

chin-shields, posterior separated by scales. Scales feebly imbricate, 27 round the neck, 37 round the body; scales nearly smooth on the neck, with a short tubercular keel on the body. Ventrals distinct throughout, 298-321. Dark olive or blackish; a crescentic yellow band from eye to eye across the snout, and a yellow band behind the eye; some small yellow markings on the crown; neck with yellow cross-bars, much narrower than the spaces between them; these bars gradually increase in extent on the body, but never completely encircle it; 69 yellow bars altogether on the body and tail.

Total length 900 millim.; tail 80.

This species, of which two specimens were obtained in Brunei Bay by Mr. S. S. Flower on the 3rd October, 1897, is nearest related to *Hydrophis mamillaris*, with which it agrees in form, scaling of the body, and coloration, but differs in the shorter frontal and the presence of a single postocular and a single anterior temporal. From *H. fasciatus* it differs in the lower number of scales round the body and the presence of scales between the posterior chin-shields, as well as in the coloration.

The larger of the two specimens (which is figured, Plate IX.) presents these anomalies, that the nasal shields are fused in their anterior half, and that a small additional chin-shield has arisen through division of the first left lower labial.

#### 4. An Account of the Reptiles and Batrachians collected by Mr. W. F. H. Rosenberg in Western Ecuador. By G. A. BOULENGER, F.R.S.

[Received February 1, 1898.]

(Plates X.-XVIII.)

The collection made by Mr. Rosenberg in Ecuador, of which a complete set will be acquired for the British Museum, adds considerably to our knowledge of this herpetologically so fertile district, and to the long list of species with which we are acquainted through the previous explorations of Fraser, Orton, Espada, De Ville, Buckley, Whymper, and Festa. Twenty-three new species are described in this paper.

The localities whence the specimens were obtained are:—Cachabé, Paramba, Ibarra, Cayamba, and Chimbo.

Mr. Rosenberg has kindly furnished me with the following information respecting these places:—

1. *Cachabé*, a small village on the river of that name, on the N.W. Coast, in the Prov. Esmeraldas. Owing to an accident to the barometer, the exact altitude of the village could not be ascertained, but it is probably about 500 feet above the sea. It is surrounded by dense forest.

2. *Paramba*, a farm on the W. bank of the River Mira, at 3500 feet altitude; it is still in the forest region, but the open country commences two or three miles higher up the Mira.



3. *Ibarra*, a city two days' ride from Paramba and about the same distance from Quito; altitude about 6600 feet. The country is for the most part cultivated.

4. *Cayamba*, a small town N.E. and about a day and a half's ride from Quito; altitude 9323 feet (Whymper).

5. *Puente del Chimbo*, the railway terminus about 70 miles from Guayaquil, at an elevation of about 1000 feet. Much of the surrounding country is thick forest, but the district is more extensively cultivated than is the case on the N.W. Coast.

## REPTILIA.

### CHELONIA.

#### CINOSTERNIDÆ.

##### 1. CINOSTERNUM LEUCOSTOMUM, A. Dum.

In describing Mr. Whymper's collection in 1882, I alluded to two very young, dried specimens from Nanegal, 3000 feet, which established for the first time the occurrence of the genus *Cinosternum* south of Colombia, and I compared them to *C. leucostomum*, to which, however, owing to their condition, I did not venture to refer them. The fact that Mr. Rosenberg's collection includes an adult specimen from Chimbo which undoubtedly belongs to *C. leucostomum* removes all doubt from my mind that Mr. Whymper's specimens were likewise referable to that species.

#### TESTUDINIDÆ.

##### 2. NICORIA ANNULATA, Gray.

Paramba.

### LACERTILIA.

#### EUBLEPHARIDÆ.

##### 3. LEPIDOBLEPHARIS FESTÆ, Peracca.

The highly interesting discovery of an Eublepharid in Ecuador was made known by Count Peracca only a few months ago (Boll. Mus. Torino, xii. 1897, no. 300). The specimen from Chimbo contained in the present collection agrees entirely with that author's excellent description, but is of larger size, measuring 45 millim. from snout to vent; tail (reproduced) 41 millim.

#### IGUANIDÆ.

##### 4. ANOLIS PERACCÆ, sp. n. (Plate X. fig. 1.)

Head nearly twice as long as broad, longer than the tibia; forehead concave; frontal ridges short and feeble; upper head-scales keeled; scales of the supraorbital semicircles enlarged, separated by one or two series of scales; keeled enlarged supra-ocular scales in contact with the supraorbitals; occipital as large as or a little smaller than the ear-opening, separated from the



supraorbitals by three or four rows of scales; canthus rostralis angular, canthal scales three or four; loreal rows five or six; six or seven upper labials to below the centre of the eye; ear-opening rather large, oval. Gular appendage large, merely indicated in the female; gular scales smooth. Body feebly compressed; no dorso-nuchal fold. Dorsal scales very small, granular, keeled, a little larger than the granules on the flanks; ventral scales larger than dorsals, juxtaposed, smooth. The adpressed hind limb reaches the eye on the posterior border of the orbit; digits rather feebly dilated; 17 or 18 lamellæ under phalanges ii. and iii. of the fourth toe. Tail roundish, covered with strongly keeled scales without enlarged dorsal series; length of tail about twice that of head and body. Male with enlarged postanal scales. Greyish or reddish brown above, speckled or marbled with darker, and with dark brown chevron-shaped bars, pointing forwards, across the back; tail with very regular dark annuli; greyish or whitish beneath, uniform or marbled or reticulated with blackish on the sides; throat dotted with blackish; gular appendage yellow.

|                     | ♂.<br>millim. | ♀.<br>millim. |
|---------------------|---------------|---------------|
| Total length .....  | 148           | 183           |
| Head .....          | 15            | 16            |
| Width of head ..... | 7.5           | 8             |
| Body .....          | 35            | 47            |
| Fore limb.....      | 23            | 28            |
| Hind limb .....     | 37            | 49            |
| Tibia .....         | 11            | 14            |
| Tail .....          | 98            | 120           |

This species comes nearest to *A. fusco-auratus*, D'Orb. I have named it after my friend Count M. Peracca, who has recently described some highly interesting additions to the herpetology of Ecuador.

