



## CLASSIS—AMPHIBIA.

## ORDO—ANOURA.

## FAMILIA—RANIDÆ.

## GENUS RANA.

RANA DELALANDII. *Bibr.*

## PLATE XVI.—FIG. 1.

*Dentibus palatinis in serie transversâ, medio interruptâ, dispositis; membris posterioribus corpore cum capite duplò longioribus; pedibus posticis gracillimis, semipalmatis.*

*Rana Delalandii*, Bibr. Hist. Rept. VIII. p. 388.

DESCRIPTION.—Head elongate, depressed. Eyes large, not prominent. Tympanum nearly round. Palatine teeth in two simple series, commencing at the inner side of the anterior margin of the posterior nares, and extending towards each other in a transverse direction, leaving between them a space of about half the length of each. Tongue not quite as long as it is broad. Body somewhat depressed, and with the head forming an almost uninterrupted ellipse. Skin of the back, with several small longitudinal folds. Anterior legs, when placed against the sides, reaching to the thigh. Fingers very slender, and of nearly equal length. Posterior limbs fully twice as long as the head and body. Toes extremely long and slender, and connected by a membrane by about half their length.

COLOUR.—The general colour of the upper parts is a rich brown, with darker brown and white markings. A white median fascia extends the whole length of the head and body; another fascia of the same colour and of very irregular figure on each side, passes backwards and downwards from above the shoulders, and loses itself in the pale colour of the abdomen. There are several smaller white lines and spots, and others of a dark rich brown, particularly a large mark of the latter colour behind the eye, including the tympanum. The thighs and legs are elegantly banded with similar colours. The under side is whitish.

## DIMENSIONS.

	In. Lines.
Length of the head and body .....	1 8
of anterior extremities .....	1 1
of posterior ditto .....	3 7

This species was first discovered at the Cape of Good Hope by M. Delalande, and named after him by Mons. Bibron. Mr. Darwin found it in the same locality. It is now figured for the first time.

## RANA MASCARIENSIS.

PLATE XVI.—Fig. 2.

*Dentibus palatinis in fasciculis binis obliquis distantibus, ad marginem anteriorem narium posteriorum attingentibus; tympano circulari, mediocri; digitis posticis usque ad phalanges penultimas connexis: plantis tuberculo unico; cute dorsi levi, longitudinaliter plicatâ; suprà fusco-rufescens, fasciâ longitudinali pallidâ.*

*Rana Mascariensis*, Bibr. Hist. Rept. VIII. p. 315.

Habitat, the Mauritius.

This pretty species of the typical genus of the family was described by Bibron, but has not hitherto been figured. It was found in Mauritius, on swamps near the sea, by Mr. Darwin, who remarks on the extraordinary height of its leaps. It has also been found in the Seychelles, Madagascar, and the Island of Bourbon.

## GENUS—LIMNOCHARIS. Bell.

*Lingua ovalis, integra, margine posteriore libero. Dentes palatini utrinque in fasciculis duobus dispositis, quorum alter ad marginem anteriorem narium interiorum, alter pone nares interiores, prope arcum maxillarem. Nasus terminalis, truncatus, ultra labium productus. Tympanum conspicuum, circulare. Cutis omnino levis. Digi anteriori liberi, posteriores ad basin tantum palmati.*

The genus *Limnocharis* is remarkable for the existence of palatine teeth in a part of the mouth in which they have never been observed in any other amphibian. Not only is there a small group or line of these contiguous with the anterior margin of the posterior nares,—a situation in which they are found in some other genera of *Ranidæ*, but there is also a group of them placed at some distance behind the posterior margin of these openings, and close within the rise of the maxillary arch. This genus, of which one species only is at present known, will probably be most naturally placed between the true *Ranæ* and certain of the *Cystignathi*.

LIMNOCHARIS FUSCUS. *Miki*.

PLATE XVI.—Fig. 3.

## Habitat, Rio Janeiro.

DESCRIPTION.—Head semi-oval, depressed, as broad as it is long. The muzzle truncated, extending beyond the lips, which it overhangs. Tongue oval, entire, free at the posterior margin. Palatine teeth in two parcels on each side; one consisting of very few at the anterior and inner margin of the posterior nares, the other behind those openings, in the angle formed by the maxillary arch and the orbits. Posterior nares large and oval. Tympanum conspicuous, nearly circular. Skin every where perfectly smooth, without glands or pores. Anterior legs of moderate length and size. The fore-arm rather longer than the upper arm. Fingers of moderate length, wholly detached. Hinder legs little more than one-third longer than body. The toes separate, excepting a slight rudiment of a connecting membrane at their base, which extends, though very narrow, along their sides, the extremity very slightly notched.

COLOUR of the upper part rich dark brown. The thighs lighter, obscurely banded with dark brown. Under parts pale blueish grey. The throat dotted with brown.

## DIMENSIONS.

	In.	Lin.
Length of the head and body .....	1	4
of the anterior extremities .....	0	7
of the posterior extremities .....	1	8

Found in brooks at Rio Janeiro by Mr. Darwin, who states that it is infested with acari; and I observe, in the specimen under examination, several marks in the skin, from whence these have been taken.

GENUS—CYSTIGNATHUS. *Wagler*.CYSTIGNATHUS GEORGIANUS. *Bibr*.

PLATE XVI.—Fig. 4.

*Dentibus palatinis perpaucis, in fasciculis binis approximatis, pone nares posteriores; linguâ integrâ, oblongâ; tympano celato; pedibus posterioribus non palmatis.*

*Crinia Georgiana*, Tschudi Class. Batrach.

