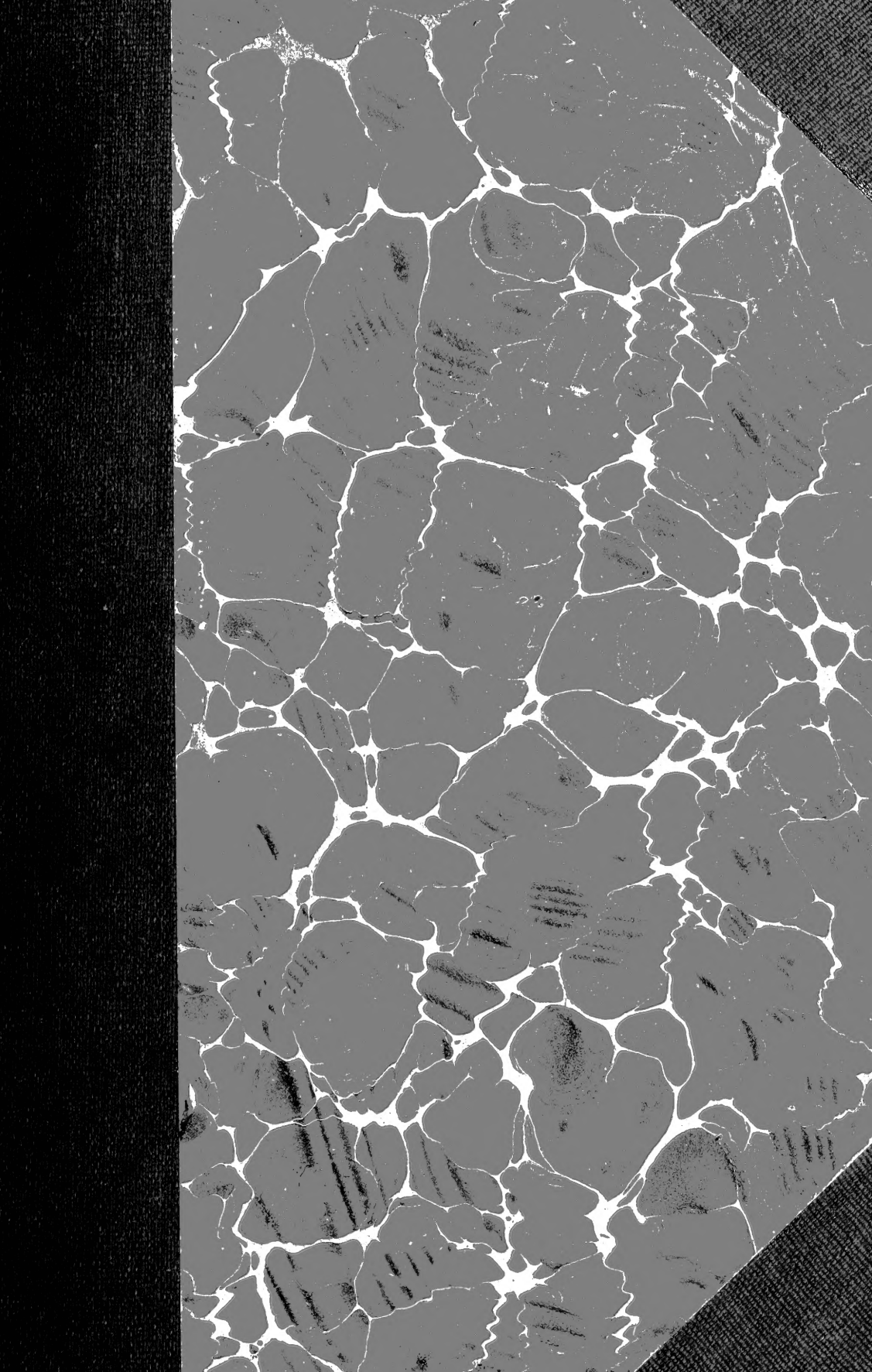

PROCEEDINGS

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JUNE 5, 1919 VOL. VII, PP. 1–3

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

ANOTHER NEW RACE OF THE KING SNAKE

BY THOMAS BARBOUR

I HAVE long known that king snakes from the peninsula of Florida differ regularly and fundamentally in color from those found further north. The contrast was especially evident to me, since, until this winter, the last king snake I had taken myself was found at Lakehurst, New Jersey, while in the past winter I collected several others near Palm Beach. I wrote Dr. A. G. Ruthven, telling him of my decision to describe this form, and he replied that Mr. Blanchard was about to do the same thing. Since then I have seen Blanchard's material, and have read his description [1] with keen interest. Mr. Blanchard's race is found over peninsular Florida, from about Lake County in the north probably to the Miami River in the southeast.

The limestone area of extreme southern Florida is inhabited by still another race, as distinct in coloration from *floridana* as this is from true *getulus;* but it is like its neighbor in the high number of scale rows. It is perhaps not surprising that a tendency to vary in coloration, that has become sufficiently well marked to separate king snakes from central Florida so sharply from all their more northern conspecific representatives, should

[1] Occ. Papers Mus. Zoöl. Univ. Michigan, no. 70, May 5, 1919, p. 1–6.

be more highly accentuated under the peculiar environmental conditions of extreme southeastern Florida. Here the sand is replaced by limestone, supporting a far more meagre growth of scrub palmetto and other sheltering plants, and becoming extremely hot, baked as it is by the almost tropical sun. The hammocks also are far more tropical in appearance, and offer but little similarity in character of vegetation or in identity of species with those of fifty miles further north.

I should have been loath to describe this race, having but a single example, had it not been that I found another killed in the highway near Homestead, Florida, which although badly crushed showed the same color characters as the one I shall name, and I take this fact to indicate that probably the coloration is fixed in this area. Ditmars' and A. E. Brown's remarks as to the inadvisability of naming the southern king snake, on account of the connecting variations, is quite typical of zoölogical park experience. Specimens received from dealers usually are at least of uncertain origin. King snakes taken at the same place, in so far as my somewhat limited experience goes, are singularly unvarying in coloration.

The new form is named for Mr. Winthrop S. Brooks, my companion on many excursions.

Lampropeltis getulus brooksi subsp. nov.

Plate I

Type, an adult, 1350 mm. long, M. C. Z. no. 12,456, from 14 miles southwest of Florida City, Dade Co., Florida (near the Royal Palm State Park, formerly called Paradise Key). W. S. Brooks and C. A. Mosier, collectors.

Similar to *L. getulus floridana* Blanchard, in squamation, but differing widely in coloration. Pattern so reduced as to be almost everywhere undiscernible. Each scale dull chrome yellow with a conspicuous very dark brown apical spot.

I have followed Mr. Blanchard in using a trinomial, although I have not yet observed real intergradation between any of these

races. Nevertheless Mr. Blanchard has at the U. S. National Museum a king snake from Florida, with no more definite data, which is rather intermediate between *brooksi* and *floridana*. I have seen true *L. getulus getulus* from northern Florida, and typical *floridana* from but little further south; so it is not improbable, in spite of the certainty of all these snakes being derived from the same stock, that a binomial designation would not be more fitting. It is a current custom among systematists to assume that intergradation between closely similar forms must exist, when in reality it is not often definitely demonstrated.