Six specimens from Chimbo.

##### 5. *ANOLIS ELEGANS*, sp. n. (Plate X. fig. 2.)

Head twice as long as broad, as long as the tibia; forehead concave; frontal ridges short and feeble; upper head-scales feebly keeled; scales of the supraorbital semicircles large, separated by a single series of small scales on the vertex; 11 or 12 enlarged, keeled supraocular scales, separated from the supraorbitals by one series of granules; occipital not quite so large as the ear-opening, separated from the supraorbitals by three series of scales; canthus rostralis angular, canthal scales three; loreal rows five; six upper labials to below the centre of the eye; ear-opening moderately large, roundish. Gular appendage very large; gular scales smooth. Body compressed; no dorso-nuchal fold. Dorsal scales very small, granular, scarcely larger than the laterals; ventrals larger, small, granular, smooth. The adpressed hind limb reaches the eye; digits moderately dilated; 22 lamellæ under phalanges ii. and iii. of the fourth toe. Tail feebly compressed, covered with



strongly keeled scales without enlarged dorsal series; length of tail twice and a half that of head and body. Feebly enlarged postanal scales. Purplish brown above, with seven bluish-grey cross-bands on the nape and back, the anterior angular and pointing forwards; sides with round light spots between the cross-bands; tail dark brown in its basal fourth, then annulate dark brown and whitish, and whitish in its terminal half; lower parts greyish; gular appendage white.

|                     | millim. |
|---------------------|---------|
| Total length .....  | 230     |
| Head .....          | 16      |
| Width of head ..... | 8       |
| Body .....          | 50      |
| Fore limb .....     | 30      |
| Hind limb .....     | 53      |
| Tibia .....         | 16      |
| Tail .....          | 164     |

This species may be regarded as intermediate between *A. buckleyi*, O'Sh., and *A. fasciatus*, Blgr., both of which are likewise natives of Ecuador.

A single male specimen from Chimbo.

#### 6. *ANOLIS CHLORIS*, sp. n. (Plate X. fig. 3.)

Head once and three fourths as long as broad, a little longer than the tibia; forehead concave; no frontal ridges; upper head-scales small, smooth; scales of the supraorbital semicircles feebly enlarged, separated by two series of scales; supraocular scales small, the larger ones feebly keeled; occipital scarcely enlarged; canthus rostralis angular, canthal scales five; loreal rows five; six upper labials to below the centre of the eye; ear-opening rather small, oval. Gular appendage large; gular scales small. Body scarcely compressed; no dorso-nuchal fold. Scales on the back and sides minute, granular; ventral larger, but very small, granular, smooth. The adpressed hind limb reaches the eye; digital expansions moderate; 18 lamellæ under phalanges ii. and iii. of the fourth toe. Tail rounded, covered with keeled scales, without enlarged dorsal series; length of tail a little over twice that of head and body. Male with enlarged postanal scales. Uniform green above, white below; a few black dots on the lower surface of the thighs.

|                     | millim. |
|---------------------|---------|
| Total length .....  | 138     |
| Head .....          | 13      |
| Width of head ..... | 7.5     |
| Body .....          | 31      |
| Fore limb .....     | 21      |
| Hind limb .....     | 36      |
| Tibia .....         | 11      |
| Tail .....          | 94      |

Allied to the preceding.

A single male specimen from Paramba.



7. *ANOLIS MACULIVENTRIS*, sp. n. (Plate XI. fig. 1.)

Head twice as long as broad, a little longer than the tibia; forehead concave; frontal ridges short, feeble; upper head-scales small, keeled; scales of the supraorbital semicircles moderately enlarged, separated by three or four series of small scales; a few feebly enlarged, keeled supraocular scales, separated from the supraorbitals by a series of granules; occipital scale slightly enlarged; canthus rostralis angular, canthal scales four or five; loreal rows eight; eight labials to below the centre of the eye; ear-opening moderately large, oval. Gular appendage rather large, merely indicated in the female; gular scales smooth. Body feebly compressed; no dorso-nuchal fold. Dorsal and lateral scales minute, granular; ventrals larger, but very small, granular, smooth. The adpressed hind limb reaches the eye; digits rather feebly dilated; 16 lamellæ under phalanges ii. and iii. of the fourth toe. Tail roundish, covered with keeled scales, without enlarged dorsal series; length of tail not quite twice that of head and body. No enlarged postanal scales. Brownish or purplish grey above, with metallic lustre; a dark cross-bar between the eyes and a dark spot on the occiput; limbs with rather indistinct dark cross-bars; tail with dark annuli; whitish beneath, much spotted or marbled with dark brown; gular appendage red.

|                    | ♂.<br>millim. | ♀.<br>millim.         |
|--------------------|---------------|-----------------------|
| Total length.....  | 126           | 107 (tail imperfect). |
| Head .....         | 12            | 14                    |
| Width of head..... | 6             | 7                     |
| Body.....          | 33            | 36                    |
| Fore limb.....     | 18            | 20                    |
| Hind limb .....    | 33            | 39                    |
| Tibia.....         | 11            | 12                    |
| Tail .....         | 81            | —                     |

Allied to *A. gemmosus*, O'Sh.

Two specimens from Paramba.

8. *ANOLIS COPII*, Bocourt.

Paramba.

9. *ANOLIS GRANULICEPS*, sp. n. (Plate XI. fig. 2.)