*Cystignathus Georgianus*, Bibr. Rept. VIII. p. 416.

This species, which formed the type of Tschudi's genus *Crinia*, was separated by him from *Cystignathus* on account of the form of the tongue, the non-



appearance of the tympanum, the paucity of palatine teeth, and the total absence of an interdigital membrane on the hinder feet. These characters being either merely comparative or unimportant, were not considered by Bibron as sufficient to warrant a generic separation, and I have followed him in retaining the species amongst the *Cystignathi*. It was first discovered by Messrs. Quoy and Gaimard at King George's Sound, in Australia, where it was also obtained by Mr. Darwin. It is a beautiful species; the back being of a rich brown colour, with a pale orange fascia extending along the sides from the eye to the thigh, becoming bright orange on the flanks. Thighs and legs banded with rich deep brown and bright orange.

#### GENUS—BORBOROCÆTES. *Bell.*

*Lingua ovata, posticè libera, rotundata; anticè subacuminata. Dentes palatini in fasciculis binis plùs minùsve obliquis, pone nares posteriores positi. Tympanum cælatum. Digniti anteriores haud palmati; posteriores ad basin tantùm cute connexi. Glandulæ cutaneæ nullæ. Sacculi vocales (maris) utrinquè sub lingua nascentes.*

The two species on which I have founded this genus approach so nearly to some species of *Cystignathus*, that it is not without hesitation that I determine on considering them as typical of a new generic form. The principal characters on which I have founded the distinction are the position of the palatine teeth, the form of the tongue, the concealment of the tympanum, the absence of glands and pores on the skin, and the connexion of the base of the hinder toes by a rudimentary palmar membrane. It is true that some of the species of *Cystignathus*, as that genus is at present constituted, agree with the present form in some or other of these particulars; but upon the whole they are sufficiently distinct; and in fact the genus *Cystignathus*, as left by M. Bibron, appears to me to stand in need of revision and dismemberment. The species constituting the genus now proposed, are however both new. The genus *Borborocætes* will probably stand, in its natural affinities, between *Cystignathus* and *Cycloramphus*, from the latter of which it differs in the situation of the palatine teeth, in the degree to which the hinder feet are webbed, and the comparative length of the hinder legs. The two latter characters are of importance as indicating a difference of habit; and we find that *Cycloramphus* has proportionally short hinder limbs, with the toes







*Drawn from Nature on Stone by J. Waterhouse Doxley*

*Printed by G. Bellinardi*

1. *Bombinator Bebroni*
2. *Grayii*
3. *Pleuradoma Darwini*
4. *elegans*
5. *hufniumum*

1a. *Mag. View of Tongue & Gullet*

*Nat. Size*

The University of Chicago Libraries



extensively palmate, whilst in *Borborocates* the hinder legs are much longer, and the toes scarcely at all webbed. The former structure indicates a greater power of swimming, and the latter of leaping.

BORBOROCETES BIBRONII. *Miki.*

PLATE XVII. FIG. 1.

*Dentibus palatinis in fasciculis distantibus obliquis pone nares posteriores positus; palmis bituberculatis.*

Habitat, Chiloe and Valdivia.

DESCRIPTION.—Head depressed, the vertex slightly concave between the orbits; front (space included between two lines drawn from the anterior corner of the orbits to the point of the nose) triangular and distinct. Nostrils lateral. Eyes rather prominent. Tongue broad, ovate, acuminate in front, behind entire and rounded, the posterior half and the sides detached. Palatine teeth in two oval parcels, direct obliquely backwards and inwards, and situated at some distance behind the line of the posterior margin of the nares. Tympanum concealed. Body rather depressed and short. Skin smooth and without pores or glands, excepting on the posterior and inferior surface of the thighs, where there are some small granular elevations. Fore legs two-thirds the length of the head and body. The fore-arm rather larger than the upper arm. The fingers entirely separated, the third considerably the longest. A small tubercle under each joint, and two on the palm near the wrist. Length of the hinder legs to that of the head and body as 5 to 3, or rather more. Toes connected only at their base. A small tubercle under each joint, and a very depressed one at the base of the inner toe.

COLOUR of the upper parts fuscous, with a lateral fascia extending from the orbit nearly to the thigh, of a dark-brown colour, bordered with whitish; and another of an elongated triangular form on each ilium. Legs with transverse incomplete facie of the same colour. Under parts grey, with numerous brown dots.

DIMENSIONS.

	In. Lines.
Length of the body and head .....	1 5
of the anterior extremities .....	1 0
of the posterior extremities .....	2 6

Taken at Valdivia and at Chiloe, in a thick forest, by Mr. Darwin.

BORBOROCETES GRAYII. *Mihi.*

PLATE XVII.—Fig. 2.

*Dentibus palatinis in fasciculis subcontiguis paulò obliquis, pone nares posteriores positis; palmis non tuberculatis.*

Habitat, Valdivia.

This species considerably resembles the former in most of its characters. The palatine teeth, however, form at once a certain and tangible distinction, and there are some minor points in which they differ, sufficient at a glance to determine them. The head in the present animal is broader than it is long; in the former the breadth is only equal to its length. The palms are in this species without conspicuous tubercles; in the other there are two, although very small.

In colour it differs much from the former. The general colour is a rich fuscous brown, rather paler beneath; the flanks, the throat and belly, and the whole of the thighs and legs, with various white markings, those of the throat and belly being the smallest. This species was found in the forest, in Valdivia.

