

coral conglomerate rocks running out to form the shore-platform, covered with mud and weed, about half a mile in extent, on it a few stunted *Goniastræas*, *Mussas*, *Porites*, and *Madrepores*, in pools. Here, too, were found numbers of black *Holothurians*, many *Tridacnas*, cones, volutes, large *Aplysias*, with small black *Nemertines*, *Squillas*, &c. This reef was much lower at the south side in a little bay where the water poured down in a series of rapids into the deep water, which here came close up to the reef; near to these rapids, and at the time exposed to the air and sun, I saw alive (1) great beds of *Goniastræas* of two kinds; one in small lobular masses, the other in large domes, the polyps of both being emerald-green; (2) very large branches of *Mussa recta*?, one specimen being 5 feet by 4 across; (3) *Cœloria* sp.; (4) *Prionastræa* sp., polyps also bright green; (5) *Symphyllia* sp., in domes; (6) *Porites* spp.; (7) *Meandrina* sp.; (8) *Tubipora* very plentiful; and (9) a few *Fungias*. On the margin and not exposed were great quantities of *Madrepora cytherea*, *M. speciosa*, and other pedunculate and dendroidal forms, *Millepora alcicornis*, *M. verrucosa*, *Heliopora cœrulea*, *Galaxea* spp. in large hemispherical masses, *Seriatopora* in very delicate but big bunches, *Merulina* sp., showing both delicate fan-like expansions and thick ramose prolongations, *Echinopora rosularia*, *Porites* spp., and *Pocillopora* spp.

3. On a Collection of Reptiles and Batrachians made by  
Mr. J. D. La Touche in N.W. Fokien, China. By G. A.  
BOULENGER, F.R.S.

[Received February 1st, 1899.]

(Plates XVI.-XIX.)

An important collection of Reptiles and Batrachians was formed by Mr. J. D. La Touche during his stay, in the spring of 1896 and again in 1898, at Kuatun, a village about 270 miles from Foo-chow, in the mountains at the North-west of the Province of Fokien, at an altitude of 3000 to 4000 feet or more, and I have been entrusted by him with its description. Accounts of the Birds have been published by the collector and Mr. Ogilvie Grant and by the Rev. H. H. Slater in the 'Ibis'<sup>1</sup>; of the Mammals by Mr. Oldfield Thomas in these 'Proceedings'<sup>2</sup>.

The interest of this collection resides not only in the number (8) of new species it reveals, and in the discovery of a Snake entitled to be made the type of a new genus, but also in the further demonstration of the close affinity which the fauna of the hills of the interior of China bears to that of the Himalayan-Burmese mountains—a fact which I have already had frequent opportunities of emphasizing by uniting forms described from

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either region as distinct. On this point I cannot do better than recall the prefatory remarks of Mr. H. H. Slater in dealing with the Birds, viz.: "that many of the Himalayan birds, hitherto known only from the Indian side, would on further investigation be found, either in identical forms or as closely-allied representative species, in China . . . . many of the birds [from Kuatun] are of genera well known in the Indian hill-country. Now, if N.W. Fohkien were anywhere near the Indian boundary the circumstance would be of interest; far more so when, in the present case, these birds come from a region much nearer to the Pacific coast." This is a confirmation of the view propounded by Mr. H. J. Elwes in his paper "On the Geographical Distribution of Asiatic Birds"<sup>1</sup>, wherein the Himalo-Burmese and Chinese Avifaunas are shown to be one, and the limits of a "Himalo-Chinese" subregion are defined.

## REPTILIA.

### LACERTILIA.

#### 1. GECKO SUBPALMATUS Gthr.

A single female specimen.

#### 2. ACANTHOSAURA LAMNIDENTATA Blgr.

Two male specimens.

The diameter of the orbit being 8 millim. in both specimens, the supraciliary spine measures 2, the supratemporal 3 and  $2\frac{1}{2}$ , the longest nuchal 3 (see measurements in Ann. Mus. Genov. [2] xiii. 1893, p. 317).

The discovery of this species in China is highly interesting; it was known only from Pegu, Tenasserim, and the Karin hills.

#### 3. OPHISAURUS HARTI, sp. n. (Plate XVI.)

Lateral teeth conical, curved, pointing backwards, finely striated, with a very feeble groove on the anterior side; a series of minute teeth on the pterygoids. Azygos præfrontal narrower than the greatest width of the frontal, in contact with or narrowly separated from the latter shield by one pair of præfrontals; interparietal broader than the parietals, much broader than the occipital, which is small; two azygos shields between the rostral and the azygos præfrontal; five supraoculars. Ear-opening minute, smaller than the nostril. Dorsal scales in 16 longitudinal and 103 to 106 transverse series; 8 or 10 dorsal series obtusely keeled; lateral and ventral scales smooth, the latter in 10 longitudinal series. No rudiments of limbs externally. Adult pale olive above, with irregular transverse series of blue spots; head dotted with blackish; lower parts white. Young white above, with an interrupted black vertebral line, deep black on the sides and below.