Head once and two thirds to once and three fourths as long as broad, as long as, or slightly shorter than the tibia; forehead concave; frontal ridges feeble, short; upper head-scales very small, almost granular, keeled; scales of the supraorbital semicircles moderately enlarged, separated by three to five series of scales on the vertex; feebly enlarged, strongly keeled supraocular scales; occipital a little smaller than the ear-opening, separated from the supraorbitals by four or five series of scales; canthus rostralis angular; canthal scales three or four; loreal rows seven or eight; eight or nine upper labials to below the centre of the eye; ear-opening large, oval. Gular appendage very small, merely indicated



in the female ; gular scales granular, smooth. Body feebly compressed ; no dorso-nuchal fold. Dorsal scales very small, granular, a little larger than the lateral scales ; ventral scales larger than dorsals, small, juxtaposed, keeled. The adpressed hind limb reaches the eye or the tip of the snout ; digits feebly dilated ; 15 or 16 lamellæ under phalanges ii. and iii. of the fourth toe. Tail roundish, covered with strongly keeled scales, without enlarged dorsal series ; length of tail once and two thirds to twice that of head and body. Male without enlarged postanal scales. Brown or olive above, uniform or with small darker spots ; a more or less distinct dark lateral band from the eye to the side of the body, passing through the upper half of the ear-opening ; this band often bordered below by a whitish streak, which may extend to the hind limb ; lower parts whitish, uniform or much speckled with brown.

|                    | ♂.<br>millim. | ♀.<br>millim. |
|--------------------|---------------|---------------|
| Total length.....  | 117           | 108           |
| Head .....         | 12            | 11            |
| Width of head..... | 7             | 6             |
| Body.....          | 30            | 30            |
| Fore limb.....     | 20            | 19            |
| Hind limb .....    | 37            | 36            |
| Tibia.....         | 12            | 11            |
| Tail .....         | 75            | 67            |

Allied to *A. stigmatus*, Bocourt.

Several specimens from Paramba.

#### 10. *ANOLIS GRACILIPES*, sp. n. (Plate XI. fig. 3.)

Head once and three fourths to twice as long as broad, as long as or slightly shorter than the tibia ; forehead concave ; frontal ridges distinct, short ; upper head-scales keeled ; scales of the supraorbital semicircles strongly enlarged, in contact with each other on the vertex or separated by one series of scales ; a few strongly enlarged, keeled supraocular scales ; occipital a little larger than the ear-opening, separated from the supraorbitals by one or two rows of scales ; canthus rostralis angular ; canthal scales four or five ; loreal rows seven or eight ; ten to twelve upper labials to below the centre of the eye ; ear-opening moderately large, oval. Gular appendage large, merely indicated in the female ; gular scales keeled. Body compressed ; no dorso-nuchal fold. Dorsal scales small, rhomboidal, subimbricate, strongly keeled ; lateral scales minute, granular ; ventral scales larger than dorsals, rhomboidal, subimbricate, strongly keeled. The adpressed hind limb reaches the tip of the snout, or between the eye and the tip of the snout ; digits feebly dilated ; 14 lamellæ under phalanges ii. and iii. of the fourth toe. Tail roundish, covered with strongly keeled scales, without enlarged dorsal series ; length of tail about twice that of head and body. Male without enlarged postanal scales. Greyish or pale bronzy olive above, with symmetrical dark



brown or reddish-brown markings, in the form of symmetrical designs on the upper surface of the head, a broad wavy band on the temple, above the ear, two series of large spots on the back connected across the vertebral region by angular cross-bars, and narrow bars across the limbs; upper lip white below the eye, with large dark spots; whitish beneath; gular appendage yellow.

|                     | ♂.<br>millim. | ♀.<br>millim.  |
|---------------------|---------------|----------------|
| Total length .....  | 172           | ? <sup>1</sup> |
| Head .....          | 15            | 14             |
| Width of head ..... | 8             | 8              |
| Body .....          | 40            | 40             |
| Fore limb .....     | 27            | 24             |
| Hind limb .....     | 50            | 45             |
| Tibia .....         | 16            | 15             |
| Tail .....          | 117           | ?              |

Distinguished from the preceding by the larger ear-opening and the much smaller dorsal and ventral scales.

Four specimens from Paramba.

#### 11. *ANOLIS BIPORCATUS* Wiegman.

Paramba.

#### 12. *ANOLIS LEMNISCATUS*, sp. n. (Plate X. fig. 4.)

Head twice as long as broad, as long as the tibia; forehead concave; frontal ridges short and feeble; upper head-scales keeled; scales of supraorbital semicircles enlarged, separated by one or two series of scales; 5 to 8 enlarged, strongly keeled supra-ocular scales, separated from the supraorbitals by one series of granules; occipital larger than the ear-opening, separated from the supraorbitals by two or three series of scales; canthus rostralis angular, canthal scales three or four; loreal rows six; eight to ten upper labials to below the centre of the eye; ear-opening moderately large, roundish. Gular appendage large, absent in the female; gular scales keeled. Body compressed; no dorso-nuchal fold. Dorsal scales rather large, hexagonal, subimbricate, strongly keeled, forming 11 or 12 longitudinal series; lateral scales minute, granular; ventral scales larger than dorsals, hexagonal, subimbricate, strongly keeled. The adpressed hind limb reaches the eye or between the eye and the tip of the snout; digits feebly dilated; 14 or 15 lamellæ under phalanges ii. and iii. of the fourth toe. Tail slightly compressed, covered with strongly keeled scales without enlarged dorsal series; length of tail a little more than twice that of head and body. Male without enlarged postanal scales. Pale greyish or bronzy above, with elegant symmetrical dark brown markings; a V-shaped band on the snout, pointing backwards; a cross-band from eye to eye; a band behind the eye, passing above the tympanum; a series of large spots or oblique bars on the sides of the body connected by

<sup>1</sup> Tail injured.