GENUS—PLEURODEMA. *Tschudi.*

I have thought it right to follow Tschudi in separating from the genus *Cystignathus* of Wagler, such species as have large and conspicuous lumbar glands, particularly as they all agree in possessing a much more bufonine aspect than the others. The discovery of three new species, all agreeing in these characters with *Pleurodema Bibronii* of Tschudi, increases the importance of the grounds upon which this separation is made.

PLEURODEMA DARWINII. *Mihi.*

PLATE XVII.—Fig. 3.

*Dentibus palatinis paucis, minimis; linguâ subcordatâ, vix emarginatâ; glandulis lumborum magnis, rotundis, convexis; digitis posticis ad basin tantum membranâ connexis; dorso sparsim tuberculato-glanduloso; suprâ pallidè virescens, maculis fusco-olivaceis.*

Habitat, Maldonado.









Drawn from Nature in Stone by J. W. Woodhouse, Esq.

C. Williams del. Sculp.

- 1 1a *Leuperus calanice*  
 2 2a 2b *Buxcephalus Americanus*  
 3 3a 3b *Rhoda monticola*  
 4 4a *Litoris glandulosa*  
 5 5a 5b *Batrachyla leptopus*



**DESCRIPTION.**—Head triangular, rather broader than long. Muzzle rounded. Eyes slightly prominent. Tongue somewhat heart-shaped, scarcely emarginated behind. Palatine teeth very few, and with difficulty perceptible, placed in two small groups between the posterior nares. Body thick and broad, with numerous glandular tubercles scattered over the surface, principally on the anterior parts, and assuming somewhat of a longitudinal arrangement. Lumbar glands large, round, and prominent. Legs robust and short. Toes of the fore feet wholly separate, with a small tubercle under each joint, and two larger ones at the hinder part of the palm. Hinder toes, with a rudimentary membrane at the base, a small tubercle under each joint; the first and second toes very short. A conical tubercle at the inner, and another at the outer side of the metatarsus.

**COLOUR.**—The upper surface is beautifully marbled with dark olive or black, on a light-green ground; some of the markings assume somewhat of an ocellated form, and approach to a symmetrical arrangement. The lumbar glands are more strongly coloured than the other parts, the centre being black, and nearly surrounded by a bright line of very light green, or nearly white. The thighs are numerously banded with the prevailing colours, and a tinge of orange or red. Beneath pale; in some specimens blackish under the chin.

The aspect of this species is remarkably bufonine; and this character is increased by the numerous glandular tubercles on the surface of the body, and pores about the parotid region. It is, doubtless, similar in its habits to many of the toads.

## DIMENSIONS.

	In.	Lin.
Length of the head and body.....	1	4
of the anterior extremities .....	0	8
of the posterior extremities .....	1	7

It was repeatedly found by Mr. Darwin at Maldonado, near the mouth of the river La Plata.

PLEURODEMA ELEGANS. *Miki.*

PLATE XVII.—Fig. 4.

*Dentibus palatinis prominentibus, in fasciculis binis ovatis obliquis dispositis; lingua rotundâ integrâ; glandulis lumborum ovalibus, valdè convexis; digitis posticis haur palmatis; dorso tuberculato-glanduloso, fusco, nigro obscurè maculato, fasciâ longitudinali pallidâ.*

Habitat, Valparaiso, Valdivia, and Archipelago of Chiloe.

**DESCRIPTION.**—Head semi-elliptic, as broad as long. Muzzle rounded. Eyes very slightly prominent. Tongue large, round, entire, very thick. Palatine teeth prominent, disposed in two

oval groups, extending obliquely backwards and inwards, but separated by a considerable interval. Body somewhat depressed and elongated, with many prominent glandular tubercles, and with pores about the parotid region. Lumbar glands of moderate size, of an elongated oval form, and very convex. Legs rather slender, the anterior feet with the third toe considerably the longest; a small tubercle under each joint of all the toes, and several small inconspicuous ones on the palm; hinder legs rather elongated, the toes long, particularly the fourth, the first very short; a small tubercle under each joint; the inner metatarsal tubercle prominent, the outer one inconsiderable.

**COLOUR.**—The markings of this species are very elegant and striking. The ground colour of the upper parts is a rich brown, with darker cloudings and marks; a light yellowish longitudinal line running all the length from the nose to the extremity of the body, a very irregular fascia on each side of the same colour enclosing a brown oblong spot on the upper lip, another just behind the tympanum, and two others on the sides; there is also a brown fascia from the extremity of the nose to each eye; the lumbar glands are black and yellow, distinctly marked. The limbs are obscurely banded with brown and pale yellowish. The colours in some specimens are more obscure than in that figured, and they appear to lose their clearness with age.

The following are the colours of the brighter individuals according to the observations of Mr. Darwin :—"Yellowish and broccoli-brown, with darker brown marks; broad medial dorsal line, pale gallstone yellow; lumbar glands saffron yellow and jet black." Another specimen was "ash-grey with blackish brown marks."

#### DIMENSIONS.

	In.	Lines.
Length of the head and body.....	1	8
of the anterior extremities .....	1	0
of the posterior extremities .....	2	4

The general habit of this species is much more in accordance with its relation to the *Ranidæ* than that of the other species of the genus. Its general form is more elongated and depressed, and the limbs, particularly the hinder ones, are longer in proportion to the body. It is certainly very near *Pl. Bibronii* of Tschudi, but still undoubtedly distinct.

PLEURODEMA BUFONINUM. *Miki.*

PLATE XVII.—Fig. 5.