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NEW ENGLAND ZOÖLOGICAL CLUB

A NEW STRIATED GRASS WARBLER FROM THE PHILIPPINES

BY OUTRAM BANGS

THE great striated grass warbler, resident in the Philippines, has always, so far as I know, been referred to *Megalurus palustris* Horsfield, the type locality of which is Java. On comparison of specimens, however, it proves to be much paler and grayer than the Javanese form, from which it is easily told in either fresh autumnal plumage or worn midsummer dress. I take pleasure in naming it for Governor W. Cameron Forbes who, during his official residence in the Philippines, made such valuable collections of birds for the Museum of Comparative Zoölogy.

The Philippine form lives in the open fields and bamboo thickets, and is resident, breeding in April and May. It has a wide distribution in the islands, having been recorded from Bohol, Catanduanes, Luzon, Marinduque, Masbate, Mindanao, Mindoro, Samar, and Ticao. I have had no opportunity to compare skins from various islands, one with another, and I base the new form wholly upon the bird of Luzon.

Our six specimens all are in spring plumage, but Dr. C. W. Richmond has kindly compared the material in the U. S. National Museum, including autumnal specimens, and has lent

me one collected in Luzon in October. Dr. Richmond also has lent me one additional skin from Java.

Megalurus palustris forbesi, subsp. nov.

Type, no. 64,247, M. C. Z., adult ♂, Baguio, Benquet, Luzon, Philippine Islands, April 24, 1913, W. Cameron Forbes.

Characters. — Similar to *Megalurus palustris palustris* Horsf. of Java, but slightly smaller, with slightly larger bill; colors paler and grayer throughout, less ochraceous-tawny; upper parts, including head, apart from the black streaking, tawny olive to Isabella color, with a grayish tinge; chest and breast dull white in summer, dull grayish white in autumn.

Measurements. — Type, adult ♂: wing, 97; tail, 129: tarsus, 36; exposed culmen, 18 mm. No. 64,248, topotype, adult ♀: wing, 86; tail, 109; tarsus, 33; exposed culmen, 17.5 mm.

July 26, 1919 Vol. VII, pp. 7–13

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

HERPETOLOGICAL NOTES

BY THOMAS BARBOUR

Regarding Diadophis punctatus

During the past winter in Florida I had the opportunity after an interval of some years to observe living Southern ring-neck snakes. I was struck with their rich coloring, far more vivid than that of our New England ring-necks. Returning to Cambridge, I concluded that two easily recognized forms were being confused. Not long after, in Washington, Dr. Stejneger told me that he had been similarly persuaded some years ago; and with characteristic generosity he sent me, quite unasked, his notes summarizing his observations on the large series preserved in the United States National Museum.

The old name of *Diadophis punctatus* is to be restricted to the Southern race and should stand:

Diadophis punctatus punctatus (Linné)

Coluber punctatus Linné, Syst. Nat., Ed. 12, Vol. I, 1766, p. 376. Type locality, Carolina.

The original description is pertinent and explicit: Cinereus; subtus luteus ordine triplici punctorum nigrorum, tribus scilicet in singulo ordine. Cauda etiam subtus flava. V. 136. Sc. 43.

This Southern race may be distinguished from the Northern by several characters. First, fewer ventral and subcaudal scales — the condition is best expressed by taking the sum of the two counts; second, a usually interrupted neck ring; third, a row of heavy half-moon-shaped blotches on the ventral scales, in addition to the two lines of large black lateral spots; and fourth, a very different coloration.

Thus the living colors of specimens from Florida were observed to be: —

Upper surfaces rich brown, each scale finely but very distinctly punctate; lower surfaces orange yellow (cadmium orange), fading to lighter yellow anteriorly and becoming richer and darker posteriorly, so that the region of the vent and under surface of the tail is rich deep orange, almost vermilion (orange chrome); collar light orange (cadmium orange). The colors in parentheses are from Stejneger's notes on a Hallandale, Florida, specimen, in the terms of Ridgway's Manual.

In eleven specimens from Florida, in the Museum of Comparative Zoölogy, the average sum of ventral and subcaudal counts is 184.4; in four from Georgia (Dr. Jones, probably from Savannah), 192.4. Specimens of the Southern race usually show less than 200 ventrals and subcaudals together. In forty-three examples in the Museum of Comparative Zoölogy and the U. S. National Museum, from Florida, the number of *ventral* scales varies from 129 to 145. In six from Mississippi, from 131 to 142. In six from lowland Georgia, from 136 to 152; while one from Roswell, in mountainous Cobb County in northwestern Georgia, approaches closely the Northern form. Three from South Carolina range from 141 to 155; ten from North Carolina range from 141 to 159.

All of the Florida specimens, in both the Museum of Comparative Zoölogy and the National Museum, have heavy or moderately large median spots on the belly. In the National Museum one specimen from Mississippi lacks spots. All of the Georgia examples from the coastal plain, in both museums, have the heavy spots; the example from Roswell (M. C. Z., no. 258) already mentioned, has only a few fine dots. Two examples from North Carolina in the National Museum have immaculate bellies, but have the low scale formula of the Southern form.

The distribution of *D. p. punctatus* may then be said to extend from the region of New Orleans along the Gulf lowlands to Florida, to include the entire State of Florida, and to extend northward to northern North Carolina from sea-level to 2500 feet altitude, and possibly higher in the mountains of South Carolina and Georgia.

The Northern race may stand as:

Diadophis punctatus edwardsii (Merrem)

Coluber edwardsii Merrem, Tentamen Syst. Amph., 1820, p. 136 (based on Edwards' Gleanings Nat. Hist., III, 1764, p. 290, pl. 349, — as also is *Coluber torquatus* Shaw, Zoöl. Vol. III, 1802, p. 553, which is preoccupied by *Coluber torquatus* Lacépède = *Natrix natrix* (Linné)). Type locality, Pennsylvania; William Bartram, collector.

The Northern ring-neck snake differs from the Southern in having a wider, almost white, ring about the neck, scales more slaty gray and less punctate, belly paler, uniform cream-color from throat to tail, and in having a higher ventral and subcaudal scale count.

Thus eleven examples from Massachusetts, in the Museum of Comparative Zoölogy, have for the sums of ventrals and subcaudals an average of 212.2 (eleven from Florida, 184.4); also six from New York have an average of 217.8. The range of ventrals in fifteen New England specimens is 153 to 164; in nine from New York, 150 to 165; specimens from scattered localities in Virginia, Maryland, Pennsylvania, New Jersey, Michigan, Kentucky, Ohio, and Canada, fall within these limits. In all of the many Northern examples I have seen, the collar has been entire and the belly has been immaculate, except for two specimens which have scattered median dots. These were M. C. Z., no. 5610, from Springfield, Mass., and M. C. Z., no. 2471, from Fallsburg, Sullivan Co., New York, while Dr. Stejneger's notes show a few spots occurring on the following specimens: U. S. N. M., no. 13,296, A and C, from Montgomery Co., Maryland; U. S. N. M., no. 25,269, from Woodside, Maryland; U. S. N. M., no. 1969, from Tyree Springs, Tennessee; U. S. N. M., no. 22,813, from Dublin, New Hampshire.[1]

The race is distributed from Tennessee, Kentucky and Virginia, northward to the Upper Peninsula of Michigan, southern Canada and the Maritime Provinces. In the mountains it probably extends southward to northwestern Georgia. Mr. Dunn (Bull. Amer. Mus. Nat. Hist., 37, 1917, pp. 630–631) records that nine out of fifteen examples taken in the high

[1] Since this was written two examples from New Jersey have been kindly loaned me for examination by the American Museum of Natural History, both of which have a distinct median series of dark dots on the belly. These were from Newfoundland, Suffolk County; their counts total 215 and 217,—typically Northern.