V-shaped bars across the spine; regular cross-bars on the limbs and annuli on the tail; a white band from below the eye to the side of the body, passing through the ear; a dark brown vertical bar below the eye; whitish beneath; gular appendage yellow.

|                    | ♂.<br>millim. | ♀.<br>millim. |
|--------------------|---------------|---------------|
| Total length.....  | 167           | 137           |
| Head .....         | 15            | 13            |
| Width of head..... | 7.5           | 7             |
| Body.....          | 37            | 32            |
| Fore limb.....     | 23            | 20            |
| Hind limb .....    | 46            | 39            |
| Tibia.....         | 14            | 12            |
| Tail .....         | 115           | 92            |

Allied to *A. cupreus* Hallow. and *A. rhombifer* Blgr.  
Several specimens from Chimbo.

13. *POLYCHRUS GUTTUROSUS* Berth.

Paramba.

14. *BASILISCUS GALERITUS* A. Dum.

Paramba and Chimbo.

15. *ENYALIOIDES FESTÆ* Peracca.

Paramba.

16. *LIOCEPHALUS GUENTHERI* Blgr.

Ibarra and between Cachabé and Paramba.

TEIIDÆ.

17. *AMEIVA BRIDGESII* Cope.

Paramba.

18. *AMEIVA SEPTEMLINEATA* A. Dum.

Chimbo.

19. *ECHINOSAURA HORRIDA* Blgr.

Paramba.

20. *PHOLIDOBOLUS MONTIUM* Ptrs.

Ibarra and between Cachabé and Paramba.

21. *PROCTOPORUS UNICOLOR* Gray.

Chimbo and between Cachabé and Paramba.

AMPHISBÆNIDÆ.

22. *AMPHISBÆNA FULIGINOSA* L.

Paramba.



## OPHIDIA.

## BOIDÆ.

## 23. TRACHYBOA GULARIS Ptrs.

A single specimen, 155 millim. long, from Paramba.

It agrees with Peters's description and Jan's figure, except in having the eye completely surrounded with 14 scales, labials being excluded. Scales 29; ventrals 142; subcaudals 27.

## COLUBRIDÆ.

## 24. SYNOPHIS MIOPS, sp. n. (Plate XII. fig. 1.)

Eye small, one third the length of the snout. Rostral much broader than deep, scarcely visible from above; nasal divided internasals very small, a little broader than long; præfrontal very large, covering nearly the whole upper surface of the snout, descending to the upper labials; frontal as long as broad, as long as the præfrontal, much shorter than the parietals; supraocular small; no loreal; one large præocular, forming a suture with the frontal; one postocular; temporals 1 + 2; eight upper labials, fourth and fifth entering the eye; four lower labials in contact with the anterior chin-shields, which are shorter than the posterior. Scales striated and strongly keeled, in 19 rows. Ventrals 138; anal entire; subcaudals 91. Black above, the occiput and part of the temple yellow; belly yellowish white; lower surface of tail greyish.

Total length 390 millim.; tail 135.

A single female specimen from Paramba.

Distinguished from *Synophis bicolor* Peracca (Boll. Mus. Torin. xi. 1896, no. 266), by the smaller eye, the absence of the loreal shield, the division of the nasal, the presence of a single postocular, and the lower number of ventral and subcaudal shields.

## 25. DRYMOBIUS BODDAERTII Sentz.

Paramba.

## 26. DRYMOBIUS RHOMBIFER Gthr.

Paramba.

## 27. DRYMOBIUS DENDROPHIS Schleg.

Paramba.

## 28. SPILOTES MEGALOLEPIS Gthr.

A single male specimen from Paramba, with 217 ventrals and 122 subcaudals. The exact habitat of this snake was still unknown.

## 29. HERPETODRYAS CARINATUS L.

Paramba.



30. *HERPETODRYAS FUSCUS* L.

Paramba and Chimbo.

31. *HERPETODRYAS GRANDISQUAMIS* Ptrs.

Paramba.

This snake was only known from Costa Rica.

32. *LEPTOPHIS BOCOURTI*, sp. n.

*Leptophis liocercus* (non Wied), Bocourt, Miss. Sc. Mex., Rept. p. 823, pl. lxii. fig. 3 (1895).

Rostral much broader than deep, just visible from above; internasals shorter than the præfrontals; frontal once and one third as long as broad, as long as its distance from the rostral or the end of the snout, as long as or a little shorter than the parietals; nasal elongate, divided; no loreal; præfrontal in contact with labials; one præocular, in contact with or narrowly separated from the frontal; two postoculars; temporals 1+2; nine upper labials, fifth and sixth entering the eye; five or six lower labials in contact with the anterior chin-shields, which are shorter than the posterior. Scales in 15 rows, all except the outer row strongly keeled; scales on the neck and tail keeled. Ventrals feebly angulate laterally, 159-168; anal divided; subcaudals 165-172. Bright green above, closely speckled all over with black; the keels on the scales black; a black streak behind the eye; upper lip and lower parts pale green.

Total length 1600 millim.; tail 620.

Two specimens from Paramba and one from Cachabé.

The specimen described by Bocourt is from Peru.

33. *LIOPHIS ALBIVENTRIS* Jan.

Ibarra and Paramba.

34. *XENODON COLUBRINUS* Gthr.

Paramba.

35. *PETALOGNATHUS NEBULATA* D. & B.

Paramba.

36. *ATRACTUS MULTICINCTUS* Jan.

Paramba.

The specimens belong to the form figured by Jan as *Rabdosoma badium*, var. *multicinctum*. I think they deserve specific distinction from *A. badius*, as first suggested to me by my friend Count Peracca, owing to the higher number of ventral shields (177-182) and the shape of the rostral, which is as deep as broad. No spots whatever on the belly.