*Dentibus palatinis prominentibus, in fasciculis binis ovalibus, obliquis, dispositis; linguâ subcordiformi, subemarginata; glandulis lumborum maximis, ellipticis, planis; digitis posticis dimidio ferè palmatis, marginatis; dorso glandulis parvis instructo, fusco-griseo maculis, nigris, lineâ longitudinali pallidâ.*

Habitat, Port Desire, Patagonia.

DESCRIPTION.—Head short. Muzzle rounded. Eyes prominent. Tongue thick, slightly heart-shaped, scarcely notched on the posterior margin. Palatine teeth prominent, in two oval groups, converging backwards. Tympanum rather small, perfectly round, conspicuous. Parotid glands distinct. Body thick and broad, with small glandular tubercles dispersed over the surface, particularly at the anterior part. Lumbar glands extremely large, elliptic-ovate, flat. Legs of moderate length, rather robust. Anterior toes separated, excepting at the base; a small tubercle under each joint, and several very small ones on the palm; hinder toes united to about half their length, and bordered on each side to the extremity; metatarsal tubercles prominent; soles of the hinder feet with many minute tubercles.

COLOUR.—The upper surface of this species is of a brownish grey colour, sometimes greenish brown or dark olive, and with numerous irregular spots of dark-brown or black. Thighs and legs with fasciæ of the same colour. Beneath yellowish white; in some with numerous blackish dots under the throat.

## DIMENSIONS.

	In.	Lin.
Length of the head and body .....	1	8
of the anterior extremities .....	1	0
of the posterior extremities .....	2	3

Found by Mr. Darwin at Port Desire, in Patagonia, and high up the river Santa Cruz—"probably," says Mr. Darwin, "the most southern limit for this family."

GENUS—LEIUPERUS. *Bibr.*LEIUPERUS SALARIUS. *Miki.*

PLATE XVIII.—Fig. 1.

*Supra nigricans, lumbis maculis 3 vel 4 nigris, albo-marginatis.*

DESCRIPTION.—The head is short, the opening of the mouth small, the tongue rather thick, very slightly emarginate behind, and with the posterior margin free. The eyes small; the tym-

panum not very conspicuous; there is a trace of a parotid gland on each side of the neck. The body is rather thick, and the limbs proportionally short. The hinder toes are only connected at the base by a rudimentary membrane, the first four gradually increasing in length, and placed along the side of the matatarsus, one beyond the other; the fifth on the same line as the fourth, but not more than half its length. The metatarsal tubercle is rather prominent, and there are small subarticular tubercles on the toes of all the feet.

COLOUR.—The colour of the upper parts is brownish black. On each side near the thigh are three or four perfectly round black spots, each surrounded with a white line. The under parts whitish.

Of this second species of a rare and remarkable genus, one specimen only exists in Mr. Darwin's collection. It is only the third known instance, in the family of the RANIDÆ, of the absence of palatine teeth; the others being *Oxyglossus Lima* of Tschudi, and *Leiperus marmoratus* of Bibron. The present genus must be considered as nearly approaching the family of the BUFONIDÆ in the absence of palatine and the extreme minuteness of the maxillary teeth, in the extremely small gape of the mouth, the thick form of the body, the shortness of the limbs, and the existence of rudimentary parotid glands. I have not had an opportunity of comparing this specimen with those on which Bibron founded the genus, but I cannot doubt the specific distinction between them.

#### DIMENSIONS.

	In.	Lin.
Length of the head and body .....	0	9
of the anterior extremities .....	0	5
of the posterior extremities .....	1	1

It was found by Mr. Darwin at Port Desire, and its habitat is very remarkable. "It is bred in and inhabits water far too salt to drink."

GENUS—PYXICEPHALUS. *Bibr.*

PYXICEPHALUS AMERICANUS. *Bibr.*

PLATE XVIII.—Fig. 2.

*Lingua cordiformi; dentibus palatinis in linea transversâ interruptâ, inter nares posteriores positâ; tympano celato; dorso mammillato.*

This curious species has, I believe, only once before been found. A single specimen exists in the French Museum, which was brought from Buenos Ayres

by Mons. d'Orbigny, and which formed the subject of Mons. Bibron's description. Mr. Darwin's specimen was taken on the open plains at Monte Video.

Of the three species of this remarkable genus at present known, two are inhabitants of Africa, from whence they were brought by Delalande. As neither of them has as yet been figured, it was thought desirable that the present opportunity should be taken to exhibit some of the generic characters, and especially the hard horny spur on the hinder foot.

This genus is one of those bufonine forms of the *RANIDÆ* which irresistibly lead us to doubt the correctness of the present received arrangement of the anurous Amphibia.

#### GENUS—*ALSODES*. *Bell.*

*Caput convexum. Lingua anticè acutè-producta, posticè rotundata, et libera. Dentes palatini inter nares posteriores. Tympanum celatum. Aperturæ Eustachianæ haud conspicuæ. Digiti anteriores ad basin tantum—posteriores usque ad phalangem tertium membranâ connexi.*

A genus of the Raniform group, nearly allied, as Mons. Bibron observes, to *Scaphiopus*, by the structure of the hands, which, although without any projecting rudimentary thumb, has a small process under the skin, along the extreme margin of the first finger. In common with the genus *Bombinator*, it has the opening of the Eustachian tubes so small as scarcely to be detected.