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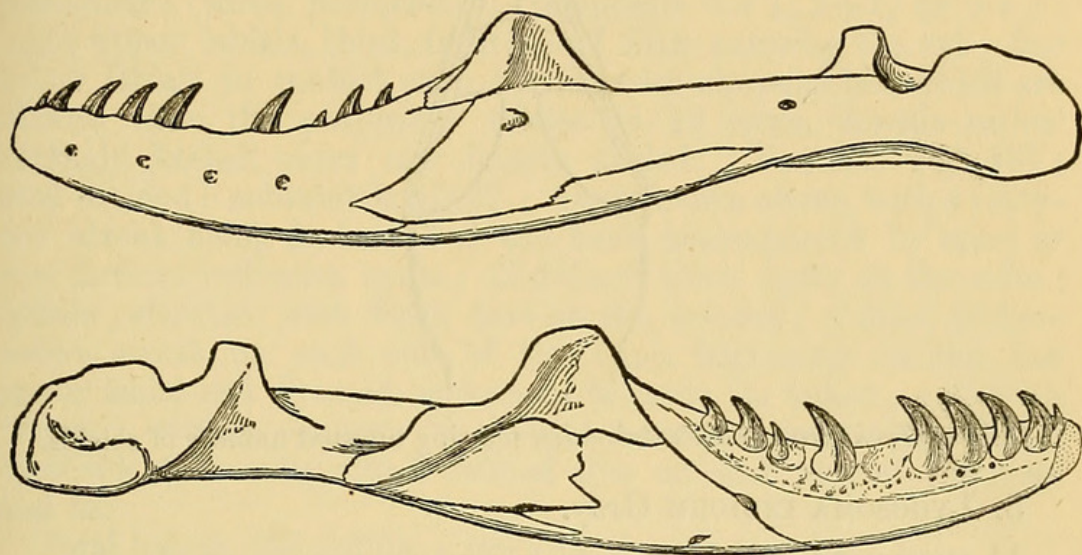


From snout to vent 270 millim.; tail (reproduced) 240.

Four specimens.

I have been requested by Mr. La Touche to dedicate this species as a compliment to his chief, Sir Robert Hart, Inspector of Chinese Customs.

Fig. 1.



Lower jaw of *Ophisaurus harti*, much enlarged.

In its dentition this species may be regarded as intermediate between *Anguis fragilis* and *Ophisaurus gracilis*. It differs from the latter in the presence of two scales between the rostral and the anterior præfrontal, instead of three, the still smaller ear-opening, and the greater number of longitudinal series of dorsal scales. The coloration is highly suggestive of affinity to our European Slow-worm, the teeth of which have been shown by Leydig to be slightly furrowed. There is absolute identity, in shape and number, between the head-shields of this species and those of *Anguis fragilis*.

#### 4. TACHYDROMUS SEPTENTRIONALIS Gthr.

16 specimens.

I now agree with Dr. Günther as to the advisability of separating *T. septentrionalis* from *T. tachydromoides*, Schleg. (cf. Günther, Ann. & Mag. N. H. [6] i. 1888, p. 166).

All the specimens have a single inguinal pore, the number of these pores being variable in *T. sexlineatus*, 4 specimens out of 7 from Great Natuna Id. having a single pore instead of two (cf. Günther, Nov. Zool. ii. 1895, p. 499). The number of chin-shields is three, although there are occasional exceptions, *not* due to fusion or accidental division, as shown by the figure (p. 162) taken from one of the Kuatun specimens. The dorsal scales sometimes form 5 series instead of 6, and in one specimen they are even in 4 series on the posterior part of the back. Two of the specimens have the additional series of small scales between the outer pair of

