XI. NOTES ON SOME INDIAN CHELONIA.

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The majority of the specimens mentioned in these notes have been sent me by Dr J. R. Henderson of the Madras Museum, who has been at great pains, in this and other respects, to assist us in the Indian Museum with specimens from the Madras Presidency.

Family TRIONYCHIDAE.

Trionyx leithii, Gray.

1873. *Trionyx leithii*, Gray, *Proc. Zool. Soc. London*, p 49, fig. 3 (skull).
1873. *Trionyx gangeticus*, *id.*, *ibid.*, pl. viii.
1889. *Trionyx leithii*, Boulenger, *Cat. Chel. Brit. Mus.*, p. 249.
1912. *Trionyx leithii*, Annandale, *Rec. Ind. Mus.*, VII, p. 159, fig. 2 (plastron of young).

Boulenger regards this species as intermediate between *T. gangeticus*, which it somewhat resembles in colouration, and *T. hurum*, with which the shape of its skull is to some extent in agreement; but the structure of the skull is nearer that of *T. formosus*. The only differences that I can detect are that the snout is a little less declivous and slightly longer, the horizontal groove on the palate broader, the post-cranial spine less dilated and the proximal articular part of the lower jaw more slender in *T. leithii* than in the Burmese species. The former has much the same relationship to the latter as *T. nigricans* has to *T. phayrei*, and the existence in *T. leithii* of two neural bones between the first pair of costals is a modification probably of slight importance though it serves to separate all the Indian forms from their Burmese allies. The branchial skeleton of *T. leithii* also resembles that of *T. formosus*, in particular in that two additional ossifications are present at the tip of the hypobranchial bone. In the adult animal the hypoplastra approach one another in the middle line of the plastron, though they do not actually meet, and the internal projections practically disappear.

The natural colouration and the external appearance of the disk do not appear to have been observed in the adult living animal. The following notes are based on two individuals which Dr. Henderson has been kind enough to send to Calcutta for examination.

The dorsal surface of the disk is greenish black obscurely vermiculated and marbled with olive-green; that of the limbs and tail is also blackish, while that of the head is variegated with dark olive-green and a much paler olivaceous brown. In one specimen[1] dark green predominated on the head and the paler markings were not of a very definite nature, but on that of the other (fig. 1) there was a much larger proportion of the paler shade, a dark line extended backwards and downwards from each eye and there were two distinct forwardly-directed **V**-shaped black bars on the temporal and occipital regions, interrupted somewhat at their apices in the middle line; the ends of the bars extended backwards more faintly on to the neck.

The cartilaginous disk is long and relatively narrow, expanding slightly behind. In front of the bony carapace there is a conspicuous projecting pad of coarsely tuberculate cartilage, and

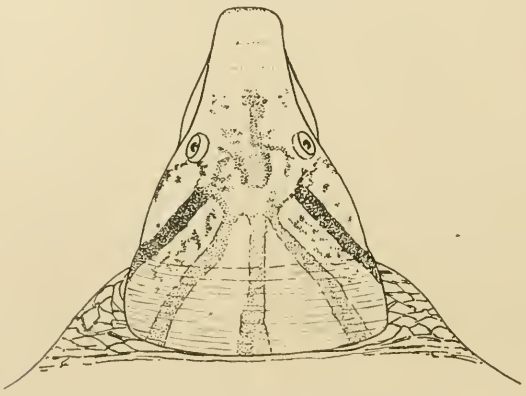

Fig. 1.—*Trionyx leithii*, Gray.
Head of a living specimen from the Kurnool district ($\times \frac{1}{2}$).

behind there is a group of large tubercles in the central region. The anterior part of the carapace itself bears a prominent rounded boss; there is no middorsal ridge or groove

The disk of the larger of the two specimens is 49 cm. long and 41 cm. broad, that of the smaller one 47 cm. × 42 cm. In the former the breadth of the bony carapace, which is broadly emarginate behind, is 29 cm. and the breadth 32 cm. The length of the skull, which agrees well with Gray's figure of 1873 except that the lower jaw is not cleft at the tip, is 91 mm. and the zygomatic breadth 58 mm.

Dr. Henderson's specimens, of which the larger has been retained in the Indian Museum and the smaller returned to Madras, were taken by his assistant Mr. Sundara Raj in a small stream in

[1] The snout had been injured in this specimen and possibly the dark colouration was to some extent due to inflammation or congestion.

the Nallamalai range of the Eastern Ghats, where they were dug from the mud in the bed of a pool in January or February.