#### *ALSODES MONTICOLA. Miki.*

##### PLATE XVIII.—FIG. 3.

**DESCRIPTION.**—Head semi-elliptical, somewhat convex, with the muzzle nearly perpendicular; vertex smooth. Eyes of moderate size. Nostrils very small, opening upwards. Tongue broad and rounded behind, narrowing to a point at the apex, detached at the posterior part. Palatine teeth in two small approximate patches, between the posterior nostrils. Openings of the Eustachian tubes scarcely visible. Extremities of moderate length. The fore feet, with four rather short toes, connected at the base by a short membrane; the inner toe broad, and with a slight projection under the skin, along its inner margin; hinder toes connected as far as the joint of the second and third phalanges.

The colour of the only specimen in the collection has become totally changed into a smoky brown by the spirit, but the following is Mr. Darwin's description



of it when living: "On the centre of the back a strong tinge of grass-green, shading on the sides into a yellowish brown; iris coppery."

## DIMENSIONS.

	In.	Ln.
Length of the head .....	0	5
of the body .....	1	0
of the anterior extremities .....	0	9
of the posterior extremities .....	1	8

Mr. Darwin found this species "in the island of Inchy, archipelago of Chonos, north part of Cape Tres Montes, from the same great height as *Bufo Chilensis* (from 500 to 2500 feet elevation) under a stone."

GENUS—LITORIA. *Bibr.*LITORIA GLANDULOSA. *Mihi.*

## PLATE XVIII.—Fig. 4.

*Femoribus posticis glandulosis; digitis posticis breviter palmatis.*

This species agrees in many respects with *Litoria Americana* of Bibron. It differs, however, in the toes being much less palmate, at least according to the generic character given by that excellent naturalist, and in the existence of numerous thick glands on the posterior part of the thighs. The very slight degree to which the extremities of the toes are dilated in the other species of this genus, and which would at first sight lead to their allocation amongst the Rani-form rather than the Hyliform group, is in the present species even more strongly exhibited; and it can scarcely be said that any dilatation exists at all.

The colours in the only specimen brought by Mr. Darwin are much obscured. The upper parts are apparently of an uniform brown, the under parts whitish, dotted with brown.

It was taken by Mr. Darwin at Concepcion, in Chile.

GENUS—BATRACHYLA. *Bell.*

*Lingua suborbicularis, posticè libera. Dentes palatini in fasciculis binis obliquis inter nares posteriores dispositi. Tympanum distinctum, parvum, rotundum. Digiti depressi, ad apicem paulò dilatati, truncati. Anteriores ad basin tantum —posteriores paulò plus palmati.*

This genus, which considerably resembles *Hylodes*, is nevertheless sufficiently distinct from it, in the distribution of the palatine teeth, in the form of the dilatations of the toes, in the presence of a small palmar membrane, and some other points. One of the most remarkable of its characters is the form of the dilatation at the extremity of the toes; it is very small, transverse, truncated, and even a little emarginate; in this respect it must be considered as constituting a very near approach to the family of the *RANIDÆ*. We are unfortunately without any information as to the habits of the only known species which could throw any light upon its relations; but it is very clear that the dilatations of the toes are not such as to constitute it a true *tree-frog*, nor, on the other hand, are the connecting membranes of sufficient extent to give it the typical character of the swimming group of these animals.

BATRACHYLA LEPTOPUS. *Miki.*

PLATE XVIII.—Fig. 5.

**DESCRIPTION.**—Head depressed, broad, rounded. Nostrils small, placed near together. Eyes large, opening considerably upwards. Tongue nearly round, the posterior part free for about one-third of its length. Palatine teeth placed in two small oval groups, placed obliquely, between the posterior nostrils, separated from each other by a considerable space. Tympanum small, nearly round. Limbs of moderate length. The toes on all the feet depressed, slender, the terminal dilatation very small, transverse, truncated; those of the fore feet connected at the base only, those of the hinder to the union of the first and second phalanges; of those of the fore feet the third is the longest, then the fourth, the second, and the first; of the hinder the fourth is the longest, then the third and fifth equal, then the second and the first. There are some minute scattered glands on the posterior part of the thighs.

The only specimen in Mr. Darwin's collection is in so bad a condition, that it is impossible to say with any certainty what is its natural colour. It is brown

above, with a lighter band across the head between the eyes, and there are traces of a longitudinal line down the back; the limbs are banded with brown and brownish yellow; the under parts are pale, dotted with brown.

## DIMENSIONS.

	In.	Lin.
Length of the head .....	0	5
of the body .....	1	0
of the anterior extremities .....	1	0
of the posterior extremities.....	2	1

Found by Mr. Darwin at Valdivia.

GENUS—HYLORINA. *Bell.*

*Caput subrotundum planum. Linguae magna circularis, posticè libera. Dentes palatini in lineâ transversâ, parum interruptâ, dispositi. Tympanum distinctum. Digni subdepressi, ad apicem obtusi, haud expansi; anteriores ferè liberi; posteriores ad basin membranâ connexi, et marginati. Femora multò glandulosa.*

A genus nearly allied to *Hylodes*, from which, however, it may at once be distinguished by the palmure of the hinder toes—which in *Hylodes* are entirely free—and by the absence of even the slightest dilatation of their extremities; offering another example of an osculant form between the *HYLIDÆ* and the *RANIDÆ*.

HYLORINA SYLVATICA. *Miki.*

## PLATE XIX.—FIG. 1.

**DESCRIPTION.**—Head broad, rounded, the anterior margin, from the nose to the lip, nearly perpendicular. Eyes large and prominent. Tympanum distinct, small, round. Tongue very large, circular, and entire, the posterior half free. Palatine teeth placed in a transverse line between the posterior nostrils, scarcely interrupted in the middle. Skin of the back rugose. Anterior feet with the toes long, rather slender, united at the base only by a very short membrane, with round subarticular tubercles, the apex rounded, but not presenting the slightest expansion. Hinder toes similarly formed, but with the connecting membrane more conspicuous, and extending along the sides of the toes nearly to the extremity. Thighs covered on the under and posterior surface with rather large and distinct glands.