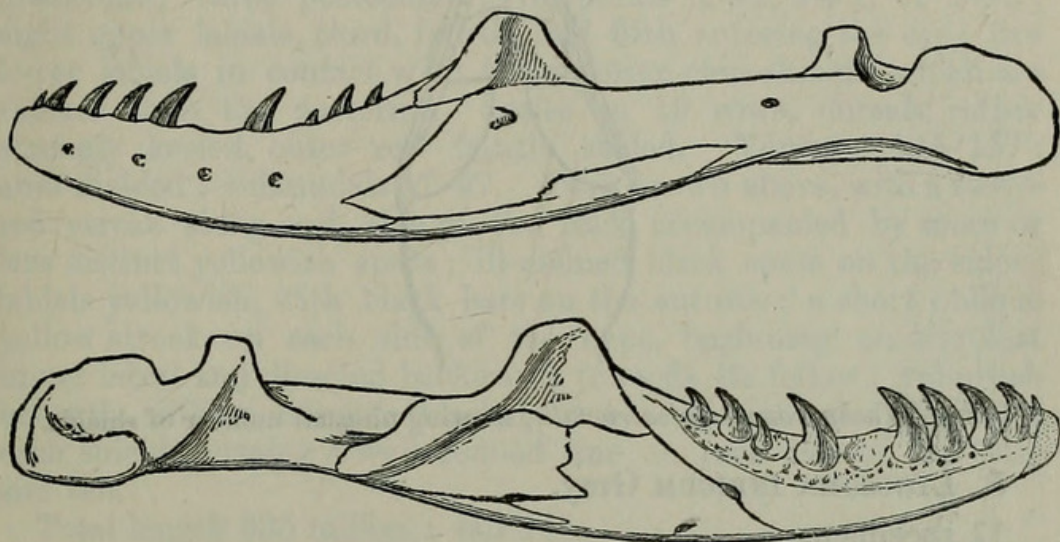


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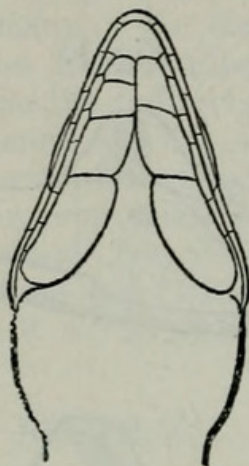
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large ones, as observed by Dr. Günther in two from Shanghai, the scales being practically in 8 series.

Fig. 2.



Chin of *Tachydromus septentrionalis*, showing unusual number of shields.

5. *LYGOSOMA INDICUM* Gray.

11 specimens.

34 or 36 scales round the middle of the body.

6. *LYGOSOMA LATERALE* Say (*REEVESII* Gray).

A single specimen, with 26 scales round the middle of the body.

7. *EUMECES ELEGANS* Blgr.

Numerous specimens.

The characters on which this species has been founded appear to be perfectly constant. Adult males have the sides of the head and neck of a bright vermilion, which colour is continued on the side of the body as more or less distinctly defined stripes above and below the light streak extending from the ear. The largest specimen measures 93 millim. from snout to vent.

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8. *POLYDONTOPHIS COLLARIS* Gray.

Two specimens.

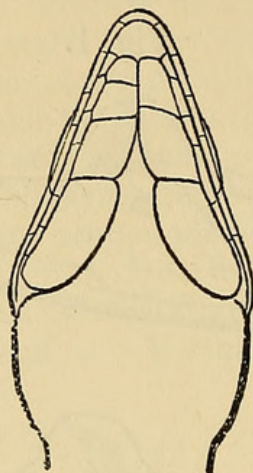
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The larger specimen has 184 ventrals and the tail is imperfect; the other has 178 ventrals and 110 subcaudals.



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9. *TROPIDONOTUS CRASPEDOGASTER*, sp. n. (Plate XVII. fig. 1.)

Eye rather large. Rostral once and two thirds as broad as deep, scarcely visible from above; nasal completely divided; internasals shorter than the præfrontals; frontal once and two thirds as long as broad, longer than its distance from the end of the snout, shorter than the parietals; loreal as long as deep; one præocular; three postoculars; temporals 1+1, 2+1, or 2+2; eight upper labials, third, fourth, and fifth entering the eye; five lower labials in contact with the anterior chin-shields, which are shorter than the posterior. Scales in 19 rows, dorsals rather strongly keeled, outer row faintly keeled. Ventrals 145-157; anal divided; subcaudals 87-97. Dark brown above, with a rusty-red streak along each side of the back, accompanied by more or less distinct yellowish spots; ill-defined black spots on the sides; labials yellowish, with black bars on the sutures; a short oblique yellow streak on each side of the nape, beginning on the last upper labial and directed backwards towards its fellow; yellowish beneath, with an elongate black spot near the outer extremity of each shield, forming a well-defined line on each side of the belly and tail.

Total length 635 millim.; tail 185.

Six specimens.

Closely allied to *T. khasiensis* Blgr. Differing in the larger eye, the keeled outer row of scales, and the coloration.

10. *TROPIDONOTUS PISCATOR* Schn.

A single specimen.

11. *TROPIDONOTUS PERCARINATUS*, sp. n. (Plate XVII. fig. 2.)

Eye moderate. Rostral twice as broad as deep, just visible from above; nasal completely divided; internasals much longer than broad, much narrowed anteriorly, longer than the præfrontals; frontal once and three fifths as long as broad, as long as its distance from the end of the snout, a little shorter than the parietals; loreal as long as deep; one præocular; three postoculars+one very small subocular; temporals 2+3; eight upper labials, fourth and fifth entering the eye; five lower labials in contact with the anterior chin-shields, which are shorter than the posterior. Scales in 19 rows, all keeled, dorsals very strongly. Ventrals 141; anal divided; subcaudals 71. Greyish olive above, sides with light-edged black vertical bars; the four anterior upper labials greyish olive like the upper surface of the head, the rest uniform yellowish white like the lower surface; belly uniform yellowish white anteriorly, spotted and speckled with blackish posteriorly; lower surface of tail dark grey, with some black spots.

Total length 500 millim.; tail 130.

A single male specimen.

Very closely allied to *T. annularis* Hallow. Distinguished by



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the larger eye, the broader rostral, the shorter parietals, the presence of three postoculars instead of two, and the coloration of the upper labials.