37. *HIMANTODES CENCHOA* L.

Paramba.



38. *LEPTODIRA ANNULATA* L.

Paramba.

39. *OXYBELIS BREVIROSTRIS* Cope.

Paramba and Cachabé.

40. *OXYBELIS ACUMINATUS* Wied.

Paramba.

41. *ERYTHROLAMPRUS ÆSCULAPII* L.

Paramba.

42. *HOMALOCRANIUM MELANOCEPHALUM* L.

Ibarra.

43. *ELAPS CORALLINUS* Wied.

Paramba.

44. *ELAPS ROSENBERGI*, sp. n. (Plate XIII.)

Eye very small, measuring two fifths its distance from the mouth. Rostral much broader than deep, just visible from above; frontal once and a half as broad as the supraocular, once and a half as long as broad, as long as its distance from the rostral, shorter than the parietals; latter longer than their distance from the internasals; one præ- and two postoculars; temporals 1+1; seven upper labials, third much larger than fourth, third and fourth entering the eye; four lower labials in contact with the anterior chin-shields, the first forming a suture with its fellow behind the symphysial; posterior chin-shields longer than the anterior. Scales in 15 rows. Ventrals 288; anal divided; subcaudals 30. Above with 20 black areas separated by narrow red ones spotted with black; below, each black area breaks up into three, separated by white interspaces of nearly equal width, viz., occupying two or three ventral shields; head, as far back as the middle of the parietal, white spotted with black; end of snout and frontal shield black; occiput and nape black, the first white cross-band ascending on each side to the second temporal.

Total length 1510 millim.; tail 85.

A single female specimen from Paramba.

45. *ELAPS ANCORALIS* Jan.

A single specimen from Chimbo, with 260 ventrals and 32 subcaudals.

## AMBLYCEPHALIDÆ.

46. *LEPTOGNATHUS ELLIPSIFERA*, sp. n. (Plate XII. fig. 2.)

Body strongly compressed. Eye moderate. Rostral broader than deep, scarcely visible from above; internasals half as long as the præfrontals; frontal as long as broad, as long as its distance from the end of the snout, shorter than the parietals; nasal entire



or semidivided; loreal twice or twice and one third as long as deep, bordering the eye; a small præocular usually present between the loreal and the supraocular; two postoculars, rarely one; temporals 2+2 or 3; seven upper labials, fourth or fourth and fifth entering the eye; first lower labial in contact with its fellow behind the symphysial; three or four pairs of chin-shields, anterior as long as broad. Scales in 15 rows, vertebrals strongly enlarged, the largest twice as broad as long. Ventrals 148-160; anal entire; subcaudals 60-76. Olive-brown above, regularly marked with black ellipses with lighter centres disposed vertically on each side of the body, the two series alternating; head spotted or marbled with black; lower parts whitish, speckled and largely spotted with black.

Total length 645 millim.; tail 145.

Several specimens from Ibarra.

#### VIPERIDÆ.

##### 47. *LACHESIS ATROX* L.

Paramba and Chimbo.

##### 48. *LACHESIS LANSBERGII* Schleg.

Paramba.

##### 49. *LACHESIS SCHLEGELII* Berth.

Chimbo.

#### BATRACHIA.

##### ECAUDATA.

##### RANIDÆ.

##### 1. *PHYLLOBATES INFRAGUTTATUS*, sp. n. (Plate XIV. fig. 1.)

Snout rounded, moderately prominent, as long as the diameter of the orbit; loreal region vertical; nostril slightly nearer the tip of the snout than the eye; interorbital space a little broader than the upper eyelid; tympanum distinct, close to the eye and three fifths its diameter. Fingers moderate, first not extending beyond second; toes moderate, free; disks well developed, smaller than the tympanum; two small metatarsal tubercles, inner oval, outer rounded; a short, curved, tarsal fold. The tibio-tarsal articulation reaches the eye. Skin perfectly smooth. Blackish brown above, with a more or less distinct lighter greyish streak on each side from eye to groin, another on each side of the snout along the loreal region, and a third along the back of the thigh; throat and belly blackish brown with round white spots.

From snout to vent 23 millim.

Two specimens from Chimbo.

##### 2. *PROSTHERAPIS FEMORALIS* Blgr.

Paramba and Cachabé.



3. *COLOSTETHUS LATINASUS* Cope.

Chimbo.

4. *PHYLLODROMUS PULCHELLUS* Espada.

Cachabé.

## DENDROBATIDÆ.

5. *DENDROBATES TINCTORIUS* Schn.

Cachabé.

## ENGYSTOMATIDÆ.

6. *ATELOPUS IGNESEENS* Cornalia.

Cayamba, Sibambé, Ibarra.

7. *ATELOPUS CRUCIGER* Mart.

Cachabé.

8. *ATELOPUS ELEGANS* Blgr.

Cachabé.

This species, known from a single specimen obtained at Tanti (2000 feet) by Mr. Whymper, varies much in the colour and markings, as shown by the numerous specimens collected by Mr. Rosenberg. The black lateral streak is constant, but the dorsal markings may be in the form of spots, vermiculate lines, or four regular longitudinal streaks; the ground-colour of the upper parts is brown, grey, pale greenish, or lemon-yellow. The largest specimen, a female full of spawn, measures only 37 millim. from snout to vent.

## CYSTIGNATHIDÆ.

9. *HYLODES ANOMALUS*, sp. n. (Plate XIV. fig. 2.)