I am indebted to Mr. K. P. Schmidt, of the Museum in New York, and to Dr. A. G. Ruthven, of Ann Arbor, for the recent loan of helpful material.

mountains of North Carolina had entirely unspotted bellies, and for the others he does not mention the large conspicuous blotches seen on those from the Southern lowlands.

The Northern race far exceeds the Southern in size. The largest example in the Museum of Comparative Zoölogy is from Tupper Lake, New York, T. Barbour collector, and measures 425 mm. in total length; while from the South few exceed the largest in the M. C. Z. series from Fort Lauderdale, Brevard Co., Florida, T. Barbour and Harrison W. Smith collectors, which measures 270 mm. in total length.

It is just possible that these snakes may be still further divided, but the material at hand is not convincing on this point. Ring-neck snakes from peninsular Florida are very brilliantly colored when alive; and if compared with living material from the Carolinas and Georgia it is by no means impossible that they would prove to show characters by which they could invariably be distinguished.

On Leiocephalus raviceps

For some years past I have spent much of my time in Cuba, and finally I collected what I knew of the Cuban reptiles and amphibians, together with information sent me from time to time by my friend Ramsden, and feeling that it was unlikely that I might explore further in Cuba for a long time, I published 'The Herpetology of Cuba' (Barbour and Ramsden, Mem. M. C. Z., 47, 1919, p. 71–213, pl. 1–15). On p. 173, discussing *raviceps*, the status of the species was summed up by saying " All things considered, it is by no means impossible that the types of *raviceps* came from some one of the Bahamas and were credited to the Wright collection from Cuba by mistake." All this, because neither Ramsden nor I had succeeded in finding the species and I knew it only from the soft and discolored types.

This spring, in looking over some small collections that had accumulated in the Museum of Comparative Zoölogy, to my

surprise and chagrin I found a large jar of *Leiocephali*, which had been laid away, and unfortunately had been overlooked. Among some examples of *macropus* and *carinatus*, species which I had already noted from Baracoa, whence this lot came, were no less than six examples of *raviceps*. The whole suite was taken by Señor Victor Rodriguez y Verrier; and if I remember correctly they were sent to me by him, reaching here just as I was leaving for Cuba two years ago. By a stupid oversight I had lost the opportunity to settle the status of this rare member of the Cuban fauna by a more intelligent notice of its existence in the Herpetology of Cuba, instead of now in this unfortunately detached form.

Notes on Celestus

Not long since, while on a short visit to Washington, I had the privilege of examining the type of *Celestus* (*Diploglossus*) *weinlandii* (U. S. N. M., no. 12,145), which was taken at Gonaives Island, Haiti, many years ago, by Younglove. Recently acquired specimens were compared with this type, and two, which appeared beyond any doubt to be identical, were forwarded to me here in Cambridge. Not long afterward, on borrowing a specimen of *Celestus phoxinus* from the Philadelphia Academy, I found it to be the long-lost type of this name, which belonged to the Museum of Comparative Zoölogy, but was in Cope's possession at the time of his death, as he had failed to return it with other specimens of the Weinland collection from Haiti, which was loaned to him for study and was only in part recovered.

Thus it has been possible to confirm Garman's belief that Cope's *Panalopus costatus* was based upon a mutilated individual of the same species which he subsequently named *phoxinus*.

The type of *Celestus stenurus* is, in my opinion, simply a large adult of the same form. The species should then stand as

Celestus costatus (Cope).

Panalopus costatus Cope, Proc. Acad. Nat. Sci. Phila., 1861, p. 494. Type, M. C. Z., no. 3606, Jeremie, Haiti, collected by Dr. D. F. Weinland.
Diploglossus stenurus Cope, Proc. Acad. Nat. Sci. Phila., 1862, p. 188. Type, M. C. Z., no. 3612, Jeremie, Haiti, collected by Dr. D. F. Weinland.
Celestus phoxinus Cope, Proc. Acad. Nat. Sci. Phila., 1868, p. 125. Type, M. C. Z., no. 12,457, formerly Phila. Acad., no. 9226, Jeremie, Haiti, collected by Dr. D. F. Weinland.
Celestus weinlandii Cope, Proc. Acad. Nat. Sci. Phila., 1868, p. 125. Type, U. S. Nat. Mus., no. 12,145, Gonaives or Gonaves Island, Haiti, T. Younglove collector.

These types are mostly of different sizes. Thus *weinlandii* represents, I believe, the very young; *phoxinus* and *costatus* were based upon half-grown individuals, almost identical in size, but one normal and the other artificially mutilated (Barbour, Mem. M. C. Z., 44, 1914, p. 306); while *stenurus* is a very large adult. Dr. Stejneger and I now both believe that the number of striae on the dorsal scales increases with age, and is of little diagnostic value except when comparing specimens of similar size. Garman and I have both said in print that we agreed with Boulenger that *stenurus* could not be separated from *striatus* (= *occiduus*) of Jamaica. It is probably most wise, however, to await still more material before concluding that any of the Jamaican species are really identical with the Haitian. Nevertheless, after seeing a Haitian series, which tends to show a great change between the coloration of young and adults, I am strongly inclined to suspect that *Celestus crusculus* (Garman) (= *bakeri* Boulenger) is the young of *Celestus occiduus* (Shaw). Of one series, labelled *crusculus*, all are small, including the type (M. C. Z., no. 6051), and in color distribution and pattern they are very similar to the types of *phoxinus* and *costatus*, which are of about the same size; while our specimens labelled *occiduus*

are all large, with coloration more like the larger specimens from Haiti, which I have seen in the Mann and Abbott collections. Thus there may be but two species in Jamaica, *occiduus* and *impressus*, wholly distinct, and the latter with young and adults (many of both in M. C. Z.) similar in type of coloration.

Additional specimens of *occiduus* from Jamaica are very desirable, to determine whether this should or should not be united with *costatus*. My present belief is that they will prove distinct in coloration details, if not in squamation.

This leaves the West Indian species distributed as follows:

Celestus de la Sagra (Cocteau). Cuba.
Celestus rugosus Cope. San Domingo.
The type of this species is U. S. N. M., no. 10,260. Its status perhaps is doubtful.
Celustus costatus (Cope). Haiti.
Possibly the same as *occiduus*.
Celestus sepoides (Gray). Haiti and San Domingo.
The genus *Sauresia* perhaps should be recognized.
Celestus badius Cope. Navassa Island.
Types, U. S. N. M., nos. 25,817 and 25,818, W. J. Rasin collector.
Status doubtful (= *costatus?*).
Celestus maculatus (Garman). Cayman Brac.
Celestus occiduus (Shaw). Jamaica.
Celestus impressus Cope. Jamaica.
Celestus pleii (Duméril and Bibron). Porto Rico.