12. *TROPIDONOTUS TIGRINUS* Boie.

A single specimen.

*TAPINOPHIS*, g. n.

Teeth small, equal, 17 or 18 in the maxillary. Head small, much depressed, not distinct from neck; eye very small, with round pupil; nostril in the upper part of an undivided nasal; præfrontal single; no præocular; loreal entering the eye. Body cylindrical; scales feebly keeled, without apical pits, in 17 rows; ventrals rounded. Tail rather short; subcaudals in two rows. Hypapophyses developed throughout the vertebral column.

This genus is nearest allied to *Opisthotropis* Gthr.

13. *TAPINOPHIS LATOUCHII*, sp. n. (Plate XVIII. figs. 1-1 c.)

Rostral broader than deep, with straight transverse upper border, just visible from above; nasals rather large, separated by a pair of narrow internasals; præfrontal twice and a half as broad as long; frontal as long as broad, as long as its distance from the end of the snout, shorter than the parietals; supraocular narrow; loreal twice as long as deep; two postoculars, lower smaller; temporals 1+1 or 2; nine upper labials, the first three in contact with the nasal, fifth and sixth entering the eye; four lower labials in contact with the anterior chin-shields, which are longer than the posterior; the latter separated from each other by one scale. Scales in 17 rows, the feeble keel not extending to the extremity of the scale. Ventrals 149; anal divided; subcaudals 53. Olive above, with interrupted black longitudinal lines, yellow on the sides and below; a black streak along the side of the body, along the adjacent halves of the second and third rows of scales; labials edged with blackish; lower parts uniform, except the base of the tail, which bears a black median streak.

Total length 455 millim.; tail 85.

A single female specimen.

14. *TRIRHINOPHOLIS STYANI*, sp. n. (Plate XVIII. figs. 2 & 2 a.)

Snout short, slightly prominent. Rostral rather large, once and two thirds as broad as deep, the portion visible from above about half as long as its distance from the frontal; internasals twice as broad as long, much shorter than the præfrontals; frontal hexagonal, once and one third or once and a half as long as broad, longer than its distance from the end of the snout, a little shorter than the parietals; no loreal, posterior nasal forming a suture with the single præocular; two postoculars; temporals 2+2; six or seven upper labials, third and fourth entering the eye; anterior chin-shields longer than the posterior, in contact with the symphyseal and three lower labials. Scales in 15 rows. Ventrals



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112-121; anal entire; subcaudals 22-28. Brown above, with very small black spots; a black nuchal blotch or cross-band edged with yellowish; labials yellowish, with blackish edges; rostral yellowish, with a large blackish spot; ventrals and subcaudals yellowish, dotted and speckled with blackish on the sides.

Total length 350 millim.; tail 45.

Two specimens, male (V. 112; C. 28) and young (V. 121; C. 22).

Named after Mr. F. W. Styan, whose collections have so much advanced our knowledge of the fauna of China.

The discovery of this species lessens the gap between the genera *Plagiopholis* and *Trirhinopholis*, both established on single species from the Shan States.

15. *DINODON SEPTENTRIONALIS* Gthr.

Three specimens.

Intermediate in the pattern of coloration between the typical form from Assam and Burma and the var. *ruhstrati* Fischer from Formosa. The pale interspaces between the dark brown dorsal spots are very narrow throughout and nowhere form complete annuli.

16. *COLUBER PORPHYRACEUS* Cantor.

Four specimens.

Two black lines extend from the eyes to the end of the tail, intersecting the dark cross-bars, which have a tendency to disappear in adult specimens.

This species had not been recorded from farther north-east than Yunnan.

17. *COLUBER MANDARINUS* Cantor.

Two specimens.

Temporals 2+2 or 3; one of the specimens has a single post-ocular, the lower having fused with the fourth labial.

This most beautifully-marked Snake was known only from Chusan.

18. *COLUBER PHYLLOPHIS* Blgr.

Two specimens.

19. *ABLABES MAJOR* Gthr.

Three specimens.

A young specimen has irregular black transverse spots on the nape and anterior part of the back, and traces of an interrupted black lateral streak.

20. *CALAMARIA SEPTENTRIONALIS* Blgr.

A single specimen (♀. V. 174; C. 8).

21. *BUNGARUS CANDIDUS* L.

A single specimen, pertaining to the var. *multicinctus* Blyth.



112-121; anal entire; subcaudals 22-28. Brown above, with very small black spots; a black nuchal blotch or cross-band edged with yellowish; labials yellowish, with blackish edges; rostral yellowish, with a large blackish spot; ventrals and subcaudals yellowish, dotted and speckled with blackish on the sides.

Total length 350 millim.; tail 45.

Two specimens, male (V. 112; C. 28) and young (V. 121; C. 22).

Named after Mr. F. W. Styan, whose collections have so much advanced our knowledge of the fauna of China.

The discovery of this species lessens the gap between the genera *Plagiopholis* and *Trirhinopholis*, both established on single species from the Shan States.

