Hab. ——?

Obs. In the specimen before me, which is the only one I have seen, the plaits or folds on the columella appear to be six or seven, through the intersection of the transverse ribs passing into the interior.

DESCRIPTION OF PLATE LIX.

Fig. 1. *Cyclostoma balteatum*, p. 718.
2. —— *filo-striatum*, p. 718.
3. —— *consanguineum*, p. 718.
4. *Typhis expansus*, p. 719.
5. *Eutrochus alternatus*, p. 719.
6. *Tornatella alba*, p. 720.
7. *Pyramidella canaliculata*, p. 720.
8. *Pleurotoma* (*Drillia*) *brunneomaculata*, p. 720.
9. —— (*Drillia*) *strigata*, p. 720.
10. *Cardium arcuatulum*, p. 721.
11. *Conus racemosus*, p. 721.
12. *Cancellaria turrita*, p. 721.

P.S. The *Pleurotomæ*, Cone, and *Pyramidella* above described were from the collection of the late M. Frick (French Consul at Honolulu), who collected in the Sandwich Islands and also in California. It is probable that the Cone and *Pyramidella* were collected by him in the former, and the *Pleurotomæ* (*Drilliæ*) in the latter locality.

The *Typhis* was found in the collection of the late Thomas Norris without any information as to locality.

The *Eutrochus* is, I think, in all probability an Australian shell.

Of the habitat of the *Cancellaria* I have no information. If I might be permitted to prophesy, I should say it would be discovered some day in the north of China.

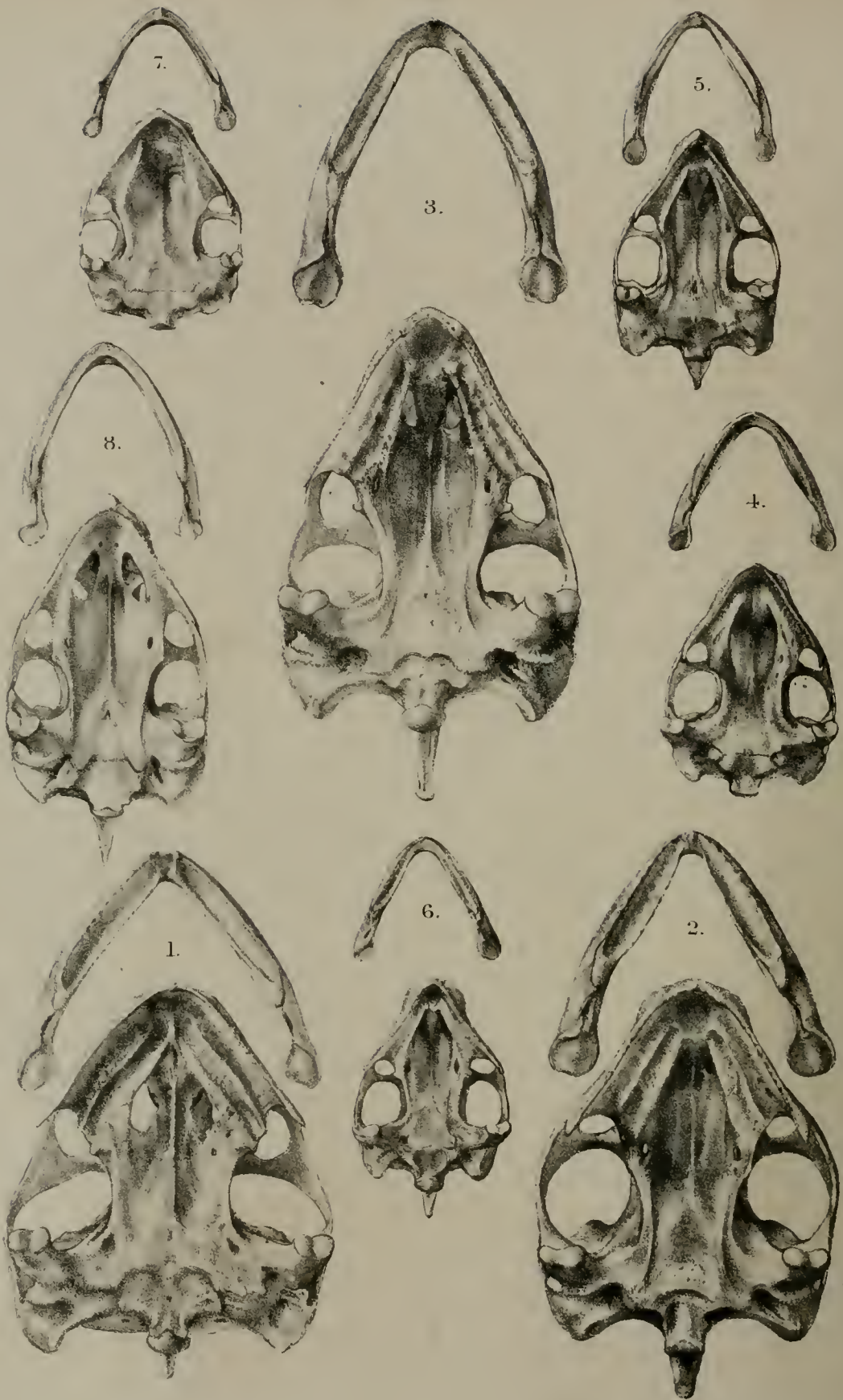
10. On the Skulls and Alveolar Surfaces of Land-Tortoises (*Testudinata*). By Dr. J. E. Gray, F.R.S. &c.

