

XLV.—*Remarks on the Batrachian Genera Cornufer, Tschudi, Platymantis, Gthr., Simomantis, g. n., and Staurois, Cope.*
By G. A. BOULENGER, F.R.S.

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IN the March number of these 'Annals' I have pointed out some differences in the structure of the terminal discs of the digits in the genus *Rana*, and endeavoured by their application to the Papuan and Melanesian species to ensure a clearer definition of these frogs and a grouping more in accordance with their natural affinities. In proposing the subgenus *Discodeles* for certain Indian and Melanesian frogs, the true relationships of which I had failed to grasp before, I stated that it leads to *Cornufer*, a genus previously defined as differing from *Rana* in the free or very feebly webbed toes and the complete union of the outer metatarsals by the thickened integument, the web not penetrating between them. In view of the state of things in the species grouped under *Discodeles*, the definition is no longer sufficient, and I have had to consider whether *Cornufer* should be treated as a mere subgenus of *Rana*, or whether other characters, justifying a generic separation, could be discovered.

I have come to the conclusion, after examining a large material, that, although unquestionably connected with *Discodeles*, these frogs can be sharply separated from *Rana* by reverting to the view of Günther (1858), that the species with large digital discs (*Cornufer*, Tschudi, = *Halophilus*, Girard) should be kept distinct from those with small discs and practically free toes (*Platymantis*, Gthr.).

The discs of *Platymantis* do not differ from those of *Rana bufoniformis*, *opisthodon*, and *guppyi*, from which group the genus may be derived, whilst those of *Cornufer*, though agreeing in shape with those of *Rana beddomii* and its Indian allies, present this notable feature, that a transverse groove, extending across the lower surface and corresponding in position with the horizontal limb of the T-shaped terminal phalanx, is continuous with the crescentic or horseshoe-shaped groove between the upper and the lower surface, thus defining a hemispherical area within the disc, a feature which is foreshadowed in the species of *Rana* (subgenus *Hylorana*) separated by Cope under the name of *Amolops*, in which a more or less distinct transverse ridge or groove also corresponds to the very long horizontal limb of the terminal phalanx without actually joining the marginal groove. There is, I feel sure, no direct genetic connection between these frogs and *Cornufer*, as proved by the osteological characters

of the latter, which agree with those of *Discodeles* (large nasals in contact with the frontoparietals, omosternal style forked at the base) and differ from those of *Amolops* and *Staurois* (small nasals widely separated from each other and from the frontoparietals, omosternal style not forked).

Digital discs absolutely similar to those of *Cornufer* are found in *Staurois*, Cope (type: *Ixalus natator*, Gthr.), and in a frog from Kina Balu, North Borneo, described by me thirty years ago under the name of *Ixalus latopalmatus*, which I now regard as the type of a new genus, *Simomantis*, so named in allusion to the curious pug-like form of the snout; this frog agrees with the species grouped under *Staurois* in the very large digital discs, broader than long, supported by T-shaped phalanges in which the horizontal limb is longer than the longitudinal, in the absence of an intercalated bone between the penultimate and distal phalanges, in the outer metatarsals separated to the base by the very broad web of the toes, in the absence of vomerine teeth, and in the osteological characters referred to above. In addition to the structure of the digital discs, *Simomantis* is distinguished from *Rana*, as it is also from *Staurois*, by the webbed fingers, a character which had led me to refer *S. latopalmata* to the vicinity of *Ixalus bimaculatus*, Peters, likewise from Borneo, which is, however, a true *Ixalus*.

Simomantis is confined to Borneo; *Cornufer* is known from Burma (*C. tenasserimensis*, Stoliczka, originally described as a *Rana*), Borneo (*C. baluensis*, Blgr. = *Rana sariba*, Shelford), the Philippines (*C. guentheri*, Blgr., *jagorii*, Peters, *worcesteri*, Stejneger, *corrugatus*, A. Dum.), New Guinea (*C. unicolor*, Tschudi), the Solomon Islands (*C. guppyi*, Blgr.), and the Fiji Islands (*C. dorsalis*, A. Dum., *intermedius*, F. Müll.); whilst *Platymantis* is represented in the Philippines (*P. corrugata*, A. Dum., *meyeri*, Gthr.), New Guinea and neighbouring islands (*P. corrugata*, A. Dum., *punctata*, Peters & Doria, *beauforti*, v. Kamp.), New Britain (*P. boulengeri*, Boettg.), the Solomon Islands (*P. solomonis*, Blgr.), and the Fiji Islands (*P. vitiana*, A. Dum., *unilineata*, Peters).