#### 15. DINODON SEPTENTRIONALIS Gthr.

Three specimens.

Intermediate in the pattern of coloration between the typical form from Assam and Burma and the var. *ruhstrati* Fischer from Formosa. The pale interspaces between the dark brown dorsal spots are very narrow throughout and nowhere form complete annuli.

#### 16. COLUBER PORPHYRACEUS Cantor.

Four specimens.

Two black lines extend from the eyes to the end of the tail, intersecting the dark cross-bars, which have a tendency to disappear in adult specimens.

This species had not been recorded from farther north-east than Yunnan.

#### 17. COLUBER MANDARINUS Cantor.

Two specimens.

Temporals 2+2 or 3; one of the specimens has a single post-ocular, the lower having fused with the fourth labial.

This most beautifully-marked Snake was known only from Chusan.

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22. *CALLOPHIS MACCLELLANDII* Reinh.

A single specimen, measuring 660 millim., of the typical form (♂. V. 193; C. 36).

23. *ANCISTRODON ACUTUS* Gthr.

Two male specimens (V. 164, 161; C. 56, 59).

This large pit-viper, discovered by Mr. A. E. Pratt in the mountains north of Kiukiang and since obtained at Ichang by the same traveller, is, I am informed by Mr. Styan, of gentle disposition and is freely handled by the Chinese.

24. *LACHESIS GRAMINEUS* Shaw.

A single specimen.

## BATRACHIA.

1. *RANA KUHLI* D. & B.

Numerous specimens of a small form—the largest male measuring 60 millim. from vent to snout, the largest female full of ripe eggs 51—distinguished by a rather shorter web between the toes, the membrane reaching only the penultimate phalanx of the fourth toe. The first finger does not extend, or extends but very slightly, beyond the second. Males have a very large head and are devoid of a vocal sac and of nuptial horny excrescences. A Chinese specimen, from the Lofau hills, Province of Canton, has been described by Peters in 1882 under the name of *Nyctibatrachus sinensis*.

Specimens obtained by Dr. J. Anderson in Yunnan, and now preserved in the British Museum, are intermediate between the Kuatun specimens and the typical form from Java in the extent of the web on the sides of the fourth toe. 7 out of the 19 Kuatun specimens have a yellow vertebral stripe.

2. *RANA BOULENGERI* Gthr.

This species is very closely allied to *R. kuhlii*, with which I have confounded it in the British Museum 'Catalogue.' The female, from Ningpo, has been described and figured by Günther in the 'Reptiles of British India,' p. 404, pl. xxvi. fig. A, as *R. kuhlii*, and the breeding male has been since described from two specimens from Ichang and kindly named after me (Ann. & Mag. N. H. [6] iv. 1889, p. 222). Young specimens from near Ningpo have been presented to the British Museum by Messrs. Bassett-Smith and J. J. Walker.

Two specimens, male and female, are in Mr. La Touche's collection.

The following description is based on 7 specimens.

Vomerine teeth in two small oblique groups commencing on a level with, and extending back beyond, the choanæ. No tooth-like processes in the lower jaw. Head broader than long; snout short, broadly rounded, a little shorter than the diameter of the



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orbit; canthus rostralis very obtuse; loreal region very oblique, slightly concave; nostril nearer the eye than the end of the snout; interorbital space a little narrower than the upper eyelid; tympanum hidden. Fingers rather short, feebly swollen at the tips, first extending considerably beyond second; subarticular tubercles moderately developed. Toes rather short, broadly webbed to the tips, which are dilated into small but very distinct disks; subarticular tubercles moderate, oval; inner metatarsal tubercle feebly prominent, elongate, measuring two thirds its distance from the tip of the inner toe; no outer metatarsal tubercle; a feeble dermal fold along the inner edge of the tarsus. The tibio-tarsal articulation reaches the eye; tibia about half length of head and body. Skin of upper parts granular or shagreened, with numerous warts, which may be small and subconical or large and elongate on the back; these warts may bear black horny spinules; a strong fold across the head, connecting the posterior borders of the upper eyelids; a very strong ridge from the eye to the shoulder; no glandular dorso-lateral fold; lower parts smooth. Dark olive or blackish brown above; lips with darker vertical bars; limbs with more or less distinct black cross-bars; hinder side of thighs black, with more or less distinct lighter marblings; lower parts whitish, throat and lower surface of limbs spotted or marbled with blackish. Male with small internal vocal sacs; during the breeding-season the fore limbs are more or less strongly thickened, and the breast and inner side of the three inner fingers armed with small black horny spines.

From snout to vent, ♂ 105 millim., ♀ 103.

This species is exactly intermediate between *R. kuhlii* and *R. liebighi*.

### 3. RANA JAPONICA Blgr.

A single young specimen.