[Received September 15, 1873.]

(Plate LX.)

Zoologists have generally been satisfied with regarding the Land-Tortoises as a single genus—except in separating the species that have only a rudimentary and clawless fifth toe on the front foot, as in *Testudinella* and *Homopus*, or where the front lobe of the sternum is mobile, as in *Pyxis*, or the hinder lobe of the back more or less movable, as in *Kinixys*. I ventured to separate *Scapia* on account of the peculiarity of the form of the skull, and long ago to separate the skull of *Testudo planiceps* from that of *T. indica*, although I had never seen the skulls, or at least did not then know that it was the skull of *Testudo elephantopus* from Galapagos.

The acquiring of the skeletons and skulls of additional species of Tortoises has shown the excellent characters which the skulls afford



G.H.Ford.

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ALVEOLAR PROCESSES OF LAND TORTOISES.

for separating the species and the various modifications that they assume.

In the 'Catalogue of Shield Reptiles,' as we then had no skulls of certain genera in the collection, I was obliged to describe the alveolar surface of the beaks as they were seen in the preserved animals; but the beaks do not give the same idea of the surface as the skull itself; and in this paper I have remedied this evil by describing the alveolar surface of the skulls that we have since obtained.

Fitzinger, in one of his compilations, divided the Tortoises, from their descriptions, into genera, and gave names to them, but did not characterize them in any recognizable way. No doubt the sticklers for priority will consider and quote these genera as Fitzinger's, thus giving the premium to such proceedings. Professor Agassiz, in his 'Contributions,' characterizes a new genus under the name of *Xerobates*, and refers to some of Fitzinger's genera. I have here attempted to arrange the species according to the forms of their skulls and the alveolar processes, which is no doubt consistent with their habits and food.

Section I. *The alveolar surface of the upper and lower jaws flattened for nearly the whole of their length; two longitudinal ridges on each side; the outer ridge of the upper jaw fitting into the linear groove of the lower jaw. Lower jaw stout and strong. The dorsal and sternal disk solid, undivided.*

Tribe I. Xerobatina.

Alveolar process of upper jaw with two parallel ridges, which do not quite reach the centre, which is flat, and has a central longitudinal ridge from the front to the hinder ridge. Lower jaw with a ridge on each side in front of the linear alveolar concavity, continued to near the centre, which has a transverse groove across it from the front to the back edge.