Tongue oval, entire or indistinctly emarginate behind. Vomerine teeth in two strong, transverse, slightly curved and slightly oblique series behind the choanæ, on a level with the palatine bones. Head rather large, a little broader than long; snout rounded, as long as the diameter of the orbit; canthus rostralis distinct; loreal region very oblique, concave; nostril a little nearer the tip of the snout than the eye; interorbital space much narrower than the upper eyelid; tympanum distinct, one third to two fifths the diameter of the eye. Fingers rather short, first longer than second, the tips merely swollen; toes moderate, one half or two thirds webbed, ending in well-developed disks, which are broader than long; subarticular tubercles feeble; an elongate inner metatarsal tubercle, measuring about two-thirds the length of the inner toe; a small, round, outer metatarsal tubercle. The tibio-tarsal articulation reaches between the eye and the tip of the snout. Skin rugose above with small warts and glandular ridges, the strongest of which are behind the eyes; lower parts smooth; a well-marked ventral disk. Olive above, mottled and marbled with darker;



upper lip with dark bars ; limbs with rather ill-defined dark cross-bars ; hinder side of thighs blackish, spotted or marbled with yellow ; lower parts white, throat brown or mottled with brown. Male without vocal sac.

From snout to vent 59 millim.

Three specimens from Cachabé.

This species differs so much from the other members of the genus *Hylodes* in the extensive web between the toes that it might be made the type of a new genus. I am, however, unwilling to adopt such a course at present, in view of the existence of the species *H. palmatus* and *H. raniformis*, which afford a link between this and the more typical forms, and render the character of the development of the web between the toes one of very doubtful value in this group ; a conclusion which is further strengthened by a study of several other genera of Tailless Batrachians.

10. *HYLODES CONSPICILLATUS* Gthr.

Paramba and Chimbo.

11. *HYLODES LONGIROSTRIS*, sp. n. (Plate XV. fig. 1.)

Tongue oval, slightly nicked behind. Vomerine teeth in two strong transverse series close together behind the choanæ, on a level with the palatine bones. Head longer than broad ; snout obtusely acuminate, much longer than the diameter of the orbit ; canthus rostralis strong ; loreal region moderately oblique, concave ; nostril much nearer the tip of the snout than the eye ; interorbital space as broad as the upper eyelid ; tympanum very distinct, half the diameter of the eye. Fingers moderate, first extending as far as second ; toes moderate, one third webbed ; tips of fingers and toes dilated into well-developed disks, which are a little broader than long, and measure about one third the diameter of the eye ; subarticular tubercles strong ; a small oval inner and a rounded outer metatarsal tubercle. The tibio-tarsal articulation reaches a little beyond the tip of the snout. Skin smooth above and below, or with a few very small warts on the head and back ; a strong fold above the tympanum ; a well-marked ventral disk. Grey-brown or pinkish above, with a dark cross-band between the eyes, and a more or less distinct dark hourglass-shaped marking on the back ; a black canthal and temporal streak ; limbs with regular dark cross-bars ; hinder side of thighs uniform brown ; white beneath, with a few dark brown spots on the throat and breast. Male with an internal vocal sac.

From snout to vent 50 millim.

Several specimens from Cachabé.

12. *HYLODES ACHATINUS*, sp. n. (Plate XV. fig. 2.)

Tongue oval, slightly nicked behind. Vomerine teeth in two short oblique series behind the choanæ. Head moderate, as long as broad ; snout rounded, as long as the diameter of the orbit ; canthus rostralis distinct ; loreal region oblique, concave ; nostril



much nearer the tip of the snout than the eye; interorbital space as broad as the upper eyelid; tympanum distinct, half the diameter of the eye. Fingers moderate, first longer than second; toes free; disks small; subarticular tubercles feeble; a small oval inner, and a rather indistinct, rounded outer metatarsal tubercle. The tibio-tarsal articulation reaches the tip of the snout. Skin smooth, finely granular above; a strong supratemporal fold. Dark brown above, with elegant symmetrical darker markings, viz., chevron-shaped bands on the back, oblique streaks on the flanks, and bars of unequal width on the limbs; lower parts white, throat with a few brown spots.

From snout to vent 50 millim.

A single female specimen from Cachabé.

13. *HYLODES GULARIS*, sp. n. (Plate XV. fig. 3.)

Tongue pyriform, entire. Vomerine teeth in two short oblique series behind the choanæ. Head moderate, as long as broad; snout rounded, as long as the diameter of the orbit; canthus rostralis distinct; loreal region feebly oblique, concave; nostril much nearer the tip of the snout than the eye; interorbital space a little broader than the upper eyelid; tympanum distinct, two fifths the diameter of the eye. Fingers short, first shorter than second; toes short, free; disks rather large, as large as the tympanum; subarticular tubercles feebly prominent; a feebly prominent, oval, inner metatarsal tubercle. The tibio-tarsal articulation reaches the posterior border of the eye. Skin smooth above and below; a strong fold across the breast. Pale brown above, with round blackish spots; a blackish cross-bar between the eyes, and a dark streak from the eye to the shoulder; lower parts white. Male with an external vocal sac forming a strong fold along each side of the gular region.

From snout to vent 24 millim.

A single male specimen from Cachabé.

14. *HYLODES LATIDISCUS*, sp. n. (Plate XV. fig. 4.)

Tongue oval, slightly nicked behind. Vomerine teeth in two short transverse series behind the choanæ, on a level with the palatine bones. Head large, as long as broad or a little broader than long, much depressed; snout rounded, a little longer than the diameter of the orbit; canthus rostralis distinct; loreal region very oblique, concave; nostril much nearer the tip of the snout than the eye; vertex concave; interorbital space a little narrower than the upper eyelid; tympanum distinct, one third to two fifths the diameter of the eye. Fingers moderate, first shorter than second, the tips dilated into very large disks, which are broader than long and measure three fifths the diameter of the eye; toes moderate, free, the disks large, but a little smaller than those of the fingers; subarticular tubercles feeble; an elongate inner metatarsal tubercle, measuring about two thirds the length of the inner toe; a very indistinct outer metatarsal tubercle. The tibio-tarsal articulation reaches the



eye. Skin finely granular above, with small warts, which are largest on the head, and one of which, on the upper eyelid, may be large and conical, horn-like; a strong fold above the tympanum; belly and lower surface of thighs granular. Dark grey-brown or vinaceous red above, with blackish spots and marblings; limbs with more or less distinct, irregular, dark cross-bars; whitish beneath; sides of throat, belly, and lower surface of limbs finely speckled, as if powdered with brown. Male without vocal sac.