### 4. RANA LATOUCHII, sp. n. (Plate XIX. fig. 1.)

Vomerine teeth in two oblique oval groups in the middle between the choanæ. Head as long as broad; snout as long as the diameter of the orbit, obtusely pointed, projecting beyond the mouth, with distinct canthus and feebly oblique, slightly concave lores; nostril nearer the end of the snout than the eye; interorbital space as broad as the upper eyelid; tympanum very distinct, three fifths or two thirds the diameter of the eye. Fingers slender, feebly swollen at the end, first extending beyond second; subarticular tubercles very strong. Toes slender, two-thirds webbed, with swollen tips and strong subarticular tubercles; inner metatarsal tubercle small, oval; a very prominent, round, outer metatarsal tubercle. Tibio-tarsal articulation reaches the anterior border of the eye; tibia half as long as head and body. Upper parts finely granular; a very prominent, very broad dorso-lateral glandular fold, almost deserving to be termed a parotoid, its width above the shoulder at least as great as that of the upper eyelid;



orbit; canthus rostralis very obtuse; loreal region very oblique, slightly concave; nostril nearer the eye than the end of the snout; interorbital space a little narrower than the upper eyelid; tympanum hidden. Fingers rather short, feebly swollen at the tips, first extending considerably beyond second; subarticular tubercles moderately developed. Toes rather short, broadly webbed to the tips, which are dilated into small but very distinct disks; subarticular tubercles moderate, oval; inner metatarsal tubercle feebly prominent, elongate, measuring two thirds its distance from the tip of the inner toe; no outer metatarsal tubercle; a feeble dermal fold along the inner edge of the tarsus. The tibio-tarsal articulation reaches the eye; tibia about half length of head and body. Skin of upper parts granular or shagreened, with numerous warts, which may be small and subconical or large and elongate on the back; these warts may bear black horny spinules; a strong fold across the head, connecting the posterior borders of the upper eyelids; a very strong ridge from the eye to the shoulder; no glandular dorso-lateral fold; lower parts smooth. Dark olive or blackish brown above; lips with darker vertical bars; limbs with more or less distinct black cross-bars; hinder side of thighs black, with more or less distinct lighter marblings; lower parts whitish, throat and lower surface of limbs spotted or marbled with blackish. Male with small internal vocal sacs; during the breeding-season the fore limbs are more or less strongly thickened, and the breast and inner side of the three inner fingers armed with small black horny spines.

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two strong glands behind the angle of the mouth. Greyish above, uniform or with small blackish spots; a black stripe below the canthus rostralis, over the tympanum, and along the outer edge of the dorso-lateral fold; upper lip white; flanks and hinder side of thighs pale, with black spots; limbs with regular dark cross-bars; lower parts white, uniform or with some greyish spots on the throat and breast. Male with small internal vocal sacs, without humeral glands, with a strong pad on the inner side of the first finger.

From snout to vent, ♂ 37 millim., ♀ 45.

Three specimens.

Nearly allied to *R. guentheri* Blgr., but distinguished by the broader dorso-lateral folds, the shorter hind limbs, and the much smaller size.

#### 5. *RANA ANDERSONI* Blgr.

A large female specimen, measuring 87 millim. from snout to vent, agrees well with a similarly large example obtained by Signor Fea in the Kakhyen hills, Upper Burma. The types are from the Hotha valley, Yunnan (5000 feet).

*Rana schmackeri* Boettger (Kat. Batr. Senck. Ges. 1892, p. 11), from Ichang, appears to agree in every respect with *R. andersoni* except in the larger tympanum, measuring three fourths the size of the eye, whereas in the latter species its diameter does not exceed three fifths that of the eye.

#### 6. *RANA RICKETTI*, sp. n. (Plate XIX. fig. 2.)

Vomerine teeth in two small groups close together behind the level of the choanæ. Head much depressed, as long as broad; snout shorter than the diameter of the orbit, rounded, projecting beyond the mouth; canthus rostralis distinct; loreal region nearly vertical, concave; nostril equidistant from the end of the snout and from the eye; interorbital space nearly as broad as the upper eyelid; tympanum distinct, small, one third or two fifths the diameter of the eye. Fingers short, depressed, terminating in large disks, which are quite as large as the tympanum; first finger much shorter than the second, third as long as the distance between the anterior border of the eye and the tympanum. Toes rather short, very broadly webbed to the disks, which are a little smaller than those of the fingers; subarticular tubercles rather small; a small, oval, inner metatarsal tubercle; no outer metatarsal tubercle. The tibio-tarsal articulation reaches the tip of the snout; tibia a little more than half the length of head and body. Skin finely shagreened above, with scattered small flat warts; a fold above the tympanum; no dorso-lateral fold; belly granular. Olive above, marbled with darker; a dark streak on each side of the head, passing through the eye; limbs with regular dark cross bands; whitish beneath.

From snout to vent 37 millim.

Two specimens.



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From snout to vent 37 millim.

Two specimens.



This species, named after Mr. C. B. Rickett, is closely related to *R. latopalmata* Blgr. (*afghana* Gthr.), from which it is easily distinguished by the shorter fingers and the shorter hind limbs.

