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fusco, pedibus castaneis; undique sat dense fulvo-setosus vel squamosus, squamis albis aggregatis lineis tribus prothoracis, scutello elytrorum maculisque magnis rotundatis decoratus; capite parvo, prothorace antice paulo contracto, elytris medio ampliatis, omnibus grosse et laxe punctatis.

Long. 9 mm.

*Hab.* Pretoria.

This little insect is peculiar both for its short oval form and the pattern of white scales with which it is adorned. It appears to be fairly abundant where it occurs.

### XI.—On *Hymenochirus*, a new Type of Aglossal Batrachians.

By G. A. BOULENGER, F.R.S.

THE natural Suborder of Aglossal Batrachians has so long been known from two genera only, the South-American *Pipa* and the African *Xenopus*, that the discovery of a third genus is a matter of great interest, the more so as I shall be able to show that the new type stands in no very close relation to either of its nearest allies, and affords subject for comment on the classification and the geographical distribution.

In 1896 there appeared a very unsatisfactory description, accompanied by a figure, of a new Aglossal frog named *Xenopus Boettgeri*, Tornier (Kriechthiere Deutsch-Ost-Afrikas, p. 163), discovered by Stuhlmann at Ituri, near Wandesoma, German East Africa. From the description and figure I at once recognized that the new species could not be maintained in the genus *Xenopus*, and accordingly proposed to make it the type of a new genus, *Hymenochirus* (Ann. & Mag. N. H. [6] xviii. 1896, p. 420), distinguished by the half-webbed fingers, the incompletely webbed toes, the third of which exceeds the fourth in length, and, above all, by the absence of lines of sensory muciferous canals on the body. I added that no doubt a careful examination of the type specimen would reveal further differences and suggested the application of the Röntgen rays as a means of obtaining some information on the osteological characters of the unique example. I could not then have imagined that even the presence or absence of teeth had not been ascertained.

Fortunately for the progress of science the frog has now been rediscovered on the Benito River, French Congo, by Mr. G. L. Bates, from whom the British Museum has received several specimens, which I am unable to separate from the East-African type, as far as I am able to judge from Tornier's description and figure. Now, *Hymenochirus* proves

not even to belong to the family Dactylethridæ, distinguished from the Pipidæ by the presence of teeth in the upper jaw. The mouth is edentulous, and the structure of the vertebral column and of the pectoral arch has more in common with *Pipa* than with *Xenopus*, the presence of claws to the first three toes being the only point of special affinity with the latter. *Hymenochirus* should therefore enter the Pipidæ, if deutition be deemed of sufficient taxonomic importance for family distinction. We have then a very interesting example of geographical distribution before us, and one which should remove any doubts as to the natural affinity between *Pipa* and *Xenopus*, which has been questioned by some authors, whose doubts have, however, not received the endorsement of recent investigators on the anatomy and development (cf. Beddard, P. Z. S. 1895, pp. 827 & 841, and Ridewood, J. Linn. Soc. xxvi. 1897, p. 53, and Anat. Anz. xiii. 1897, p. 359). The presence of only six distinct pieces in the vertebral column of *Hymenochirus*, as I have ascertained, is so far unique among Batrachians, and is only approached by the number (8) in *Pipa* and (7) in the fossil genus *Palæobatrachus*. I do not consider this as in any way adding to the evidence in favour of the allocation of the latter to the Aglossa, as advocated by some authors, since the reduction in the normal number is obtained in a quite different manner. I think the discovery by Ridewood of distinctly segmented ribs in the larvæ of both *Pipa* and *Xenopus* tends to further separate *Palæobatrachus*, of which the larvæ are well known and show no distinct ribs, from the Aglossa, and to justify their provisional retention among the Pelobatidæ.

In *Xenopus* there are 8 distinct præ-sacral vertebræ, as normal in Tailless Batrachians; but in *Pipa* and in *Palæobatrachus* the first vertebra is formed by the fusion of two, as proved by the passage of the first spinal nerve through the neural arch and the presence of a diapophysis, which is invariably absent from the atlas; this is also the case in *Hymenochirus*, in which the sacro-coccygeal complex is seen to be composed of the sacral vertebra and the urostyle, as in *Xenopus* and *Pipa*, with only four vertebræ intervening between it and the first, thus apparently pointing to excalation. In *Palæobatrachus*, according to Wolterstorff (Jahrb. nat. Ver. Magdeb. 1886, p. 31), 9 vertebræ may be recognized, viz., 1st and 2nd fused, 3rd, 4th, 5th, 6th free, 7th, 8th, 9th fused to form a sacrum.