My hearty thanks are due Dr. Stejneger for permission to examine specimens in his care, and to Mr. H. W. Fowler of the Philadelphia Academy.

October 10, 1919 Vol. VII, pp. 15–19

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OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

TWO NEW CHINESE JAPALURAS

BY THOMAS BARBOUR AND EMMETT REID DUNN

It has been a general custom to consider such few Chinese Japaluras as have found their way into American museums as belonging to *J. yunnanensis*, which Anderson described from Momein or Tengyuechow (Zool. Yunnan., 1878, p. 803, pl. 76, fig. Z). When reporting upon the Zappey collection, the senior author noted that the specimens which were before him from the Tung River in western Szechuan, did not wholly agree with Anderson's figure (Mem. M. C. Z., 40, 1912, p. 134). Nor do they agree with three examples from western China, recently, by Dr. Stejneger's kindness, loaned for study from the United States National Museum. Thanks to the generosity of the authorities of the American Museum of Natural History, a large series of true *yunnanensis* has become available for comparison, collected by Messrs. Andrews and Heller on their recent Asiatic journey. These examples agree in detail with Anderson's description and with such definite features as were depicted in his figure. The American Museum Expedition collected extensively in southern and western Yunnan; and although, unfortunately, their specimens as yet bear no definite data (since, owing to Mr. Andrews' absence on his second journey to China, the key to his field-numbers is not at hand), he visited Tengyuechow itself, so there cannot be much cavil if his speci-

mens are provisionally considered topotypes. One of the new species described below was found also by Andrews and Heller on the Snow Mountains near Lichiangfu, described in chapter XII of Andrews' 'Camps and Trails in China' (D. Appleton and Co., N. Y., 1918).

The new form may be called:

Japalura flaviceps sp. nov.

Japalura yunnanensis Boulenger (*nec* Anderson), Cat. Liz. B. M., I, 1885, p. 310.

Type, an adult male, M. C. Z., no. 12,469, from among cacti along the sandy shores of the Tung River in western Szechuan; W. R. Zappey, collector, 7, February, 1908. Paratypes: four other examples, also in M. C. Z., having the same data as the type, and also three from the Snow Mountains near Lichiangfu in northern Yunnan, not far from the Szechuan frontier (A. M. N. H. coll.).

Description. — Top of head covered with rugose scales of unequal size; on the snout a median series of four distinctly enlarged almost conical scales forming a ridge, and followed by two irregular series of enlarged scales extending almost to the posterior border of the orbit; these two series are separated by four or five scales which are themselves larger than the other upper head shields; a group of distinctly enlarged shields on the occipital region. Rostral broad and low, wider and lower than the mental; canthus rostralis moderately defined and continuous with the superciliaries; nostril in a large oval shield separated from the labials by generally two but sometimes a single series of small scales, and from the rostral by a group of small scales usually three in number; upper labials nine or ten, seventh below the middle of the eye; orbit separated from upper labials by four (rarely three) rows of small keeled scales; lower labials eleven; an ill-defined series of five enlarged scales extending from the posterior border of the orbit to above the tympanic region; a few elongated, almost spinelike scales above the tympanum; nuchal crest composed of about nine or ten enlarged denticulate scales, but slightly larger than and continuous with the feebly developed dorsal crest.

A well-developed fold anterior to insertion of fore limb; a large area about the insertion of the fore limb covered with very small, keeled and slightly imbricate scales, at first sight resembling granules; scales of back and sides all imbricate, strongly keeled and varying greatly in size; the largest scales tend slightly more toward forming longitudinal series than groups transversely arranged. Scales of throat and belly subequal in size, strongly keeled, and slightly mucronate; the hind limb, being extended forward,

reaches the posterior border of the eye; scales of fore and hind limbs all strongly keeled and somewhat irregular in size.

Throat and sides of head dirty yellowish; top of head dusky brown; a brilliant yellow band along each side of the back, enclosing a series of about seven irregular dark brown rhombs with yellow centers; the yellow lateral band bordered below by a dark streak; lower sides, limbs, belly, and tail, dark yellowish brown; tail with irregular dusky cross-bars.

Dimensions. — Tip of snout to vent, 80; length of head, 27; width of head, 15; fore limb, 35; hind limb, 56 mm.

Females and younger males are less brilliantly colored. The head is more uniformly dusky, and the lateral stripes are but feebly defined, although the mid-dorsal series of rhombs with light centers is distinct in most cases.

This form may readily be distinguished from *yunnanensis*, in coloration especially; in lacking the strongly marked stripe from eye to the angle of the mouth; in the different dorsal scutellation; and in having the head not distinctly flat, or even concave, and covered with much more homogeneous small scales; the scales about the nostril also are differently arranged.

This probably is the form erroneously referred to by Swinhoe (P. Z. S., 1870, p. 411) when he wrote "*Iapalura swinhoii*. . . . This comb-backed Tree-lizard was before only known from the woods of South Formosa. On my late expedition up the Yangstze I found it on the rocks among woods near Chungkingfoo." The Chinese forms, from the meagre field notes available, seem to be terrestrial types, as their habit would indicate, while those of the Riu Kiu Islands and Formosa surely have the strong appearance of being truly 'tree lizards.' *Yunnanensis* has a far more southern and more nearly tropical habitat.

The specimens which Boulenger used in drawing the description of *yunnanensis* were collected by Swinhoe in 'Szechuan,' no definite locality being mentioned. They were the only ones in the British Museum up to 1885, and are probably the same specimens which Swinhoe mentions (l. c.). Dr. Boulenger wrote me a very short time ago (18, September, 1919) that no further specimens had come to the British Museum.

Japalura splendida sp. nov.

Type, an adult male, U. S. N. M., no. 35,522, from the Gorge of the Yangtze River near Ichang, Hupeh, central China; E. Blackwelder, collector. Paratypes: U. S. N. M., 35,523, half-grown, from Taninghsien, eastern end of the Chihsiting Pass, eastern Szechuan, near the Hupeh frontier, and U. S. N. M., no. 35,524, from Liangho in the Chinling Mountains of Shensi.

Description. — Top of head covered with medium-sized, subequal, rugose, juxtaposed scales; on the snout a median series of three or four slightly enlarged subconical scales forming a faintly indicated ridge, flanked on each side by a considerably enlarged anterior canthal scale; no other head scales conspicuously enlarged, except one or two on each side of the post-occipital areas; rostral twice as wide as high, wider but lower than the mental; canthus rostralis sharply defined and continuous with the superciliaries; nostril in a large suboval shield, separated from the rostral by but one small scale, in contact with the first labial, and separated from the second labial by a single small shield; upper labials eight; sixth below the center of the eye; orbit separated from upper labials by three rows of shields, the middle row much enlarged; ten lower labials; a short series of about three enlarged shields above the tympanic region, and above these a few, elongated, almost spinelike scales; nuchal crest very feeble, composed of about eight or nine slightly enlarged, denticulate scales, continuous with the still more feebly developed dorsal crest. A faintly indicated fold anterior to the insertion of the fore limb; above the insertion of the fore limb a large area is covered with tiny almost granular scales; back and sides covered with imbricate, strongly keeled scales, which vary somewhat in size; somewhat enlarged scales abundantly scattered over the whole back and sides, and generally tending to form longitudinal series (more so than in the preceding species), also the largest scales far less conspicuously enlarged; scales of throat and belly small, about equal in size, strongly keeled; the hind limb, being extended forward, reaches the anterior border of the orbit or a little beyond; scales of fore and hind limbs strongly keeled and unequal in size.