#### 7. RHACOPHORUS LEUCOMYSTAX Gravh.

Although the largest specimen measures 50 millim. from snout to vent, the head is, as I have noticed before in Chinese specimens, devoid of dermal ossification. The back of the thighs is whitish, with a dark brown network.

I seize this opportunity to observe that the Moupin *Rhacophorus davidi* Sauv. is not closely allied to this species. I examined the types in the Paris Museum some years ago, and noted that the fingers are one-third or one-fourth webbed and the inner metatarsal tubercle is large, oval, somewhat more than half as long as its distance from the tip of the inner toe. *R. davidi* is intermediate between *R. microtypanum* and *R. schlegelii*.

#### 8. RHACOPHORUS DENNYSII Blanf.

This fine Frog was described in 1881 from a specimen of doubtful origin, obtained alive from a Chinese merchant at Singapore and said to have originally come from China. The type specimen, presented by Dr. Dennys to the Raffles Museum, was found, in bad condition, among the unnamed specimens of that establishment a few years ago by Mr. S. S. Flower, who brought the specimen over to London. I have been able to compare it with a second specimen, from Foochow, presented to the British Museum by Mr. C. B. Rickett in 1894. Mr. La Touche's Kuatun collection contains three specimens. The following description is taken from the five specimens now before me, varying in size from 86 to 115 millim., measured from snout to vent, the species being one of the largest of the genus:—

Vomerine teeth on two strong, straight or slightly oblique transverse ridges touching the inner front edge of the choanae and separated by an interspace less than the width of one of the ridges. Head much depressed, broader than long, though sometimes very slightly; snout rounded, truncate at the end and slanting from the nostrils to the edge of the mouth, its length equal to the diameter of the orbit; canthus rostralis strong; loreal region concave; nostril nearer the end of the snout than the eye; interorbital space broader than the upper eyelid; tympanum very distinct, measuring two thirds to three fourths the diameter of the eye. Fingers with very large disks, broadly webbed, the web reaching or nearly reaching the disks between the two outer, also reaching the disk on the outer side of the second finger, but only the penultimate phalanx on the inner side of the second and third; a large, compressed, crescentic tubercle (rudimentary pollex) at the base of the inner finger, which is much shorter, and has a much smaller distal expansion, than the second; the largest digital disks nearly equalling the tympanum in size. Toes moderately elongate, webbed to the disks, which are



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smaller than those of the fingers; subarticular and inner metatarsal tubercles moderate, flat. The tibio-tarsal articulation reaches the eye; tibia not half length of head and body. Skin of upper parts more or less granular, the granules very feeble, though distinct, in the type specimen, most developed in one of the males from Kuatun; belly and lower surface of thighs coarsely granular; throat smooth or feebly granular; a dermal ridge above the tympanum; no folds along the limbs.

Mr. Blanford was informed by Dr. Dennys that the type specimen, a female, was of a beautiful emerald-green colour when alive. It was, in spirit, dark violet, almost slaty above, with a brown spot behind the occiput, dirty white below, mottled with dusky. It is now nearly completely bleached, traces of the violet colour being only discernible on the parts protected from the light by the folding of the limbs. The Foochow specimen, a female, is dark violet above, with four irregularly disposed rusty spots edged with whitish on the head and scapular region; a few similar spots on the fore limbs; a pale golden lumbar spot, and streaks of the same tint and edged with brown across the anal region and along the outer edges of the forearm and the hand and of the tarsus and foot; white beneath, the lower jaw broadly edged with violet. The three specimens from Kuatun, all males, with internal vocal sac, have retained a dark green coloration; one of them has the red spots on the head of the Foochow specimen; all three have a lateral series of irregular, white, black-edged spots, extending from the shoulder to the groin.

#### 9. BUFO VULGARIS Laur.

The examination of the 32 specimens brought home by Mr. La Touche (males up to 110 millim. from snout to vent, females up to 122) confirms the opinion I have previously expressed as to the impossibility of defining with anything like precision the Eastern form of our Common Toad even as a variety or subspecies. In some of the specimens the tympanum is almost hidden, in others it is very distinct and its diameter, as compared with that of the eye, varies between one half and three fourths. The toes are only half or barely two-thirds webbed, even in males with the nuptial excrescences, and the fourth toe is generally a little longer in proportion than in European specimens. A black lateral band is usually well marked, as in Japanese specimens, and the ventral marbling is usually very striking, although varying in extent and intensity. Some of the specimens have a yellow vertebral line, as well marked as in *Bufo calamita*.

In describing Chinese specimens under the name of *Bufo vulgaris japonicus*, in 1880, M. Lataste has pointed out a difference in the shape of the testis in the breeding male. This is described as being shaped like a long cylinder attenuate in front, its width 7 or 8 times in its length, and occupying the whole length of the abdominal cavity, whilst in the European specimens the organ is oval, elongate, depressed, its width usually twice and a half in its



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length. The character is not borne out by the Kuatun males, two of which, measuring 110 and 83 millim. from snout to vent respectively, I have examined in this respect: the testes have a length of 12 and 11 millim., and a width of 4 and 3, the kidneys measuring 21 and 19 millim. The organ in question is therefore but slightly longer than usual in European specimens.