On the whole the skeleton of *Hymenochirus* much more resembles that of *Pipa* than that of *Xenopus*. The following characters are common to all three genera:—

Fronto-parietals fused to a single bone.

Single ostium pharyngium.

No distinct mento-meckelians.

Sacral diapophyses extremely dilated and fused with the urostyle.

Vertebræ opisthocœlous.

Characters in common with *Pipa* :—

Fusion of the first and second vertebræ.

Coracoids much expanded towards the sternal end.

Very strong wing-like expansion of the ilia.

Characters in common with *Xenopus* :—

Sternal cartilage not embraced by, extending outwards beyond, the epicoracoid cartilages.

Long thyrohyals.

*Hymenochirus* stands by itself in the presence of only 5 præasacral vertebræ; the second and third diapophyses are very long and subequal, but not so long and not so strongly directed forwards as in *Pipa* and *Xenopus*; the first, fourth, and fifth are shorter and also subequal. Fronto-parietal very broad, measuring half the width of the skull. Thyrohyals extremely long. Tibio-fibula with a wing-like expansion of thin bone on each side, forming a deep groove on the outer side; the two bones of the tarsus united by similar bony expansion, which projects wing-like on each side. *Pelodytes* was so far the only Batrachian in which a fusion of the astragalus with the calcaneum was known to occur, and this in a very different manner. The præcoracoids are feebly curved and form a nearly straight transverse bar, instead of an angle directed forwards.

Having thus indicated the most salient osteological features of *Hymenochirus Boettgeri*, I pass on to a description of the external characters.

Head small, very strongly flattened, a little broader than long; snout rounded, projecting slightly beyond the mouth; nostrils terminal, directed upwards and forwards; eyes small, without lids, supero-lateral; pupil round; interorbital space about half the width of the head; no tympanum. Body much depressed, twice and one third ( $\sigma$ ) to thrice ( $\rho$ ) as long as the head. Fore limb rather feeble; fingers moderately elongate, sharply pointed, one-half or two-thirds webbed, first a little shorter than second, third longest; no carpal or sub-articular tubercles. Hind limb strong; tibio-tarsal articulation reaching the eye or between the shoulder and the eye; tibia two fifths to one half length of head and body; toes broadly webbed, but not to the tips, which are sharply pointed, the inner three armed with a small black claw; third

the longest; no metatarsal or subarticular tubercles. Skin everywhere rough with small granular tubercles, which are larger and conical on the sides of the body and of the limbs, and especially on the back of the thighs; no sensory canals. Vent in a short dermal prominence, not covered by lips.

Olive-brown above and beneath, uniform or with very indistinct darker spots; the larger tubercles somewhat lighter.

From snout to vent 37 millim.

In the general character of its integument, *Hymenochirus* shows great resemblance to *Pipa*, while differing in the absence of dermal appendages on the head; it also agrees with *Pipa* in having the third toe the longest, whilst the presence of claws is only paralleled by *Xenopus* among Tailless Batrachians. In its external characters, therefore, as well as in its skeleton, the new genus exhibits a singular blending of the features which distinguish the two previously known *Aglossa*, and serves to connect them in a most unexpected manner, whilst it adds to throw doubt on the propriety of establishing families on the presence or absence of teeth, as has been invariably the practice since the time of Duméril and Bibron. I have been the first to lower the systematic importance of that character (Cat. Batr. 1882) and subordinate it to other points of structure derived from the skeleton, in which reform I have been followed by Cope (Batr. N. Amer. 1889, p. 247); and even soon after (Ann. & Mag. N. H. [6] i. 1888, p. 188) I found cause to believe that it had been greatly overvalued as defining families, a conclusion which is further enforced by the discovery of *Hymenochirus*.

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XII.—*Description of a new Genus of Gobioid Fishes from the Andes of Ecuador.* By G. A. BOULENGER, F.R.S.

OREOGOBIUS.

Body elongate, cylindrical, covered with small, strongly ciliated scales; no lateral line. Mouth large, inferior, the lower jaw forming an angle at the symphysis; a single series of minute, closely-set ciliiform teeth in the upper jaw, directed downwards and inwards; two series of teeth in the lower jaw, the inner consisting of a few small canines, wide apart and erect, with the point slightly curved inwards, the outer of minute ciliiform teeth as in the upper jaw but directed outwards, perpendicular to the canines. Two dorsal fins, the anterior with six rays; second dorsal and anal elongate, similarly developed, not reaching the caudal. Ventral fins