nuchal shield observed in that specimen. These are the specimens described in the 'Ann. & Mag. Nat. Hist.' 1871, vol. viii. p. 292.

Var. 3. The underside dark, blackish; the lower margin reddish, with black edges to the shields. There are two specimens of this variety received from Mr. Krefft. One is the largest example of the species that I have seen. The dorsal shields are rather rugose, with regular linear pits and more elongated grooves. The dorsal line is sunken. The head is covered with a uniform hard shield, which is slightly sinuate on each side of the hinder margin. With this specimen was received another, about two-thirds the size (indeed rather more convex than the other species of the genus in the Museum), which is peculiar for having thirteen marginal shields on each side, six forming part of the margin of the last vertebral plate (see Plate XXIX., animal); there is no doubt that this arises from the division into halves of the usual caudal shield; but they

are remarkably regular, and, curiously enough, each of these shields is bidentate at the apex. The last vertebral shield is much larger and wider; but they all vary a little in the size of the shield, which is comparatively smallest in the largest specimens.

A young specimen from Cape York, North Australia, has the vertebral shields short and much broader than long; the upper part of the thorax is dark olive, the underside white, varied with more or less broad brown lines on the sutures of the marginal and sternal shields; the head olive, with a paler streak from the nostrils over the eyes to the side of the occiput; beneath, the throat and sides of the neck white, including the lower half of the tympanum; a blackish margin to the lower edge of the lower beak, becoming broader behind and extending along the sides of the neck; the beards white.

Fig. 4.



Elseya latisternum, from Krefft's photograph.

There is a very young specimen in the British Museum which probably belongs to this species; it has *four* beards—that is, the front pair in the usual place and the hinder rather behind it, both pairs being placed along the concavity of the lower jaw on the line of insertion of the skin. I do not know if this is to be regarded as a monstrosity

of the young of this species, or as indicating the existence of a peculiar species of which as yet we have received but one specimen.

2. ELSEYA SPINOSA.

B.M.

Front of the sternum broad, much broader on the hinder part, and with a rounded outline; intermediate plate broad; nuchal plate very narrow and small.

Euchelymys spinosa, Gray, Ann. & Mag. Nat. Hist. 1871, viii. p. 118.

Thorax broad, rounded in front, above brown varied with black; beneath pale brown marbled with black.

Hab. North Australia (1866).

Only a single specimen of this species has been received, and it is so like some specimens of *E. latisternum* that it may possibly be an example of that species accidentally possessing a nuchal plate.

3. ELSEYA? INTERMEDIA.

B.M.

The front lobe of the sternum rather wider than the hinder one, regularly rounded; the hinder lobe with straight sides in front, and contracted in the hinder half; nuchal plate none.

Elseya dentata (adult), Gray, Suppl. Cat. Shield Rept. p. 76.

Hab. North Australia, upper part of Victoria (*Dr. J. Elsey*).

This shell is very like a very old specimen of *Elseya dentata*; but I prefer to describe it separately until we get more examples.

The thorax (which is without any remains of the animal) is ovate, very solid and convex; the hinder margin is dilated and much wider in front, and much reflexed on the sides. Nuchal plate none. Second marginal plate on each side wider than the rest; the first vertebral plate five-sided, produced on the front of the inner margin; the second, third, and fourth vertebral plates four-sided, rather sinuated on the side of the margin; the second and third rather more than half as long again as broad; the fourth much narrower, twice as long as broad; the fifth triangular, broader than long. The sternum dark brown, with irregular white marks in the centre. The intergular plate moderately broad. The gular plates small, triangular; post-gular plates moderate, narrowed on the inner edge; the pectoral and other plates large.

The front vertebral plate five-sided, rather angularly produced in front, considerably broader than long. The second, third, and fourth are six-sided, longer than broad, the fourth being narrowest and longest, and each having a more or less distinct central prominence near the hinder edge. The bones of this specimen are well-knit, and do not show the signs of youth.

β. Front lobe of the sternum narrow, narrower than the front part of the hinder lobe; the sides of the front part straight, divergent.

4. ELSEYA DENTATA. (Fig. 5.)

B.M.

The front lobe of the sternum narrow, with the sides nearly straight,

rapidly converging in front; the gular shields very narrow, elongate; intermediate plate, small, linear; nuchal plate none.