Head dark brown, conspicuously marked with yellow spots and streaks above and on the sides; a yellow band extending from behind the nostril, beneath the eye and above the labials, to below the tympanic area; rostral and three anterior labials yellow, the others dark; back uniform dark brown with a broad conspicuous light stripe on each side, and a broad dark zone below this; belly and tail dusky, the latter with irregular darker bands; throat conspicuously streaked, longitudinally, with brown on a yellow ground.

Dimensions. — Tip of snout to vent, 85; length of head, 30; width of head, 21; fore limb, 44; hind limb, 65; tail, 210 mm.

This species ranges distinctly east of the one previously described.

This form approaches *yunnanensis* in having more uniform scales on the top of the head than does *flaviceps*. It differs, however, from both species in the much more homogeneous squamation of the back and sides, and in the different arrangement of the scales about the nostril and between the eye and supralabials, as well as in having a wholly different type of coloration.

In the large series of *yunnanensis* examined, the dark stripe from the eye to the angle of the mouth is a very conspicuous feature; also the spines of the nuchal crest are conspicuously elongated; in contradistinction to the two previously described species the head is flat, or somewhat concave, and is covered with rather homogeneous flat scales, more irregularly striate than strongly rugose as in the other two forms; also, as will be recalled, the coloration of *yunnanensis*, in the adults especially, consists of conspicuous cross-bands, as figured by Anderson.

October 31, 1919 Vol. VII, pp. 21–22

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OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

SOME UNTENABLE NAMES IN ORNITHOLOGY

BY THOMAS EDWARD PENARD

The following cases of untenability have come to light, involving changes in the names of several birds.

Planchesia fusca (Boddaert)

The name *Planchesia fusca*, based on *Muscicapa fusca* Boddaert, Tabl. Pl. Enl., 1783, p. 34, pl. 574, fig. 1, which generally has been applied to the Guiana Dusky Flycatcher, is invalidated by the existence of two earlier names, — *Muscicapa fusca* Boddaert, *l. c.*, p. 33, pl. 568, fig. 2, which has page precedence; and *Muscicapa fusca* P. L. S. Müller, Natursyst. Suppl., 1776, p. 170. Both these names apply to the bird now known as *Allenia apicalis* (Hartlaub). The next name in synonymy, *Muscicapa fuliginosa* Gmelin, is preoccupied by *Muscicapa fuliginosa* Sparrman, Mus. Carls., II, 1787, pl. 47, = *Rhipidura fuliginosa* (Sparrm.).

Since there appears to be no other name applicable to this species, I propose to name it *Planchesia pullata* nom. nov.

Muscicapa sibirica fuliginosa (Hodgson)

There are at least two earlier homonyms affecting the use of the term *fuliginosa* in combination with *Muscicapa*, — *Muscicapa fuliginosa* Gmelin, Syst. Nat., I, 1789, p. 932, = *Planchesia fusca* (Bodd.); and *Muscicapa fuliginosa* Sparrman, Mus. Carls., II, 1787, pl. 47, = *Rhipidura fuliginosa* (Sparrm.).

Ornithologists who, like Hartert (Die Vögel der paläarktischen Fauna, IV, 1907, p. 473), unite the genera *Muscicapa* and *Hemichelidon*, should use another name for this subspecies; and since there is no other available in synonymy, I propose to designate it *Muscicapa sibirica cacabata* nom. nov.

Muscicapa ferruginea (Hodgson)

The name *Muscicapa ferruginea*, based on *Hemichelidon ferruginea* Hodgson, Proc. Zoöl. Soc. London, 1845, p. 32, is untenable, since it is preoccupied by *Muscicapa ferruginea* Gmelin, Syst. Nat., I, 1789, p. 947. Ornithologists who unite *Hemichelidon* with *Muscicapa*, should use the name *Muscicapa cinereiceps* (Sharpe) for this species.

Eophona melanura melanura (Gmelin)

The name *Eophona melanura melanura*, based on *Loxia melanura* Gmelin, Syst. Nat., I, 1789, p. 853, is rendered invalid by *Loxia melanura* P. L. S. Müller, Natursyst. Suppl., 1776, p. 153, *Passer melanurus* (Müller). The name *migratoria* now becomes available for the species, and the subspecies currently known as *Eophona melanura migratoria* and *Eophona melanura sowerbyi*, become respectively *Eophona migratoria migratoria* Hartert and *Eophona migratoria sowerbyi* Riley. For the third subspecies, hitherto known as *Eophona melanura melanura* Gmelin, I propose the name *Eophona migratoria pulla* nom. nov.

October 31, 1919 Vol. VII, pp. 23–25

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

THE NAME OF THE COMMON JUNGLE FOWL

BY OUTRAM BANGS AND THOMAS EDWARD PENARD

In the 'Catalogue of the Birds in the British Museum' (XXII, 1893, p. 344) the jungle fowl appeared as *Gallus gallus* (Linn.) (Syst. Nat., I, 1766, p. 270), no subspecies being recognized by Ogilvie-Grant. Somewhat later Hartert (Nov. Zoöl., IX, 1902, p. 218) rejected the specific name *gallus* on account of its domestic origin, giving his reasons at length. This opinion was also held by Blanford (Fauna Br. India, Birds, IV, 1898, p. 75) whom Stuart Baker followed in his account of the Game Birds of India (Jour. Bombay Nat. Hist. Soc., XXV, 1917, p. 8). Very recently Kloss (The Ibis, (10), VI, 1918, p. 81) again takes the other view that the specific name *gallus* must be used for one of the wild jungle fowls.

It is thus obvious that the names by which the currently recognized races of the jungle fowl should be known, must be fixed once for all by the rules of nomenclature. In attempting to do this, we are not reviewing the species; we deal only with the three subspecies — the Indian, the Chinese-Malayan, and the Sundanese forms — which ornithologists at present are inclined to recognize. The number of subspecies may subsequently be increased, or may be reduced, without changing the names which we decide upon and which we trust may be considered permanent.

The disposition of names by Stuart Baker cannot stand; the name *ferrugineus* as used by him cannot apply to the Indian bird, being only a new combination by Blyth.

If, as Stuart Baker proposed, *Phasianus gallus* Linn. be rejected, then: —

(*a*) The Sundanese bird is *Gallus ferrugineus bankiva* Temminck.
(*b*) The Chinese-Malayan bird is *Gallus ferrugineus ferrugineus* (Gmelin).
(*c*) The Indian bird must have a new name.

