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REDISCOVERY OF THE AUSTRALIAN CHELID GENUS *PSEUDEMYDURA* SIEBENROCK (CHELIDAE, TESTUDINES)

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In 1954, L. Glauert described a new species — *Emydura in-spectata* — from western Australia, comparing his new form only with species of *Emydura*. A glance at his photograph revealed that the new form was congeneric with, and perhaps conspecific with, *Pseudemydura umbrina* described by Siebenrock from an unique type specimen in the Vienna Museum with no more precise locality than "Australia," and which had come into the possession of that museum in 1839.

Pseudemydura umbrina was named by Siebenrock in a preliminary note in 1901, but it was not figured nor fully described until 1907. The long interval between these two papers may, I think, be easily explained: The specimen was unique and without adequate locality, yet it was made the type of a genus. Only Siebenrock's wide knowledge of the order as a whole justified such a procedure, and even for him it was natural and desirable to wait for some years in the hope of procuring additional specimens the better to document his case.

Siebenrock never obtained any further specimens, but in default of them his 1907 paper compared *Pseudemydura* carefully and in a key with every other genus in the family.

Pseudemydura belongs to the group of short-necked chelids, and is peculiar among these in having a large intergular plastral scute that not only separates gulars and humerals but penetrates some distance between pectorals. A somewhat similar condition occurs in the long-necked chelid genus *Chelodina*, in which, however, the gulars usually meet in front of the intergular, separat-

ing the latter from the anterior plastral margin. Only in *Chelodina intergularis* (Fry, 1917) among Recent turtles is there any close parallel to the condition found in *Pseudemydura*. Among known fossil forms, however, a very similar intergular pattern occurs in some members of the related family Pelomedusidae — *Elochelys perfecta* Nopcsa of the Cretaceous of Europe, and probably in some *Taphrosphys* (Cretaceous and Tertiary of North and South America).

The relationship of the intergular to the other anterior plastral scutes in *Pseudemydura umbrina* (clearly seen in Glauert's specimens) is thus striking enough among Recent members of the Chelidae and in particular the short-necked chelids to be by itself a feature permitting recognition at the generic level. However, the judgment that the specimens from Warbrook, 24 miles north of Perth, West Australia, described by Glauert as *Emydura inspectata* belong not to *Emydura* but to *Pseudemydura* does not rest only on this feature but also upon a similarity that in creatures so variable as turtles is surprisingly complete.

Neither the Vienna type nor any of Glauert's material has been available to me, but the similarity of the two described forms can be placed beyond all question merely by comparing in parallel columns a translation of Siebenrock's 1907 description and Glauert's 1954 account. I have given Siebenrock's description in full and rearranged Glauert's shorter description to make the parallels and differences more obvious:

<i>Pseudemydura umbrina</i>	<i>Emydura inspectata</i>
Carapace length: 106 mm	Carapace length (two specimens): 133 mm, 98 mm
Carapace breadth: 81 mm	Carapace breadth (two specimens): 103, 83 mm
Carapace height: 33 mm	
Carapace very strongly flattened with a definite vertebral furrow, most distinct on the middle three vertebrals.	Carapace slightly depressed with a distinct sulcus.

Pseudemydura umbrina

The posterior carapace rim only slightly expanded so that the greatest breadth (between the eighth marginals) only slightly exceeds the breadth at the middle of the shell.

Anterior carapace rim truncate and only insignificantly incurved.

Posterior carapace rim projecting medially into a keel produced by the arching of the supracaudals and adjoining eleventh marginals. The supracaudals also forming ventrally an acute-angled notch, which, with the posterior end of the plastron, also angularly notched, forms a rhomboidal opening for the tail.

First vertebral longest, broader anteriorly than posteriorly, narrower than the second and third, as broad as the fourth and fifth.

First costal as broad as, the remaining three costals narrower than, the corresponding vertebrae. Of these the second costal broadest, almost twice as broad as the fourth. All costals broader at the lateral margins than medially, and broader than the lateral margins of the corresponding vertebrae.

Carapacial shields leathery, finely wrinkled.

Nuchal rather large, trapezoidal, broader in front than behind.

Emydura inspectata

Slightly narrower in front (96 mm as compared with 103 mm); marginals 5-8 with a distinct flange.

First vertebral largest, as wide as long, obtusely pointed in front, the second and third much wider than long, fourth and fifth slightly wider than long, longer than the second and third.

Second and third vertebrae shorter than the adjacent costals.

Nuchal very small (9 x 5 mm) entirely free below.

Pseudemydura umbrina

Lateral marginals very narrow; the sixth narrowest, only about one-third as wide as the ninth. The form of the lateral marginals is correlated with the great size, especially breadth, of the second costal.

Plastron flat, about as large as the shell opening, with a distinct angle at the bridge.

Anterior lobe broader than posterior lobe, truncate.

Posterior lobe with an angular notch.

The two corners of the anal notch are bent upward to make contact with the posterior rim of the shell, thus forming the rhomboidal opening before mentioned.

Breadth of bridge one-third the length of plastron and one-half the width of the anterior lobe.

Intergular very large, heart-shaped, not much longer than broad, its broad anterior margin straight, weakly dentated, the pointed posterior end inserted between the pectorals, separating these in their anterior third.

Gulars very small, forming equilateral triangles, their medial sides scarcely one-third the adjacent lateral rim of the intergular.

Humeral small, widely separated from one another, in form and size showing great similarity with those of *Chelodina*.

Emydura inspectata

Fifth, sixth, seventh and eighth marginals with distinct flange, fourth to seventh narrowest.

Plastron (124 x 95½ mm, measured to the edge of the bridge) flat, large, almost as wide as the carapace, bridge rounded.