1. Xerobates.

Xerobates, Agassiz, Contrib. i. 446.

Xerobates gopher. (Plate LX. fig. 1, alveolar processes of jaws.)

X. carolinus, Ag. Cont. i. p. 447.

See also *X. berlandieri*, Ag. *l. c.* p. 447. The specimen in the Museum only appears to be a variety of the former species.

Tribe II. Megalochelyina.

The lower jaw with a ridge on each side of the linear alveolar concavity, continued to near the acute central prominence in the front of the jaw, which has a transverse ridge to the hinder edge of the jaw. Alveolar process of the upper jaw with two parallel ridges, with a deep circular concavity in front.

1. Elephantopus.

Forehead of skull flattened. Nose-hole broader than long, broadest and truncated above and narrowed below, and separated from the alveolar surface by a high thick intermaxillary bone. Nasal grooves of the palate moderately deep and much contracted behind, with a distinct central ridge for the whole of their length.

Elephantopus planiceps.

Testudo planiceps, Gray, Cat. Sh. Rept. t. xxxiv. (skull).

2. Megalochelys, Agassiz.

Forehead of skull convex, swollen; nose-hole much higher than broad, narrowed and rounded above, separated from the alveolar surface by a thin intermaxillary bone. Nasal grooves of the palate very deeply concave, expanded in the middle and slightly contracted behind.

Megalochelys indica.

Testudo indica, Gray, Cat. Sh. Rept. t. xv. f. 1 (skull).

3. Asterochelys, Gray.

Forehead of skull flattened. Nose slightly bent down in front; nose-hole square, rather broader than wide, truncated behind, separated from the alveolar surface by a high intermaxillary bone. Nasal grooves of the palate deeply concave in front, rather dilated behind, with three ridges in the centre of the front.

Asterochelys radiata. (Plate LX. fig. 2, alveolar processes of jaws.)

Testudo radiata, Hand-list, p. 4.

Tribe III. Chelonoidina.

The lower jaw with a ridge on each side of the linear alveolar concavity, the front ridge continued and ending in a sharp-edged prominence, with a very slight central longitudinal ridge extending from the front to the back edge of the jaw; the hinder marginal ridge ending just as it reaches the front edge of the jaw, leaving a broad slightly keeled space in front of the inner edge of the jaw. The alveolar process of the upper jaw with two ridges, with a large broad concavity in front between their front ends, extending behind into a triangular flat disk between the inner nostrils, which have a deep groove behind each of them.

1. Chelonoides, Fitzinger, Ag. (No character.)

Forehead flattish. Nose-hole broader than high, with a central prominence on the upper and lower edge, and a moderately high intermaxillary bone.

Chelonoides tabulata. (Plate LX. fig. 3, alveolar processes of jaws.)

Testudo tabulata, Gray, Cat. Sh. Rept. t. xxxv. f. 2, *a*, *b*, *c* (not good).

2. Scapia.

Skull (see Cat. Sh. Rept. Suppl. p. 7, f. 1) apparently very like *Chelonoides*. The front of the upper and lower jaw is rounded, and the edge simple, not toothed. Space between lateral ridges wider; and the lower edge of the front part of the lower jaw is expanded. The intermaxillary bone is high.

Scapia gigantea, Gray, *l. c.* p. 18.

Testudo (*Scapia*) *falconeri*, Gray, P. Z. S. 1869, p. 170, fig. 1; Cat. Suppl. p. 7, f. 1 (skull, which is no longer in the British Museum).

3. Manouria.

We have no separate skull of this genus in the British Museum. In external appearance it is very like the skull of *Scapia*.

Manouria emys, Gray, *l. c.* p. 18.

Section II. *The alveolar surface of the upper jaw narrow and flat in front, with a short ridge on each side and a slightly raised inner edge. The lower jaw sharp in front, with two sharp edges on the side, separated by a longitudinal groove fitting the ridge in the upper jaw. The lower jaw weak, slender.*

Tribe IV. Peltastina.