If *Phasianus gallus* Linn. and *P. ferrugineus* Gmel. both be rejected, then: —

(*a*) The Sundanese bird is *Gallus spadiceus bankiva* Temminck.
(*b*) The Chinese-Malayan bird is *Gallus spadiceus spadiceus* Bonnaterre.
(*c*) The Indian bird must have a new name.

In our opinion, however, the name *Phasianus gallus* was properly proposed by Linné, and is valid in accordance with the generally accepted rules of nomenclature. The original description is not inadequate, and can apply to no other species. It is true that it is difficult, if not impossible, to determine, from the description alone, to which of the subspecies the name applies; but in this respect the case does not differ from that of a large number of other species, afterward subdivided, for which the localities originally cited were very general, or erroneous, or even entirely omitted, and for which type localities have been subsequently selected and fixed.

There is nothing in the International Rules of Nomenclature to preclude the use of a name based on a domestic variety, nor to prevent the subdivision of a species with subsequent designation of a type locality. On the contrary, Articles 29, 30, and 31 sanction such a course, while Canons IX, XXIV, and XXV of the A. O. U. Code of Nomenclature are very explicit in the matter.

Linné gave as type locality of *Phasianus gallus* "India Orientali," which is not at variance with fact since the species ranges from the northern and central provinces of India eastward through Bengal, the whole of Burma, to southern China and Cochin-China, the Malay Peninsula, and the Sunda Islands.

The recognition of several races now makes it necessary to restrict the type locality of *gallus;* and as we are not aware that this ever has been done, we select Bengal. Even Stuart Baker, who rejects *Phasianus gallus* Linn., includes it without question wholly (not in part) in the synonymy of the Indian bird.

This disposition of the name *gallus* is also desirable from another standpoint, in that it avoids the introduction of a new name for the Indian bird. In accordance with this view, which we trust will be acceptable to ornithologists, the three races on the common jungle fowl should be known as: —

(*a*) *Gallus gallus bankiva* Temminck, Pig. Gall., II, 1813, p. 87 (Sumatra).

(*b*) *Gallus gallus ferrugineus* (Gmelin), Syst. Nat., I, 1789, p. 761 (China).

(*c*) *Gallus gallus gallus* (Linné), Syst. Nat., I, 1758, p. 158 (Bengal).

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PROCEEDINGS

OF THE

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AN UNDESCRIBED SONG SPARROW FROM ALASKA

BY WINTHROP SPRAGUE BROOKS

EXAMINATION of three song sparrows from North Semidi and Choviet Islands, Semidi Islands, Alaska, taken during April by Mr. Joseph Dixon and myself, revealed a color character leading to the inference that this is an insular race peculiar to this small but well-isolated group. It may be called

Melospizia cineria semidiensis subsp. nov.

SEMIDI ISLAND SONG SPARROW

Type, adult male, no. 67,069, coll. Museum of Comparative Zoölogy, North Semidi Island, Semidi Islands, Alaska, April 19, 1913, collected by W. S. Brooks (orig. no. 33).

Characters. — Similar in size to *Melospiza cineria sanaka*, but under parts more gray; the markings of the breast and cheeks less rufescent. In this coloration it is intermediate between *M. c. sanaka* and *M. c. insignis*.

Measurements of type. — Wing, 86.5; tail, 70.5; culmen, 15.5; tarsus, 27.5 mm.

DECEMBER 23, 1919 VOL. VII, PP. 29–31

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OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

TWO NEW BIRDS FROM RORAIMA

BY THOMAS EDWARD PENARD

I HAVE two birds collected by Henry Whitely at Mt. Roraima, British Guiana, which differ so much in size and coloration from specimens of allied forms collected elsewhere, that I believe they represent two undescribed races. Through the kindness of Mr. Outram Bangs both have been carefully compared with specimens in the Museum of Comparative Zoölogy.

It is usually not safe to base a new subspecies upon the evidence of a single specimen; but in these cases I think the separation is justifiable, when we consider not only the wholly different appearance of the Roraima birds, but also the peculiar geological area from which they came.

Chloronerpes rubiginosus roraimae subsp. nov.

Type, M. C. Z., no. 82,134 (collection T. E. P., 2002), adult ♀; British Guiana: Mt. Roraima, 3500 feet altitude; 27 December, 1883; Henry Whitely.

Subspecific characters. — Similar to *Chloronerpes rubiginosus rubiginosus* (Swainson) of Cumaná, Venezuela, but larger, and upper parts darker, not so reddish. Similar also to *Chloronerpes rubiginosus meridensis* Ridgway of Merida, Venezuela, and of about the same size, but under parts more strongly barred, the markings on the belly wider, breast much darker, contrasting strongly with the belly, the buffy markings very narrow,

throat with less white, upper parts darker olive green, not so yellowish or reddish.

Measurements. — Type, adult ♀: wing, 122.5; tail, 74.0; tarsus, 20.0; culmen from base of forehead, 27.0 mm.

Following Ridgway's key to the species and subspecies of *Chloronerpes* (Birds of North and Middle America, 1914, VI, p. 125), the Roraima bird falls into the *rubiginosus* group, in the first section, with wings from 114 to 133.5 mm., containing *yucatanensis*, *uropygialis*, *meridensis*, and *alleni*, while true *rubiginosus*, a much smaller bird, belongs in the second section, with wings from 98 to 115 mm. Chubb (The Birds of British Guiana, 1916, I, p. 483) describes and gives measurements of a male and a female, collected on the Anarika River. The measurements (wing, ♂, 116; ♀, 113) indicate a comparatively much smaller bird than *C. r. roraimae*, probably true *rubiginosus*, under which name Chubb lists the British Guiana form. He includes also Mt. Roraima, 3500 ft., and Merumé Mountains in the range. It would seem, therefore, that two forms are represented in British Guiana, one inhabiting the lowlands, and the other the more mountainous sections, of which Roraima forms a part.

Tanagra violacea rodwayi subsp. nov.

Type, M. C. Z., no. 82,135 (collection T.E.P., 2001), adult ♂; British Guiana: Mt. Roraima, 3500 feet altitude; 1 January, 1884; Henry Whitely.

Subspecific characters. — Similar to *Tanagra violacea violacea* (Linné) of Surinam, but larger, and upper parts more violaceous, less bluish. Similar also to *Tanagra violacea pampolla* Oberholser (= *magna* of authors) of southeastern Brazil, and of about the same size, but the bright violet coloration extending with uniform intensity over the entire upper parts, including the lower back and upper tail coverts, instead of being restricted to the head, neck, and upper back.

Specimens examined.

Tanagra violacea rodwayi. British Guiana: Roraima, one (type).

Tanagra violacea pampolla. Brazil: Bahia, one male, one female; São Paulo, one male; "S. E. Brazil," one male; "Brazil," two males.

Tanagra violacea violacea. Surinam, three males, one female; British Guiana: Demerara, one male; Venezuela: Guanoco, three males, one female; Trinidad, four males.

MEASUREMENTS (in millimeters)

		Wing	Tail	Tarsus	Exposed culmen
T. v. rodwayi	Type, male	62.0	35.0	15.0	9.0
T. v. pampolla	Five males	60.0–62.0	29.0–35.0	14.5–16.0	9.0–9.5
T. v. violacea	Eleven males	55.0–57.5	28.5–32.0	14.5–15.5	8.5–9.5

I have named this well-marked subspecies in honor of Mr. James Rodway, Director of the Museum at Georgetown, author of many valuable works on British Guiana.