From snout to vent 54 millim.

Two specimens from Cachabé.

15. *SYRRHOPUS AREOLATUS*, sp. n. (Plate XIV. fig. 3.)

Snout rounded, as long as the eye, which is large; canthus rostralis rounded; loreal region concave, oblique; interorbital space as broad as the upper eyelid; tympanum feebly distinct, about one third the diameter of the eye. Fingers rather short, first shorter than second; toes rather short, quite free; disks well developed; subarticular tubercles feebly prominent. The tibio-tarsal articulation reaches the eye. Skin areolate or coarsely granular above and beneath. Greenish yellow above, spotted or dotted with reddish brown; thighs colourless; lower parts white. Male with an internal vocal sac.

From snout to vent 24 millim.

One specimen from Cachabé and two from Chimbo.

16. *LEPTODACTYLUS PULCHER*, sp. n. (Plate XIV. fig. 4.)

Tongue oval, entire. Vomerine teeth in two long arched series behind, and extending outwards beyond the choanæ. Head as long as broad; snout rounded, as long as the diameter of the orbit; canthus rostralis distinct; loreal region concave; nostril nearer the tip of the snout than the eye; interorbital space as broad as the upper eyelid; tympanum very distinct, two thirds the diameter of the eye. Fingers moderate, first extending a little beyond second; toes moderate, not fringed; tips of fingers and toes swollen, feebly but distinctly dilated; subarticular tubercles strong; two small, prominent metatarsal tubercles; a feebly prominent, oval tubercle on the tarsus nearer the foot than the tibia. The tibio-tarsal articulation reaches between the eye and the tip of the snout. Skin smooth; a ventral discoidal fold. Grey-brown above, with symmetrical blackish, light-edged markings forming a chain along the middle of the back; lips with blackish bars; a white spot on the tip of the snout; a dark oblique band, gradually widening, from the eye to the side of the body; limbs with regular dark cross-bars; throat brown, with white spots, which are most regular round the mandible; belly white, uniform or spotted with brown.

From snout to vent 24 millim.

Three specimens from Chimbo. Probably young.

17. *LEPTODACTYLUS PENTADACTYLUS* Laur.

Cachabé.



## BUFONIDÆ.

18. *BUFO HÆMATITICUS* Cope.

Cachabé.

19. *BUFO GLABERRIMUS* Gthr.

Paramba and Cachabé.

The largest specimen measures 145 millim. from snout to vent. Young pale greyish above, spotted or marbled with black.

20. *BUFO MARINUS* L.

Chimbo.

21. *BUFO TYPHONIUS* L.

Paramba and Cachabé.

22. *BUFO CONIFERUS* Cope.

Cachabé. Numerous specimens.

The supraorbital, postorbital, and parietal ridges form a regular  $\Lambda$ -shaped figure, the two latter being at right angle to each other; interorbital space broader than the upper eyelid; tympanum two thirds to three fourths the diameter of the eye. The tarso-metatarsal articulation reaches the tip of the snout or between the latter and the eye. First finger shorter than second. Toes half or two thirds webbed; subarticular tubercles single. Male with an internal vocal sac and black nuptial excrescences on the inner and second finger. Brown or olive above, with more or less distinct large blackish insuliform spots; some specimens uniform blackish above; throat and breast dark brown in the males.

From snout to vent 88 millim.

## HYLIDÆ.

23. *HYLA ROSENBERGI*, sp. n. (Plate XVI.)

Tongue subcircular, entire, adherent. Vomerine teeth between the very large choanæ, in two angular series forming together a  $\Lambda$ -shaped figure. Head much depressed, a little broader than long; snout rounded, a little longer than the diameter of the orbit; canthus rostralis indistinct; loreal region very oblique, concave; interorbital space as broad as the upper eyelid; tympanum very distinct, circular, three fourths to four fifths the diameter of the eye. Three outer fingers entirely webbed; a distinct rudiment of pollex, much developed in the male; toes entirely webbed; disks of fingers and toes large, three fifths to two thirds the diameter of the eye; subarticular tubercles very prominent; two feeble folds along the tarsus. The tibio-tarsal articulation reaches a little beyond the tip of the snout. Upper surface granulate and with small, round, pearl-like warts; no dermal appendage to the heel; throat, belly, and lower surface of thighs covered with small



granules. Yellowish, greyish, or reddish brown above, more or less distinctly spotted or marbled with brown or blackish; flanks sometimes with dark vertical bars; a continuous or interrupted blackish vertebral line, commencing between the nostrils, often present; lower parts white. Male with an internal vocal sac and a large flat gland on the flanks.

From snout to vent 97 millim.

Several specimens from Cachabé.

This fine tree-frog, which I have great pleasure in naming after its discoverer, is nearest allied to *H. maxima*, Laur., from which it differs in several points, among which I would draw special attention to the presence of a large flat gland on the sides in males, a secondary sexual character which finds its nearest parallel in the humeral gland of *Pelobates* and various species of *Rana*.

#### 24. *HYLA BAUDINII* D. & B.

Cachabé.

The habitat of this species was believed to be restricted to Texas, Mexico, and Central America. Mr. Rosenberg has now obtained it at Buenaventura, Colombia, and, in great abundance, at Cachabé, in Northern Ecuador.