*Drawn from Nature on stone by J. Richardson Esq.*

*Published by J. G. Sowerby.*

1. *Hyla sylvatica*.  
2. *Hyla agraria*.  
3. *Hyla ranieri*.



The following is the description of the colouring, as given by Mr. Darwin from the living specimen. "Above fine grass green, mottled all over with copper colour, which nearly forms two longitudinal bands; beneath entirely of a lurid reddish lead colour. Iris brown."

## DIMENSIONS.

	In.	Lin.
Length of the head .....	1	0
of the body .....	1	8
of the anterior extremities .....	2	1
of the posterior extremities .....	4	4

Found by Mr. Darwin in the Archipelago of Chonos (S. of Chiloe) in thick forests.

## GENUS—HYLA.

HYLA VAUTERII. *Bibr.*

PLATE XIX. FIG. 2.

*Lingua subcordiformi, posticè emarginatâ. Dentibus palatinis in fasciculis binis ovalibus, subcontignis. Oculis prominentibus. Capite tam lato quam longo. Gula bi-plicatâ; suprâ levitèr—infrâ multùm granulosa. Dorsò fusco-griseo, punctis, maculis et fasciis lateralibus nigris.*

*Hyla Vauterii. Bibr. MS.*

DESCRIPTION.—Head short, thick, the sides anteriorly converging towards a nearly right angle, the muzzle rounded. Tongue nearly cordate, posteriorly emarginate, free for about one-fourth of its length. Palatine teeth in two oval fasciculi, placed nearly transversely between the posterior nares, and almost contiguous. Eyes prominent. Tympanum circular, rather large. Body plump, the sides nearly parallel for two-thirds of its length. The skin nearly smooth, but covered with very small inconspicuous granulations over the whole upper surface, which are rather more obvious on the head. The throat, the belly, and the inferior surface of the thighs covered with large prominent granulations. Beneath the lower jaw the granulations are smaller, and the under surface of the limbs excepting the thighs is quite smooth. A small fold of skin over the tympanum passes backwards to the arm; and beneath the throat there are two considerable transverse folds, one of which is before and the other immediately behind the arms. Fore feet, with the palms covered with small granular tubercles, and a tubercle under the joints of the fingers, which are connected to about one-third of their length. Hinder legs longer than the head and body by the whole foot and tarsus. The soles tuberculated. Toes rather short, palmate to half their length.

COLOUR.—The whole of the upper parts are greyish brown, with a tinge of red, and minutely punctured with black. There are scattered spots of the latter colour on the back and sides, assuming somewhat of a longitudinal arrangement, and a broad blackish grey fascia extends



from the eye backwards to the arm, including the tympanum, and this fascia is bordered beneath by a white line. The thighs and legs are barred and spotted with black. The under parts are yellowish white, excepting under the lower jaw, where it is finely mottled with black and white.

I received the name of this species from Mons. Bibron, who had, I believe, applied it to specimens in the Paris Museum. It was taken by Mr. Darwin at Maldonado, lurking under a stone, and at Rio Janeiro on palm-trees.

## DIMENSIONS.

	In.	Lin.
Length of the head and body . . . . .	1	6
of anterior extremities . . . . .	0	9
of posterior extremities . . . . .	2	5

HYLA AGRESTIS. *Mihi*.

## PLATE XIX.—FIG. 3.

*Capite brevi. Oculis subprominentibus. Tympano mediocri circulari. Lingua subrotundâ, posticè liberâ, anticè angustatâ. Dentibus palatinis in fasciculis binis, paulò separatis, ad marginem postico-interiorem narium posteriorum. Dorsum granuloso. Gula plicatâ. Digitis anticis ad basin tantùm, posticis usque ad phalanges penultimas palmatis. Suprà viridis, linea albâ laterali, femoribus posticè atque lateribus abdominis, albis, nigro-maculatis.*

Habitat, Maldonado, in grassy fields.

DESCRIPTION.—Head short, thick, the two sides of the muzzle approaching each other at a rather acute angle, rounded at the extremity. Eyes rather large and prominent. Tympanum circular, of moderate size, and very distinct. Tongue entire, rounded, and free behind, narrowed, and almost angular in front. Palatine teeth in two oval parcels separated by a very small interval, and placed on a line with the hinder margin of the *posterior nares*; the whole of the back covered with extremely small granules; a slight fold or elevation of the skin commencing above the posterior margin of the tympanum, and extending backwards just above the arm, in front of which it is met by a more considerable one which crosses the throat from side to side; the under parts covered with large granules; fore feet with the toes palmated only at the base; hinder ones palmated to four-fifths of the length.

The colour of this beautiful species is thus given by Mr. Darwin :—" Above emerald green, beneath white; a silvery white stripe bordered beneath with a very narrow black line, extends from the corner of the eye, along the side, to the

thigh; a smaller one at the corner of the mouth; the posterior surface of the hinder legs and the flanks marked with black spots. Iris gold coloured; tympanum brown."

## DIMENSIONS.

	In.	Lin.
Length of the head and body .....	1	8
of the anterior extremities.....	1	0
of the posterior extremities .....	2	8

The young of this species, instead of the bright green colour of the upper parts, is of a delicate grey with small brown markings; and a lateral fascia of brown, bordered above and beneath with a white line, extends from the fore part of the head backwards, the upper white line nearly to the thigh, the inferior one to the shoulder. The black spots on the flanks and thighs are but just visible.