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NEW ENGLAND ZOÖLOGICAL CLUB

A NEW LIZARD FROM HAITI

BY EMMETT REID DUNN

DR. G. M. ALLEN brought back from Haiti, in the summer of 1919, a series of reptiles, among which is a Leiocephalus that seems to be new.

Leiocephalus semilineatus sp. nov.

Diagnosis. — A spiny lizard rather closely resembling *L. personatus* but with smooth head shields and with the prefrontals large and broadly in contact with the preocular and the loreal.

Type, M. C. Z., no. 12,748, taken at Thomazeau, Haiti, August, 1919, by G. M. Allen.

Description. — Upper head scales large, smooth; nasal in contact with rostral, supraorbitals extensively in contact, five strap-like supraoculars separated from supraorbitals by a series of small scales; two pairs of parietals, the inner rather the larger; two pairs of frontals; two pairs of large prefrontals, the posterior in contact with preocular and with the loreal, the anterior in contact with loreal. Sides of neck with two folds. Scales back of ear pointed, keeled, and imbricated; a single large keeled scale in front of and above ear; dorsal scales medium, keeled, mucronate, imbricated; ventral scales about same size as dorsals, smooth. Appressed hind limb reaches ear. Tail rounded; caudal crest better developed than dorsal.

Color. — Olive gray. A dark band from eye to groin, indistinctly bordered with light above, through anterior half of body, and distinctly bor-

dered with white below, to insertion of fore limb. Throat white with a few darker flecks; belly white to region between hind legs, which is brown; tail brown, black cross bands above.

Dimensions. — Total length, 93; tip of snout to vent, 44; width of head, 9; snout to ear, 11; fore limb, 17; hind limb, 30 mm.

While quite like *personatus* in general appearance, this species appears distinct. In all other species of *Leiocephalus*, that I have examined (*personatus* (type), *melanochlorus* (type), and *schreibersii*, from Haiti; *cubensis*, *macropus* (type), *carinatus*, and *raviceps* (type), from Cuba), there is a long narrow scale separating the prefrontals from the preoculars and from the loreal. In a few specimens of *personatus* the posterior prefrontal narrowly reaches the preocular. In the present species the narrow scale is absent. Also the large scale above the ear is not evident in the species listed above. Furthermore, the light borders to the dark lateral band are much better developed in *personatus*, and the throat in that species has much more black, either in large spots or as solid color.

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OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

A NEW RED-SHOULDERED HAWK FROM THE FLORIDA KEYS

BY OUTRAM BANGS

THE Florida red-shouldered hawk, *Buteo lineatus alleni* Ridgway (type locality, Tampa, Florida), occurs as a resident species, with little or no geographic variation, from South Carolina to certainly somewhat south of Tampa on the Florida peninsula.

In the Florida Keys, and perhaps in the extreme south of the mainland of Florida also, it is replaced by a much smaller form, so different as to require a name, which may be known as

Buteo lineatus extimus subsp. nov.

Type, adult ♂, no. 6899, M. C. Z., from Cape Florida (southern end of Key Biscayne), collected April 5, 1858, by G. Wurdemann.

Characters. — Similar to *Buteo lineatus alleni*, and not much different in color though perhaps averaging in general a little darker and richer, but much smaller.

Measurements. — Type, adult ♂: wing, 275; tail-feathers, 169; tarsus, 73; middle toe without claw, 32; culmen from cere, 19 mm. No. 6898, immature ♂, Indian Key: wing, 270; tail-feathers, 167; tarsus, 73; middle toe without claw, 32 mm. Tip of bill shot away.

JANUARY 20, 1920 VOL. VII, PP. 37–44

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

ON THE HAITIAN SNAKES OF THE GENERA LEIMADOPHIS AND UROMACER

BY EMMETT REID DUNN

IN the spring of 1919 I had occasion to go over a large series of snakes in the United States National Museum from Haiti and the adjacent islands of Gonaives and Tortuga. I noticed the variability of these forms but I did not appreciate its extent until Dr. G. M. Allen brought back his collection from Haiti and Gonaives. This material showed such marked differences between representatives from the two islands that I borrowed the National Museum series, and with them and the collections of the Museum of Comparative Zoölogy the following conclusions have been reached.

LEIMADOPHIS

Leimadophis parvifrons from the southeastern peninsula is racially different from the coast race of Haiti and from a race which inhabits the interior of San Domingo. Gonaives and Tortuga Islands each support distinguishable races. Those

from the two small islands are characterized by increased ventral and caudal count, as well as by the different positions of the lateral stripe. The peninsula race is marked by a very low ventral count, and the interior race by its melanism. All these snakes have dorsal scales, 19–17; oculars, 1–2; temporals, 1–2; and labials, 8–10.

Leimadophis parvifrons parvifrons (Cope)

Diagnosis. — Ventrals, females, 142–143 (average, 142.4); caudals, in females, 110–118 (average, 113.4). Light lateral stripe on upper half of scale row five and on all of scale row six.

Description. — Five females of this form have been examined. They are the types of *Dromicus parvifrons* Cope, and were collected by Weinland. The specimens came from Jeremie. Their color is as follows: Olive, first three scale rows lighter; upper half or all of scale row four, and lower half of scale row five, black, forming a dark stripe which passes through eye to nostril. Upper half of scale row five, and scale row six, very light, forming a light stripe which starts on head. Median row (sometimes half a scale on each side), black. Occasionally black dots on the end of the first few ventrals. Belly light, dotted with gray.

Leimadophis parvifrons protenus (Jan)

Diagnosis. — Ventrals: 150–163 (average, 157); females, 152–160 (average, 156); males, 150–163 (average, 159.2). Caudals: females, 110–118 (average, 113.8); males, 117–128 (average, 119.3). Light lateral stripe on upper half of scale row five and on all of scale row six.

Description. — Like *L. parvifrons parvifrons*, but with a higher ventral count. Coloration the same as *L. parvifrons parvifrons*.

Specimens examined: 27. From San Domingo: San Pedro de Macoris, 1; Jarabacoa, 1800 ft. altitude, 2; 5 miles north of Constanza, 4000 ft., 3; El Rio, 4000 ft., 5. From Haiti: Haiti, 1; Moustique, 2000 ft., 1; Port au Prince, 1; Thomazeau, 1; Cape Haitien, 1; Diquini, 7; Gran Riviere, 1; St. Marc, 2; Manneville, 1.

This is the best known of these forms. It was named by Jan, whose specimens came from Port au Prince. Boulenger's specimens also belong to this race, with the exception of one which is of the following form. Upon including his counts of scales with those of the specimens I have, it is interesting to see how little changed the averages are. This seems to indicate that the variation is small, and the averages near the truth, even though so few specimens have been counted. Of his seven, four were females, and three males. The addition of these specimens makes the general ventral average 156.4, the male caudal average 120.4, and the female caudal average 113.3, — very little change for an addition of one fourth as many specimens.

Leimadophis parvifrons niger subsp. nov.