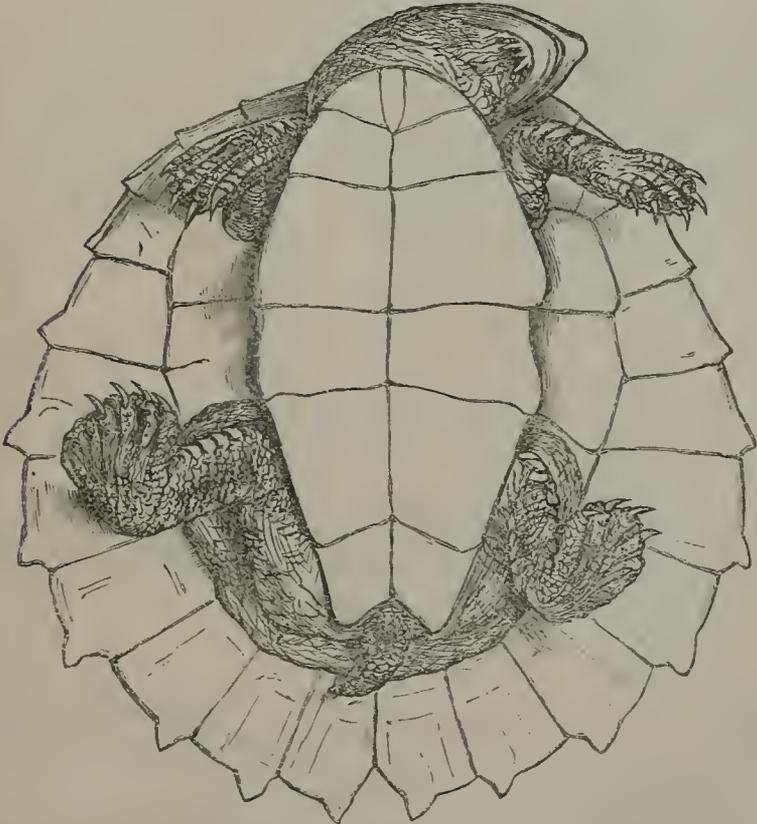
Elseya dentata, Gray, Ann. & Mag. Nat. Hist. 1867, xx. p. 44; Suppl. Cat. Shield Rept. p. 76.

Hab. North Australia, Upper Victoria (presented by Dr. John Elsey).

There is a specimen of the shell of this animal in the British Museum without any part of the animal. Therefore we do not positively know that it belongs to this genus; but it agrees with it in having no nuchal plates and in having the hinder margin sinuated.

The shell is much more dilated on the hinder margin, has the margins of the ribs separate, and a considerable hole covered with membrane in the centre of the sternum. The vertebral plates are all much longer than broad, the second and third being broadest, with an obscure tubercle; the fourth is nearly as long as broad, and keeled.

Fig. 5.



Elseya dentata, from Krefft's photograph.

Dr. Krefft has sent me a photograph of the underside of the animal in spirit of this species, showing the existence of two chin-beards, PROC. ZOOLOGICAL SOCIETY.—1872, No. XXXIII.

which appear nearer together and more in front than in *Elseya latisternum*; but as yet I do not know the upper surface of the head.

4. Descriptions of new Land and Freshwater Shells from the Khási, North Cachar, and Nágá Hills, N.E. Bengal.
By Major H. H. GODWIN-AUSTEN, F.R.G.S., F.Z.S., &c., Deputy Superintendent, Topographical Survey of India.

[Received March 18, 1872.]

(Plate XXX.)

1. MELANOIDES SPINATA, sp. nov. (Plate XXX. fig. 1, 1 a, operculum.)

Shell angularly turreted; colour olive-green; spire acute, rather rapidly decreasing in diameter; apex eroded; suture marked by a distinct cord continuous with that on the lower angle of the last whorl; whorls 5-6 (there would be 8 if perfect), very convex and flattened on the periphery, with strong tubercles arranged in two parallel longitudinal rows, the spines being rather longer on the upper; aperture ovate, vertical, well channelled at the base, a thin milky callus on the columellar margin, within pale grey with two or more bands of brown coinciding with the rows of spines and the corded surface of the outer base.

Operculum paucispiral, nucleus subcentral.

Animal 1·4 in. long; foot round and large, not angular in front; colour grey, mottled with ochre; body also grey, the ochre markings showing as streaks; tentacles very short, 0·4 inch.

Length 2·20; diam. 1·15; apert. alt. 0·95, apert. lat. 0·60 inch.

Hab. Kopili river, North Cachar hills, a tributary of the Bráhma-pūtra.

Proportion of aperture to body-whorl ·95 to 1·35, or 2 to 3.

I find this shell exceedingly abundant in the deep still pools of the Kopili river, associated with a very large variety of *Pal. stephanus*, Bs.

2. MELANOIDES HANLEYI, sp. nov. (Plate XXX. fig. 2.)

Shell turreted, colour rich dark chestnut-brown; spire rather acuminate, rapidly decreasing; apex eroded; suture impressed but slightly, but strongly marked; whorls 5 (without the apical), flat, sharply angular above with a single row of well-defined small tubercles on the angular margin; body-whorl large, well rounded below, distinctly corded at base near the columellar margin; aperture vertical, ovate, very slightly effused at base; within pale grey, with three or more red-brown bands.

Length 1·8; diam. 0·95; apert. alt. 0·70, apert. lat. 0·50 inch.

Hab. Diyūng river, North Cachar hills.