1. Peltastes, Gray, Cat., Appendix, p. 5.

Toes 5 . 4. Upper beak with three teeth on the front margin. Upper jaw with a wide concave space in front, edged behind, with a slightly raised ridge from one lateral alveolus to the other, and with a broad and deep concavity behind it. Inner nostrils widened out in the middle and then again contracted. Lower jaw with a slightly raised longitudinal ridge across the alveolus in front.

Peltastes elongatus.

Peltastes elongatus, Gray, Cat. Suppl. p. 10, f. 2 (skull).

2. Centrochelys.

Toes 5 . 4. Beak three-toothed, rounded in front. Upper hinder part of thighs with large conical spine-like scales. Nuchal shield none; grooves in the palate behind the inner nostrils, scarcely wider in the middle. The grooves separated by a central ridge, and deep, to the hinder part of the palate.

Centrochelys sulcatus.

Peltastes sulcatus, Gray, Cat.

3. Chersinella, Gray, Cat., Append. p. 5.

Toes 5 . 4. Beak toothless, rounded in front. Thighs unarmed. Nuchal shield none.

Chersinella græca. (Plate LX. fig. 4, alveolar processes of jaws.)

4. Testudinella.

Toes 4.4.

We have only one specimen of this animal, the skull of which is in the skin, and therefore the alveolar surface cannot be examined; but it is like *Peltastes græca* in external appearance, being only known from it by wanting one front toe.

Testudinella horsfieldi, Gray, Cat., Append. p. 13.

5. Chersina.

Toes 5.4. Intergular plates united together and produced forwards. Alveolar process of the upper jaw simple, with a slight groove on the hinder part of the lateral margin. The internal nostrils in the front of a deep concavity that is very slightly contracted on the sides behind. Lower jaw sharp-edged and concave on the inner surface in front, and with a prominent inner edge on the hinder part of the side fitting into a groove in the upper jaw. Front of beak rounded, with a groove on the lower side of each nostril towards the margin, which is marked with three close teeth.

Chersina angulata, Gray, Cat., App. p. 14. (Plate LX. fig. 6, alveolar processes of jaws).

Section III. *Alveolar surface of upper jaw narrow in front, broad behind, triangular on the sides, with a sharp edge on each side of the lower jaw, linear, narrow, with a rather sharp edge on each side.*

Tribe V. Homopina.

1. Homopus.

Toes 4.4. Alveolar surface of the upper jaw triangular on each side, with a sharp edge on the outer side and on the inner side of the hinder part. Lower jaw thin, weak, slender; alveolar surface linear, rather broader in front, with a sharp slightly raised edge on each side. The internal palate broad in front to the front of the alveolar edge, rather wider in the middle, and slightly contracted behind.

Homopus areolatus, Gray, Cat., App. p. 15. (Plate LX. fig. 5, alveolar processes of jaws.)

Tribe VI. Pyxidina.

Alveolar surface of the upper and lower jaw linear, with a sharp outer edge. Lower jaw slender and weak. The front lobe of the sternum separated by a transverse suture and covered with the gular and postgular plate.

1. Pyxis.

Skull short. Forehead flat. Orbits large. Nose-hole square, with a deep wide notch in the upper margin towards the frontal bone; the lower edge transverse, with a central prominence. Intermaxillary rather high. Tympanic cavity narrow, erect, and the hinder part of the tympanic bullæ rather produced.

Pyxis arachnoides, Gray, Cat., App. p. 14. (Plate LX. fig. 7, alveolar processes of jaws.)

Section IV. *Alveolar surface of the upper jaw narrow, slightly concave on the sides of the lower jaw, very narrow, linear, with a slightly raised edge on each side, and a very slight longitudinal ridge across the front. The lower jaw slender and weak. Hinder part of the dorsal disk separated from the front and central part by an irregular transverse cartilaginous suture. Sternum undivided.*

Tribe VII. Kinixyina.