The evidence for the occurrence of this species in the Ganges or the Indus is not satisfactory. Murray's specimens from Sind assigned provisionally to it by Boulenger, apparently on the grounds of probability only, were almost certainly representatives of *T. gangeticus*, while those from which Hardwicke's Ms. figures (reproduced by Gray in 1873) were drawn, though said to be from "Futtegurh", may have been either introduced or ascribed to an incorrect locality. All definite records of specimens now in existence refer to places in the Indian Peninsular Area south of the Indo-Gangetic Plain.

Trionyx hurum, Gray.

1912. *Trionyx hurum*, Annandale, *Rec Ind. Mus.*, VII, pp 160, 180, pl. v, fig. 3.

Mr. F M. Howlett Imperial Pathological Entomologist, has recently sent me a young specimen taken in the Little Gundak River near Pusa in Bihar Its colouration is normal agreeing closely with that of a young turtle from Dacca in Eastern Bengal. It is thus clear that the normal *T hurum* has made its way in the Gangetic system far above the delta.

Family TESTUDINIDAE.

Testudo travancorica, Boulenger.

1906. *Testudo travancorica*, Boulenger, *Journ. Bombay Nat. Hist. Soc.*, XVII, p. 560, 2 pls

Mr. F H. Gravely recently obtained further specimens in the forests on the western slopes of the Western Ghats in Cochin, while Mr. F. Hannyngton, I.C.S., has presented to the Indian Museum one from Coorg on the eastern side of the Ghats. The known range of the species may, therefore, now be stated thus:— Travancore and Cochin on the western slopes of the Western Ghats and Coorg on the eastern slopes. It is probable that the tortoise also occurs on the western side of the hills in the western districts of the Madras Presidency, and also in parts of Travancore and the adjacent districts situated on the eastern side, but no records as yet exist. The common land-tortoise over the greater part of the Presidency is certainly *T. elegans*, which as Mr. Sundara Raj informs me, occurs in the Eastern Ghats in the Kurnool district.

Geoemyda trijuga (Schweigg.)

1913. *Geoemyda trijuga*, Annandale, *Rec. Ind. Mus.*, IX, p. 67.

It is probable that the range of the typical form of this species is confined to the east-central part of the Madras Presidency, but specimens from Mysore, the northern part of the Presidency and other parts of the Peninsular Area must be examined before

this question is settled. I have here to describe a new race from Coorg on the east side of the Western Ghats considerably east and a little south of the Madras district.

The following key to the known races may be useful:—

Key to the races of G. trijuga.

I. Head with conspicuous red or yellow markings.
   A. Temporal regions pale yellow, snout black; shell uniform black or very dark brown .. .. .. *coronata.*
   B. Whole of the head black with orange-red streaks and spots; shell dark brown plastron as a rule bordered with yellow .. .. .. *thermalis.*

II. Head without conspicuous red or yellow markings.
   A. Head plumbeous grey, obscurely vermiculated on the temporal regions; shell brown, the plastron with yellow borders . .. *plumbea.*
   B. Head olivaceous with inconspicuous yellowish or greenish spots and streaks; shell brown or blackish, the plastron as a rule with yellow borders. *forma typica* (*madraspatana*).
   C. Head uniform brown or with an obscure reticulation of olive-brown and orange-yellow; shell of adult black, the plastral borders and the dorsal keels yellow .. .. .. *edeniana.*

Subsp. **plumbea**, nov.

The carapace is dark brown and when wet appears to be obscurely marbled with a still darker shade; there are as a rule yellow markings on each or some of the costal shields and the dorsal ridges are for the most part tinged with yellow. The central part of the plastron is dark brown with broad yellow margins; the bridge is dark brown with yellow spots along the outer edge. In life the dorsal surface of the limbs, head and tail is leaden grey; that of the snout and of a triangle extending backwards from the eyes has a brownish tinge and is devoid of markings. The temporal region is obscurely vermiculated with a paler shade of grey and two pale lines extend backwards from the eye above the tympanum, which is somewhat darkened; the beak and the ventral surface of the head, neck and limbs are pale grey; on the chin and neck there are obscure dark horizontal lines.

