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 horseshoeshaped 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

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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, Stejneg., 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

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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. (Philip
	pines).

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	2
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	2

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wan). S. nubilus, Mocquard (Pala-

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

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 $\frac{1}{3}$ 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). Ву R. I. Рососк, 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



Boulenger, George Albert. 1918. "Remarks on the batrachian genera Cornufer, Tschudi, Platymantis, Gthr., Simomantis, g. n., and Staurois, Cope." *The Annals and magazine of natural history; zoology, botany, and geology* 1, 372–375.

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