1. Kinixys.

Skull rather elongate. Forehead flat. Orbits oblong, longitudinal. Nose-hole square, with a prominence in the centre of the upper and lower margins. Intermaxillary rather high. Front edge of upper jaw even. Alveolar surface of upper jaw narrow, rather wider behind, with a very slight indication of a thickening on the hinder part of the inner edge; centre slightly concave in front, and becoming much more concave as it proceeds between the inner nostrils. The groove behind the inner nostrils rather wider in the middle behind. Lower jaw weak, slender, rounded in front; the alveolar surface narrow, linear the whole of its length, and with very narrow acute edges.

Kinixys erosa, Gray, Cat., App. p. 16. (Plate LX. fig. 8, alveolar processes of jaws.)

This order of Tortoises may be thus arranged:—

I. *The dorsal disk solid.*

† *The sternum solid.*

A. *The alveolar surface of the upper and lower jaw with two ridges, one on each side extending nearly the whole length.*

a. The centre of the alveolar surface of the upper jaw with a longitudinal ridge. *Xerobates.*

b. The centre of the upper alveolar margin concave, subcircular.

The hinder ridge of the alveolar process of the lower jaw nearly united in front. *Elephantopus, Megalochelys,* and *Asterochelys.*

The hinder ridge of the lower jaw separated by a broad space in front.

Anal margin of plates separate.

Pectoral plates reaching the centre of the sternum. *Chelonoides.*

Anal margin of plates united together.

Pectoral plates broad, reaching the centre of the sternum. *Scapia.*

Pectoral plates narrow, not reaching the centre of the sternum. *Manouria.*

B. *The alveolar surface of the upper and lower jaws with a short ridge on the hinder part of each side. Nasals truncated, straight.* Peltastina.

Gular plates short, separate.
Toes 4.5. Upper beak three-toothed. *Peltastes, Centrochelys.*
Toes 4.5. Upper beak rounded, toothless. *Chersinella.*
Toes 4.4. *Testudinella.*
Gular plates united, produced. *Chersina.*

C. *Alveolar surface of upper jaw narrow in front, triangular on the side, with a sharp edge on each side; of the lower jaw linear, narrow, with a sharp edge on each edge.* Homopus.

†† *Sternum: front lobe covered with gular, subgular, and pectoral plates, separated by a cross suture from the abdominal plates. Alveolar process of upper and lower jaw with a sharp outer edge.* Pyxidina, Pyxis.

II. *Hinder part of dorsal disk separated from the rest by a more or less perfect tranverse suture; alveolar surface narrower, of uniform width and a slightly raised edge on each side.* Kinixyina, Kinixys.

EXPLANATION OF PLATE LX.

Fig. 1. *Xerobates gopher.*
2. *Asterochelys radiata.*
3. *Chelonoides tabulata.*
4. *Chersinella græca.*
5. *Homopus arcolatus.*
6. *Chersina angulata.*
7. *Pyxis arachnoides.*
8. *Kinixys erosa.*

} Alveolar processes of upper nd lower jaw of each genus.

November 18, 1873.

Dr. Günther, F.R.S., V.P., in the Chair.

Mr. Sclater exhibited and pointed out the characters of two new species of birds obtained by Mr. Salmon during his recent expedition to the State of Antioquia, Columbia. These were

CHLOROCHRYSA NITIDISSIMA, sp. nov.

Supra nitide viridis, tergo cærulescente; pileo antico, capitis lateribus et interscapulio flavis: macula auriculari utrinque nigra: alis caudaque nigris viridi limbatis: uropygii plumis paucis aurantiaco terminatis: subtus cærulescenti-viridis, ventre medio nigro, gutture toto aureo-flavo, hoc colore in collo in aurantiacum transeunte: rostro et pedibus nigris: long. tota 5, alæ 2·7, caudæ 1·75, poll. Angl. et dec.