This species so nearly resembles the *Hyla pulchella* of Mons. Bibron, at least as far as his description enables me to ascertain its characters, that it was with some hesitation that I came to the conclusion that they are distinct. Exclusive, however, of the difference of colour, the back of the present species is granulated, and the throat still more distinctly so, whereas the other animal has the skin on the upper parts, as well as on the anterior part of the throat, quite smooth. The palatine teeth also appear to be somewhat differently arranged.

Mr. Darwin observes, that this species was found in numbers in the open grass plains, and likewise in swamps, about Maldonado, and that they can never ascend trees, as these are entirely wanting at the places frequented by the Hylæ.

## FAM.—BUFONIDÆ.

GENUS—RHINODERMA. *Bibr.*

*Lingua cordato-ovata, postice libera et subemarginata. Dentes palatini nulli. Tympanum celatum. Glandæ parotidæ nullæ. Digiti breves, depressi; anteriores ad basin tantum, posteriores ferè dimidio palmati. Rostrum cutis appendiculo filiformi instructum.*

RHINODERMA DARWINII. *Bibr.*

PLATE XX.—FIG. 1, 2.

*Suprà pallidè rufo-cinereum, fasciis transversis viridescens; subtus castaneo-nigrum, maculis albis.*

*Rhinoderma Darwinii.* Bibr. Hist. Nat. Rept. VIII. p. 659. Var. Dorsio fuscocenti-nigro.

DESCRIPTION.—The head and body are flattened, the head triangular, slightly truncated in front, but appearing angular from the skin being produced into a small filiform appendage, standing forwards from the extremity of the snout. The eyes are lateral, slightly prominent. Body very slender. Skin perfectly smooth, and without apparent glands, excepting on the thighs. Fore legs rather short, reaching quite to the thighs when placed by the side; the toes almost wholly separate, there being but the rudiment of a connecting membrane at their base. Hinder legs long, extending forwards beyond the head by the whole length of the foot; the hinder toes are connected nearly half their length, and the connecting membrane is thick and coloured like the rest of the skin.

COLOUR.—The colour varies greatly in different individuals. The following are the principal variations in the specimens collected by Mr. Darwin. Above pale iron rust-colour, with a transverse fascia across the head, a triangular one over the shoulders, a large broad mark on the loins, and the upper part of the thighs all of a bright beautiful green. The under side anteriorly rich chestnut-brown, passing into black posteriorly, with several irregular snow-white spots, particularly a broad one across the belly, and white bands across the legs. Another specimen was cream colour above, the markings darker, and with small spots of green. In one the chestnut colour beneath was replaced by bright yellow. There is one, constituting a very distinct variety, in which the upper part is wholly and almost uniformly dark brown. The female is greenish grey above, without conspicuous markings.

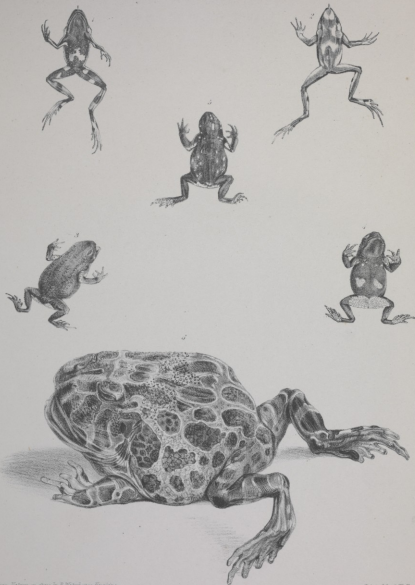
This is the only known species of the genus, which was founded by Mons. Bibron upon the specimens collected by Mr. Darwin. The general slowness and elegance of its form, and its slender proportions, would lead us to consider it at first sight as rather belonging to the *Ranidae* than the *Bufonidae*; but the total absence of teeth in the upper maxillary arch, shews that its proper place is in the latter group. Its form and the length of the posterior extremities would also prepare us to expect that it can leap freely, which Mr. Darwin states to be the fact. It inhabits thick and gloomy forests, and is excessively common in the forest of Valdivia.

## DIMENSIONS.

	In.	Lin.
Length of the head and body .....	1	0
of the anterior extremities .....	0	5
of the posterior extremities .....	1	4







Drawn from Nature on stone by B. H. Edwards Esq.

Printed by J. Ballou and Co.

1. *Rhinoderma Darwini*.  
 3. *Phrynosoma marmoratum*.  
 6. *Uta stansburiana*.

The University of Chicago Libraries



BUFO CHILENSIS. *Bibr.*

Of this species, which has been described under different names by many naturalists, and the synonymy of which has only lately been cleared up by Mons. Bibron, there exist numerous specimens in the collection of Mr. Darwin, who found it at Buenos Ayres, and also in the Archipelago of Chonos, on the west coast of South America. It is certainly remarkable that the same species should be found on the opposite sides of the Continent; but on a careful examination I do not find any specific distinctions between the specimens from the different localities. The Prince de Wied has described it as found at Brazil, under the name of *Bufo cinctus*, and it is also well known as having been repeatedly procured in Peru and in Chile; but Mons. Bibron has in his work considered them all as belonging to but one species. The following account of its habits as given by Mr. Darwin is very curious and interesting:—"These Toads are exceedingly abundant all over the treeless damp mountains of granite, crawling about, and eating during the daytime, and making a noise similar to that which is commonly used in England to quicken horses. Many of them on being touched close their eyes, arch their back, and draw up their legs (as if the spinal marrow was divided), probably as an artifice. They are remarkable from their curious manner of *running* like the Natter Jack of England; they scarcely ever jump, neither do they crawl like a toad, but run very quickly. Their bright colours give them a very strange appearance. They abound at an elevation of 500 to 2500 feet."