Although the presence or absence of vomerine teeth is generally regarded as of generic importance, it would be so obvious a violation of the principles of natural classification to separate generically *Staurois hainanensis*, Blgr., from *Rana latopalmata*, Blgr. (*Amolops afghana*, Cope), or *Staurois natator*, Gthr., from *Rana guttata*, Gthr., on this ground, that I have no hesitation in referring *Staurois hainanensis* to *Rana*, in spite of the absence of vomerine teeth, and in modifying the definition of the genus *Staurois*, founded on the absence

of these teeth, so as to include *Rana guttata*, in which they are present though feebly developed. I have formerly even gone so far as to regard the last as specifically identical with *Staurois natator*; now, with a larger material for study, I find it advisable to distinguish them and also to recognize the species described by Mocquard as *Ixalus nubilus*. *Rana larutensis*, Blgr., shows the same digital structure as the last-named species, and is therefore removed from *Rana* and referred to the same genus.

Five species constitute the genus *Staurois* as now defined, agreeing in the small tympanum; in the very large discs of the fingers, broader than long and larger than those of the toes, with a half-disc within the disc on the lower surface; in the very full web of the toes, involving the base of the discs; and in the outer metatarsals separated to the base. They may be distinguished as follows:—

- I. Head as long as broad, much depressed; no papilla in the middle of the tongue; vomerine teeth in small groups just behind level of choanæ; tibio-tarsal articulation reaching tip of snout or beyond; tibia 4 to $4\frac{1}{2}$ times as long as broad. *S. larutensis*, Blgr. (Malay Peninsula and Borneo).

II. Head longer than broad, moderately depressed.

- A. No papilla in the middle of the tongue; tibio-tarsal articulation reaching tip of snout or beyond; tibia 5 to 7 times as long as broad; skin of upper parts coarsely granulate.

Vomerine teeth in small groups between

the choanæ *S. guttatus*, Gthr. (Borneo).

No vomerine teeth *S. natator*, Gthr. (Philippines).

- B. A conical or rounded large papilla in the middle of the anterior third of the tongue; no vomerine teeth.

Tibio-tarsal articulation reaching tip of snout or beyond; tibia 5 to 6 times as long as broad; skin of upper parts coarsely granulate

S. nubilus, Mocquard (Palawan).

Tibio-tarsal articulation reaching between eye and nostril; tibia 4 to $4\frac{1}{2}$ times as long as broad; skin of upper parts feebly granulate

S. tuberilinguis, sp. n. [(Borneo).]

The eggs, which measure $1\frac{1}{2}$ mm. in diameter, are strongly pigmented, dark brown over the greater part of the surface, in *S. guttatus*, feebly pigmented, pale brown, in *S. nubilus*, unpigmented in *S. natator*; they are also unpigmented, but larger (2 mm.), in *S. larutensis*.

I append a description of the new species:—

Staurois tuberilinguis.

Vomerine teeth absent. A large conical papilla in the

middle of the anterior third of the tongue. Head longer than broad, moderately depressed; snout obtusely pointed, strongly projecting beyond the mouth, as long as the eye; canthus rostralis sharp; loreal region feebly oblique, deeply concave; nostril a little nearer the tip of the snout than the eye; interorbital space as broad as or a little broader than the upper eyelid; tympanum moderately distinct, not quite $\frac{1}{2}$ the diameter of the eye. Fingers rather slender, the tips dilated into very large discs which are broader than long; first finger longer than the second; subarticular tubercles small, feebly prominent. Toes rather short, the fourth not much longer than the fifth, with discs similar to those of the fingers but smaller, fully webbed, the web feebly notched and involving the base of the discs; no tarsal fold; inner metatarsal tubercle oval, flat, $\frac{1}{3}$ the length of the inner toe; no outer tubercle. Tibio-tarsal articulation reaching between the eye and the nostril; tibia 4 to $4\frac{1}{2}$ times as long as broad, twice, or slightly less than twice, in length from snout to vent, shorter than the fore limb, longer than the foot. Skin feebly granulate above, with flat glandules on the sides, of belly smooth or feebly granulate. Dark brown above and on the sides, including the upper lip, with a few very indistinct lighter vermicular markings on the head and back; limbs without or with rather ill-defined dark cross-bands; hinder side of thighs dark brown, with small yellow spots or vermicular markings; web between the toes blackish; lower parts white, throat brown or spotted with brown.

From snout to vent 42 mm.

This species is proposed for two female specimens, the larger from Mt. Kina Balu, North Borneo, altitude 4200 feet, received from Dr. R. Hanitsch in 1899, the smaller from Mt. Batu Song, Sarawak, 1000 feet, received from Dr. C. Hose in 1892.

XLVI.—*Further Notes on some External Characters of the Bears (Ursidæ).* By R. I. Pocock, F.R.S.

Introduction.

In 1914 (Proc. Zool. Soc. pp. 929–941) I described the feet and rhinaria of certain species of Ursidæ, and on the strength of the characters observed admitted the following genera of this family: *Melursus* for *ursinus*, *Helarctos* for *malayanus*, *Tremarctos* for *thibetanus* and *ornatus*, *Ursus* for *arctos*, *horribilis*, *americanus*, and their allies, and *Thalarctos* for



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