Plastron narrower behind, semi-circular in front, posteriorly with a broad, straight-sided, anal notch.

Bridge one-third the length of the plastron measured along the midline.

Intergular very large (29.5 x 25.5 mm).

Widely in contact with the pectorals.

Gulars very small, widely separated.

Humeral triangular slightly narrower than the intergular.

Pseudemydura umbrina

Anal middle suture longer than the pectoral and significantly longer than the femoral.

Intergular longer than the pectoral middle suture.

Head broad and flat, the upper surface finely wrinkled.

Parietals strongly expanded, covering the whole width of the head, their posterior margin not pointed but somewhat incurved.

Snout short.

Interorbital space broad and concave, its breadth exceeding the transverse diameter of the orbits. Both jaws narrow; the breadth of the lower jaw at the symphysis not quite two-thirds the transverse diameter of the orbit.

Two small chin barbels, widely separated.

Back of neck with numerous large erect conical tubercles.

Limbs with rather large flat scales. *Transverse lamellae such as occur on the anterior surface of the lower arm in Emydura entirely lacking.*

Webbing well developed, extending to the claws. Fifth toe of hind foot clawless.

Tail short, reaching scarcely to the posterior rim of the shell.

Emydura inspectata

Pectorals slightly shorter than the femorals which are shorter than the anals, the latter forming a broad shallow notch behind.

Head broad and flat, rugulose above.

Snout projecting.

Interorbital space twice the width of the symphysis, the latter equal to the vertical diameter of the orbit.

Two small barbels.

Neck above and laterally with pronounced conical tubercles; temporal region, chin and throat reticulate.

Forelimbs with three series of transverse lamellae and a flap of three or four enlarged scales.

Tail very short, hardly projecting.

Pseudemydura umbrina

Carapace and upper surfaces of head umbra brown.

Plastron dirty yellowish green. All sutures of the shell brown.

Limbs and back of neck dark brown, the jaws horn-colored.

Emydura inspectata

Color of carapace bone brown. Young: brighter brown. Head above dark olive, sides of face, lower lip, chin and throat marguerite yellow, a few dark markings on the throat.

Plastron buffy olive, over the sutures buff. Young: plastral plates edged with brown.

Forelimbs olive black, hind limbs darker.

Siebenrock's type was intermediate in size between Glauert's type and the latter's young specimen, but closer to the young specimen. Careful comparison of the two descriptions discovers few differences that are not merely verbal, while there is agreement in all essentials even in color — the latter remarkable when it is realized that Glauert's fresh specimens are being compared with a specimen that had been in the Vienna Museum 62 years before it was first described.

Only one of the few described differences would seem possibly significant. Siebenrock makes a point of the absence in *umbrina* of transverse lamellae such as exist in the genus *Emydura*. Glauert specifies in *inspectata* "three series of transverse lamellae and a flap of three or four enlarged scales."

Glauert's photographs accompanying the type description of *inspectata*, however, while excellent for other aspects of the animal do not show this area. I have therefore obtained from Dr. Glauert two photographs of the forelimb in his type. These are reproduced in Plates 3 and 4 and show the flap or spur very well and in the ventral view exhibit also the three series of scales described as "transverse lamellae" by Glauert.

Siebenrock's 1907 figure (Plates 1 and 2) definitely does not show any flap or spur on this forelimb on the type of *Pseudemys umbrina* but does show in the ventral view several series of scales apparently less regular than those of Glauert's type but easily comparable to these. These scales are individually rather squarish, though arranged in transverse rows. In this respect the dif-

ference between Glauert's and Siebenrock's descriptions would seem to be primarily verbal. However, the absence of the flap would still remain as a serious difference between *Pseudemydura umbrina* and *Emydura inspectata*.

To check this final point I requested Dr. Eiselt of the Vienna Museum to re-examine Siebenrock's specimen. He reports: "The type of *Pseudemydura umbrina* is a stuffed and lacquered specimen. In correspondence with Siebenrock's figures it showed no spurs whatsoever. Being somewhat of a sceptic, I had the lac removed from the front legs and feet, and then soaked them in water. The effect was surprising: both lower front legs now show on their outer (hind) edges a series of three triangular scales which had, up to now, been glued firmly to the lower surface of the leg. Also the scales on the outer edge of the fifth toe (finger) show a tendency to form a flat and serrated lamella. As a whole the scalation of the legs shown in Siebenrock's figures is rather inaccurate and needs redescription or refiguring."

Dr. Eiselt has also provided a sketch of the flap, which appears to be not significantly different from that described and photographed by Glauert.

With this evidence the synonymizing of *Pseudemydura umbrina* and *Emydura inspectata* must be considered established.

Glauert's species name must thus disappear from the list, but his discovery is still important. A genus known from a single specimen without adequate provenance is an unhappy problem. The Glauert specimens provide an exact locality, confirmation of the characters described by Siebenrock, and knowledge of the peculiar spur-flap, a feature missed by Siebenrock and which, though approached in other chelids by a flap of scales along the whole external range of the forelimb, is in its peculiar spur-like development apparently peculiar to this genus.

Dr. Glauert has called to my attention that Western Australia was opened in 1829 and that the German collector Dr. L. Preiss collected there in the late 1830's and early 1840's. This accords very well with the date of arrival of the Vienna specimen at that museum, but Dr. Eiselt could supply me with no information about the collector.

Acknowledgements. My indebtedness to Dr. Eiselt and Dr. Glauert has been conspicuous throughout this paper. I want to

make, however, a very personal expression of thanks for their kindness and courtesy in answering my questions. The photographs of the forefoot of *Emydura inspectata* were furnished by Dr. Glauert; the reproduction of Siebenrock's figure is the work of Mr. Frank White.

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