## GENUS—PHRYNISCUS.

PHRYNISCUS NIGRICANS. *Weigm.*

PLATE XX.—FIG. 3, 4, 5.

*Dorso granuloso, scabriusculo. Pedibus posticis subpalmatis. Corpore membrisque nigris, abdomine maculâ magnâ transversâ ad partem posteriorem et maculâ rotunda utrinque medium versus, palmis atque plantis, omnibus coccineis.*

*Phryniscus nigricans.* Weigm. Nov. Act. Leop. XVII. p. 264. Bibr. Hist. Rept. VIII. p. 723.

*Chaunus formosus.* Tschudi Classif. Batrach.

Habitat, Maldonado and Bahia Blanca.

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This curious little species has been described by Weigman under the present name,—by Tschudi under the generic name of *Channus*, and fully by Bibron, who retained the name originally given to it by Weigman. It now remains only to correct, from Mr. Darwin's notes, some points respecting the colours, which had been mis-stated in consequence of the action of the spirit in which the specimen had been preserved. The colour of this curious miniature representation of a Toad, is "ink black," excepting the palms and soles of the feet, a large transverse spot across the posterior part of the abdomen, two smaller ones near the middle, and in some specimens a few scattered little spots, all of the most intense vermilion red. There is one specimen from Bahia Blanca which has also some small "buff-orange" spots on the upper part.\* Mr. Darwin observes that "the appearance of the vermilion colour is as if the animal had crawled over a newly painted board;" and he adds—"This Toad inhabits the most dry and sandy plains of Bahia Blanca, where there is no appearance of water ever lodging." The other specimens were taken at Maldonado, where it inhabits the sand-dunes near the coast. Mr. Darwin threw one into a pool of fresh-water, but he found it could hardly swim, and he thinks, if unassisted, it would have been soon drowned.

This species is diurnal in its habits, and may be daily seen under a scorching sun, crawling over the parched and loose sand. M. D'Orbigny brought specimens from Monte Video.

## DIMENSIONS.

	In.	Lin.
Length of the head and body .....	1	0
of the anterior extremities .....	0	5
of the posterior extremities.....	0	8

GENUS—UPERODON. *Bibr.*UPERODON ORNATUM. *Mihi.*

## PLATE XX.—Fig. 6.

*Capite multò latiore quam longiore. Dorsò olivaceo, maculis fuscis, albo marginatis.*

Habitat Buenos Ayres.

DESCRIPTION.—Head more than half as broad again as it is long, and equal in breadth to half the entire length of the head and body. Muzzle rounded. Nostrils oval, opening upwards and a

\* This specimen from Bahia Blanca has a much smoother skin than the others; but from its similarity in all other characters there can be no doubt of its specific identity with them.

little outwards. Eyes rather large, the upper eyelids forming perfect flaps, which entirely cover the eyes. Body rounded, very broad. The shoulders and thighs wholly concealed by the skin of the body. Limbs very short. The anterior feet very broad. The toes somewhat depressed, very short, bordered with a fold of skin. Hinder feet with the toes more depressed and more distinctly bordered. Back covered with small glands.

COLOUR.—The colour of the upper surface is dark olive, becoming lighter at the sides, and having numerous dark brown spots, which are round, oval, elliptical, or irregular, of very various sizes, placed somewhat symmetrically, and each bordered with a whitish or yellow line. Beneath pale, excepting the throat, which is black.

I have ventured to consider this remarkable amphibian as specifically distinct from *U. marmoratum* of Bibron; a conclusion to which I have been almost imperatively led, by the fact of its inhabiting a different hemisphere from all known specimens of that species. The other was found by M. Leschenault in the interior of the peninsula of India: the specimen from which the present description is taken was obtained by Mr. Darwin at Buenos Ayres. Notwithstanding the similarity of the two species, which is so great as to have led Mons. Bibron to consider them as identical, I could not assent to such an anomaly as the existence of an animal, at once so rare and possessed of such limited powers of locomotion, in two regions so widely remote. I have not the opportunity of comparing the specimens of the former species with the present, but, even from Mons. Bibron's description, I believe that I can discover sufficient discrepancies between the animals, to bear me out in the view I have taken. These discrepancies I venture to place in the following tabular view, and leave zoologists to form their own conclusions.

#### UPERODON MARMORATUM.

"La tête offre en arrière une largeur à peu près égale à son longueur totale, laquelle entre pour le quart environ dans l'étendue de l'animal."

"On pourrait considérer la peau comme étant parfaitement lisse, si l'on ne voyait éparses sur le dessus du tronc un certain nombre de verrues glanduleuses d'un assez grand diamètre relativement à la grosseur de l'animal, mais fort peu saillantes ou à peine convexes."

"Les parties supérieures de ce Batracien présentent sur un fond olivâtre, d'énormes taches brunes, toutes confluentes, ou s'anastomosant diversement."\*

#### UPERODON ORNATUM.

Head fully half as broad again as it is long, and equal in breadth to half the total length of the animal.

Back covered with numerous *small* glandular tubercles, notably elevated.

All the spots on the back are quite distinct, not in any way passing into each other or connected, and each encircled by a white line.

\* Bibr. Rept. VIII. p. 749.







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