10. *LEPTOBRACHIUM BOETTGERI*, sp. n. (Plate XIX. fig. 3.)

Tongue entire. Vomerine teeth none. Head moderate, broader than long; snout very short, obliquely truncate, projecting beyond the mouth; canthus rostralis angular; loreal region concave; interorbital space as broad as the upper eyelid; tympanum very distinct, two thirds the diameter of the eye. Fingers slender, slightly swollen at the end, first and second equal. Toes slender, slightly swollen at the end, with a slight rudiment of web; a small, oval, flat inner metatarsal tubercle; no subarticular tubercles. The tibio-tarsal articulation reaches the eye. Skin smooth, with small scattered warts on the head and back; two small white warts close together on the chin and one on each side of the breast near the insertion of the fore limb. Dark grey or brown above, with symmetrical blackish markings; upper surface of snout and scapular regions light; a whitish blotch on the upper lip below the anterior half of the eye; limbs with dark cross bands; a small round white spot on the back of the thigh; throat and breast brown or brownish; three longitudinal, blackish, light-edged markings on the throat; large blackish spots on the sides of the belly; posterior part of belly and lower surface of thighs dirty white. Male with internal vocal sacs.

From snout to vent, ♂ 35 millim., ♀ 46.

Six specimens.

Closely allied to *L. monticola* Gthr.; differing in the entire tongue and the absence of vomerine teeth. Had I examined but a single specimen, I should not have ventured to separate it from *L. monticola*. That is my excuse, but I must, however, apologize to Prof. Boettger for having, a few years ago, identified a specimen from Kiukiang, which he submitted to me, as a young individual of that species (cf. Ber. Senckenb. Ges. 1894, p. 141). I wish to atone for my mistake by connecting with this new species the name of my distinguished colleague. *Ixalus lateralis* And., which I have placed in the synonymy of *Leptobrachium monticola*, regarding it as based on a young specimen, agrees with *L. sinensis* in the absence of vomerine teeth, but the tongue is described as slightly notched behind. That the presence or absence of vomerine teeth is a dangerous character to use, unaccompanied by others, in the distinction of species in this genus has been shown in the case of *L. carinense* Blgr. (cf. W. L. Slater, P. Z. S. 1892, p. 347). The length of the hind limbs varies much in *L. monticola*. In Günther's type specimen from Sikkim they bear the same proportions as in *L. sinense*, the tibio-tarsal articulation reaching the eye.



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## EXPLANATION OF THE PLATES.

## PLATE XVI.

*Ophisaurus harti*, p. 160. Adult and young, and upper view of head.

## PLATE XVII.

- Fig. 1. *Tropidonotus craspedogaster*, p. 163. Upper, lower, and side views of head and anterior part of body.  
 2. *Tropidonotus percarinatus*, p. 163. Upper and side views of head and anterior part of body.

## PLATE XVIII.

- Fig. 1. *Tapinophis latouchii*, p. 164. Upper and side views of head and anterior part of body.  
 1 a. Ditto. Upper view of head, enlarged.  
 1 b. Ditto. Side view of head, enlarged.  
 1 c. Ditto. Lower view of head, enlarged.  
 2. *Trirhinopholis styani*, p. 164. Upper and side views of head and anterior part of body.  
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## PLATE XIX.

- Fig. 1. *Rana latouchii*, p. 167.  
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4. A Revision of the Moths of the Subfamily *Pyraustinae* and Family *Pyrallidæ*. By Sir G. F. HAMPSON, Bart., F.Z.S. &c.

PART II.<sup>1</sup>

[Received January 10, 1899.]

In the first part of this paper, the classification of the subfamily *Pyraustinae* of the *Pyrallidæ* was completed as far as the end of the 1st group of genera with upturned palpi; in the present part the second group of genera with porrect palpi is dealt with. The key to all the genera of the subfamily, the phylogenetic table, and the plates illustrating some of the new species were given in the first part of the paper.

We should be greatly obliged for the loan of specimens of any of the species mentioned in the series of papers on the *Pyrallidæ* that I have been unable to identify; they would be carefully packed and returned after examination.

## Genus 88. MEGAPHYSA.

*Megaphysa* Guen. Delt. & Pyr. p. 213 (1854).

Palpi porrect, short, the 2nd joint very broadly fringed with scales below, the 3rd short, naked and downturned; maxillary palpi filiform; frons rounded; antennæ of male ciliated; tibiæ fringed with thick hair on inner side, hind tarsi with the 1st joint fringed with hair on outer side. Fore wing with the costa very

<sup>1</sup> Continued from P. Z. S. 1898, pp. 590-760.



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Boulenger, George Albert. 1899. "On a collection of reptiles and batrachians made by Mr. J. D. La Touche in N.W. Fokien, China." *Proceedings of the Zoological Society of London* 1899, 159–172.

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