After some weeks in spirit the markings on the head have become obscure and the whole has a livid greyish tinge very

different from the colour of that of specimens of the typical form of the species that have been even longer in alcohol.

The iris is pale chestnut. There are a number of small tubercles on the side of the head between the eye and the tympanum.

I can detect no constant peculiarity in the skull or in the shell, except that the dorsal keels appear to be blunter than in specimens of the same size from Madras. Possibly this is correlated with the fact that the race is a very small one and that shells of small size are therefore more worn and belong to older individuals than their dimensions would suggest. The concentric rings on the dorsal shields are, however, very distinct.

	Reg. No. 17712 (sk.)	Reg. No. 17715(sp.)
Carapace.		
Total length with the callipers .	155 mm.	162 mm.
Total length with the tape ..	170 ,,	175 ,,
Total breadth with the callipers	108 ,,	113 ,,
Total breadth with the tape ..	125 ,,	144 ,,
Depth of the shell	60 ,,	57 ,,
Plastron.		
Total length with the callipers.	139 ,,	145 ,,
Length of the bridge ..	58 ,,	60 ,,
Skull.		
Total length	38 ,,	..
Zygomatic breadth	23 ,,	..

Types. No 17712 (skeleton) and No. 17715 (spirit), *Ind. Mus.*

I have examined three living specimens which Dr. Henderson has been kind enough to send me. They were collected by his assistant Mr. Sundara Raj in a pond. One has been returned to the Madras Museum, one skeletonized and one preserved in alcohol. All are apparently adult females of approximately the same size; they are very uniform as regards their racial characters.

Subsp. coronata (Anderson).

1913. *Geoemyda trijuga coronata*, Annandale, *op. cit.*, p. 68, pl. vi, figs. 3, 3*a*.

It is strange that there is no reference to this very distinct race in the 'Fauna", but, to judge from the labels on specimens in the British Museum, it seems possible that it was regarded by Dr. Boulenger as the fully adult or possibly aged phase of the typical Madras form, to which Anderson gave the name *madraspatana*.

We have received from Dr. Henderson specimens of this race from Chalakudi in Cochin and from a locality about 25 miles N.E. of Calicut in the Malabar district of the Madras Presidency.

The Malabar specimen is a large female, of which the measurements are given below. The shell, dry, is practically black all over. The central dorsal keel remains distinct throughout its length, but the lateral keels are obsolescent. The colour of the head was typical though slightly less brilliant than in smaller individuals.

Carapace.

	Reg. No. 17437 (sk.)
Total length with the callipers	233 mm.
,, ,, ,, ,, tape	260 ,,
Total breadth with the callipers	158 ,,
,, ,, ,, ,, tape	215 ,,
Depth of the shell	81 ,,

Plastron.

Total length with the callipers	200 ,,
Total length of the bridge	85 ,,

Subsp. **thermalis** (Lesson).

1913. *Geoemyda trijuga thermalis*, Annandale, *op. cit.*, p. 68, pl. vi, figs. 4, 4*a*.

Further specimens of this race were recently obtained in the Ramnad district by Dr. Henderson and Mr Kemp

Geoemyda tricarinata, Blyth

1913. *Geoemyda tricarinata*, Annandale, *op. cit.*, p. 73, pl. vi, figs. 6, 6*a*, 6*b*.

In a footnote to the paper cited (p. 74) I have recorded the occurrence of this species in the Jalpaiguri district of northern Bengal. Possibly it is one of those Assamese reptiles whose western range along the base of the Himalayas has been limited or practically limited by the R. Tista. If so, its occurrence in Chota Nagpur is all the more remarkable.

Geoemyda silvatica, Henderson.

1912. *Geoemyda silvatica*, Henderson, *Rec. Ind. Mus.*, VII, p. 217.

The type-specimen of this species has been presented by the Madras Museum to the Indian Museum. It is now preserved in spirit and is numbered 17115 in our register of reptiles. A good watercolour sketch of the living animal was made by Babu Abhoya Charan Chowdhary and is available for reference.

Bellia crassicollis, (Gray)

1906. *Bellia crassicollis*, Annandale, *Journ. As. Soc. Bengal* (n.s.) II, p. 205.

The specimen said to be from Travancore and referred to in the paper cited had, it is now evident, suffered from an accidental

transposition of labels. There is, therefore, no reason to think that this Malayan species occurs in South India. The authentic in the collection of the Indian Museum are from Burma and Penang.