#### 25. *NOTOTREMA MARSUPIATUM* D. & B.

#### 26. *NOTOTREMA ANGUSTIFRONS*, sp. n. (Plate XVII. fig. 1.)

Tongue large, subcircular, slightly nicked and scarcely free behind. Vomerine teeth in two straight series between the choanæ. Head moderate, broader than long; nasal and frontoparietal bones rugose and confluent with the skin; snout deep, vertically truncate at the end, as long as the diameter of the eye; canthus rostralis strong; loreal region concave; interorbital space narrower than the upper eyelid; tympanum moderately distinct, one third the diameter of the eye. Fingers long, with a slight rudiment of web; toes almost entirely webbed; disks larger than the tympanum; subarticular tubercles moderate. The tibio-tarsal articulation reaches beyond the tip of the snout. Skin smooth; belly and lower surface of thighs granular. Olive-grey or brown above, clouded with darker, or with very indistinct reddish-brown cross-bars on the body; upper lip cream-colour, with dark brown spots; limbs with dark cross-bars; flanks and lower parts white, spotted with dark brown; a round white spot at the base of each thigh, near the vent. Male without vocal sac.

From snout to vent 73 millim.

Two specimens, male and young female, from Cachabé.

#### 27. *NOTOTREMA CORNUTUM*, sp. n. (Plate XVIII.)

Tongue rather small, circular, entire, adherent. Vomerine teeth in two straight series behind the choanæ. Head moderate, broader than long; skin free from the skull; snout rounded, with distinct canthus and concave loreal region; interorbital region concave, with



a prominent ridge on each side, narrower than the upper eyelid, which is produced in a triangular horn-like appendage; tympanum moderately distinct, vertically oval, half the diameter of the eye. Fingers free; toes half webbed; disks larger than the tympanum; subarticular tubercles feebly prominent. The tibio-tarsal articulation reaches beyond the tip of the snout. Skin finely areolate above and on the throat, granular on the belly and under the thighs; heel with a very small, triangular dermal appendage. Greyish above, with a tinge of red on the back; a broad dark grey median stripe from the end of the snout to the vent, and a dark grey lateral stripe from the eye to the groin; two dark bars below the eye; whitish beneath, belly and lower surface of hind limbs marbled with brown; a round white spot at the base of each thigh, below the vent.

From snout to vent 76 millim.

A single female specimen from Cachabé, with nine well-developed young in the dorsal pouch; these young measure 19 millim. from snout to vent, and are provided with large bell-shaped gills as figured by Weinland in *N. oviferum*.

## 28. HYLELLA PARABAMBÆ, sp. n. (Plate XVII. fig. 2.)

Tongue circular, indistinctly nicked, and scarcely free behind. Head broader than long; snout rounded, as long as the diameter of the orbit; interorbital space broader than the upper eyelid; tympanum distinct, one fourth the diameter of the eye. First and second fingers equal; outer fingers two thirds webbed; toes almost entirely webbed; disks well developed, those of the fingers half the diameter of the eye; subarticular tubercles feeble. The tibio-tarsal articulation reaches a little beyond the tip of the snout. Skin smooth; lower belly and subanal region with wide-meshed areolation. Purplish-blue above (in spirit), white beneath; a few small darker spots on the upper surface of the leg.

From snout to vent 26 millim.

A single specimen from Paramba.

## APODA.

## CÆCILIIDÆ.

## 29. CÆCILIA ISTHMICA Cope.

Paramba and Cachabé.

## EXPLANATION OF THE PLATES.

### PLATE X.

Fig. 1. *Anolis peraccae*, p. 108.

2. „ *elegans*, p. 109.

3. „ *chloris*, p. 110.

4. „ *lemniscatus*, p. 113.

Figs. 1a, 2a, 3a, 4a. Upper views of heads,  $\times 2$ .



PLATE XI.

Fig. 1. *Anolis maculiventris*, p. 111.

2. „ *granuliceps*, p. 111.

3. „ *gracilipes*, p. 112.

Figs. 1a, 2a, 3a. Upper views of heads,  $\times 2$ .

PLATE XII.

Fig. 1. *Synophis miops*, p. 115. Upper view of head and neck, and upper, lower, and side views of head,  $\times 2$ .

2. *Leptognathus ellipsifera*, p. 117. Upper, lower, and side views of head and anterior part of body.

PLATE XIII.

*Elaps rosenbergi*, p. 117. Upper, lower, and side views of head and anterior part of body.

PLATE XIV.

Fig. 1. *Phyllobates infraguttatus*, p. 118.

1 a. Lower view.

2. *Hylodes anomalus*, p. 119.

2 a. Open mouth.

3. *Syrrhopus areolatus*, p. 122.

4. *Leptodactylus pulcher*, p. 122.

PLATE XV.

Fig. 1. *Hylodes longirostris*, p. 120.

1 a. Open mouth.

2. *Hylodes achatinus*, p. 120.

2 a. Open mouth.

3. *Hylodes gularis*, p. 121.

3 a. Gular region,  $\times 2$ .

4. *Hylodes latidiscus*, p. 121.

4 a. Open mouth.

PLATE XVI.

*Hyla rosenbergi*, p. 123. With open mouth and side view of head.

PLATE XVII.

Fig. 1. *Nototrema angustifrons*, p. 124. With open mouth and side view of head.

2. *Hylella parabambæ*, p. 125.

PLATE XVIII.

*Nototrema cornutum*, p. 124. With open mouth, side view of head, and embryo from the pouch.

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Boulenger, George Albert. 1898. "An account of the reptiles and batrachians collected by Mr. W. F. H. Rosenberg in western Ecuador." *Proceedings of the Zoological Society of London* 1898, 107–126.

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