Diagnosis. — Like *L. parvifrons parvifrons*, but uniformly black. Ventrals: 145–156 (average, 151.1); males, 150–155 (average, 152); females, 145–156 (average, 150.5). Caudals: females, 111–125 (average, 119.6); males, 123–132 (average, 127).

Type, M. C. Z., no. 7833, adult female, La Vega, San Domingo.

Description. — Practically uniformly black; some of the scales in the first three rows anteriorly are light-edged; some white on upper labials; throat mottled with white; under side of tail, in posterior half, white.

Specimens: Two in type series from La Vega; seven others, from "San Domingo," in the United States National Museum, nos. 55,026–32, collected by Abbott. A young specimen in the U. S. N. M. and one of the type series, show traces of striping, and in them the position of the lateral stripe is the same as in the other two races of *parvifrons*.

This race apparently inhabits most of San Domingo, save for the higher plateau country which is occupied by *protenus*. Its caudal count is higher than in either of the other races of *parvifrons*, while its ventral count is intermediate. Boulenger's San Domingo specimen was uniformly black. Its scale count also agrees with that of *niger*, the ventrals being 145, the caudals, 123. It was a male.

Leimadophis alleni sp. nov.

Diagnosis. — Like *Leimadophis parvifrons,* but with light lateral stripe on upper part of scale row five, scale row six, and lower part of scale row seven. Ventrals, 158–164 (average, 161.3). Caudals, female, 130.

Type, M. C. Z., no. 12,861, adult female, Gonaives Island, August, 1919, collected by G. M. Allen.

Description. — Scutellation like that of *L. parvifrons parvifrons* but ventrals and caudals higher in number. Color, black. Centers of scales in rows one, two and three, lighter, but successively less so in ascending order. A bright yellow stripe on upper corner of scale row five, on all of scale row six except lower corner, and on lower edge of scale row seven. Outer edge of ventrals gray, belly white, upper labials white.

This snake, which is much more strikingly colored than the form on the Haitian coast, I take pleasure in naming for Dr. Allen, who collected the type and who spoke to me about this color difference. Besides the shading, the stripe is in a different place and the ventrals and caudals are much more in number. I have seen only three specimens of this form, the type and one other collected by Dr. Allen, and one in the U. S. N. M. (no. 10,170). On only one of these is the tail perfect.

Leimadophis tortuganus sp. nov.

Diagnosis. — Generally similar to *L. alleni,* but first two scale rows with dark centers, light lateral stripe on upper half of scale row six and lower half of scale row seven. Ventrals (two females), 169. Caudals (one female), 133.

Type, U. S. N. M., no. 59,440, adult female, Tortuga Island; W. L. Abbott, collector.

Description. — Bluish gray on sides and dark brown above. First two scale rows with lighter edges. Lower half of scale row six, black; upper half of scale row six and lower half of scale row seven, light. Ends of ventrals bluish gray; belly light; black spots near ends of first twenty-five ventrals. Another specimen (U. S. N. M., no. 59,439) is similar.

It is interesting that in this, as well as in the Gonaives Island race, the stripe is higher up the side and there are more ventrals and caudals than in the races from Haiti itself. It is of course

very unlikely that the Tortuga form is in any way related to the Gonaives form save through one of the Haitian races.

LEIMADOPHIS PARVIFRONS PARVIFRONS

				Ventrals	Caudals
M. C. Z. no.	3,344	♀	Jeremie. Type	143	110
" "	3,344	♀	" "	142	112
" "	3,602	♀	" "	142	111
" "	3,602	♀	" "	142	116
" "	3,602	♀	" "	143	118

LEIMADOPHIS PARVIFRONS PROTENUS

				Ventrals	Caudals
M. C. Z. no.	8,677	♀	Manneville, Haiti	155	—
" "	12,863	♀	Thomazeau, Haiti	154	114
" "	12,862	♀	Port au Prince, Haiti	152	—
" "	8,743	♀	Cap Haitien, Haiti	160	113
" "	8,660	♀	Diquini, Haiti	155	118
" "	8,661	♂	" "	159	—
" "	8,662	♂	" "	159	119
" "	8,663	♂	" "	160	118
" "	8,664	♀	" "	157	113
" "	8,665	♂	" "	158	120
" "	8,666	♂	" "	154	124
" "	8,722	♂	Gran Riviere, Haiti	159	122
" "	8,751	♂	St. Marc, Haiti	163	122
" "	8,752	♂	" " "	158	117
U. S. N. M. no.	59,171	♂	Haiti	163	121
" "	59,441	♀	Moustique, Haiti, 2000 ft.	159	112
" "	49,945	♀	San Pedro de Macoris, S. D.	160	—
" "	55,306	♀	Jarabacoa, S. D., 1800 ft.	154	—
" "	55,307	♀	" " "	157	121
" "	55,313	♀	5 miles N. Constanza, S. D., 4000 ft.	153	116
" "	55,314	♂	5 miles N. Constanza, S. D., 4000 ft.	158	—
" "	55,315	♀	5 miles N. Constanza, S. D., 4000 ft.	159	114
" "	55,308	♀	El Rio, S. D., 4000 ft.	156	—
" "	55,309	♀	" " "	153	—
" "	55,310	♀	" " "	152	—
" "	55,311	♀	" " "	158	—
" "	55,312	♂	" " "	161	111

LEIMADOPHIS PARVIFRONS NIGER

					Ventrals	Caudals
M. C. Z.	no.	7,833 (type)	♀	La Vega, San Domingo	149	111
"	"	7,833	♀	" " " "	156	—
U. S. N. M.	"	55,026	♂	San Domingo	152	126
"	"	55,027	♂	" "	150	—
"	"	55,028	♂	" "	155	—
"	"	55,029	♀	" "	151	—
"	"	55,030	♀	" "	147	125
"	"	55,031	♂	" "	151	132
"	"	55,032	♀	" "	155	—

LEIMADOPHIS ALLENI

					Ventrals	Caudals
M. C. Z.	no.	12,861 (type)	♀	Gonaives Island	158	130
"	"	12,860	♂	" "	162	—
U. S. N. M.	"	10,170	♀	" "	164	—

LEIMADOPHIS TORTUGANUS

					Ventrals	Caudals
U. S. N. M.	no.	59,439	♀	Tortuga Island	169	—
"	"	59,440 (type)	♀	" "	169	133

UROMACER

In this genus, as is well known, three quite distinct forms inhabit Haiti. There are at hand two specimens from Gonaives, and eleven from Tortuga. The two Gonaives specimens represent two species, and there are three species among the Tortuga specimens. Each of the small islands seems to support a form quite distinct from those hitherto known, while more material may indicate that the representative of *frenatus* on Tortuga is likewise distinct. *U. oxyrhynchus* seems common to Haiti and Tortuga, and *U. catesbyi* to Haiti and Gonaives.

Uromacer dorsalis sp. nov.

Diagnosis. — A *Uromacer* with 17–13 scale rows, 205 ventrals, eye three times in snout, and a dark dorsal band.

Type, adult female, M. C. Z., no. 12,867. Gonaives Island, West Indies, August, 1919, collected by G. M. Allen.

Description. — Scales, 17–13; ventrals, 205; anal, divided; caudals, ?; oculars, 1–2; temporals, 1–2; eye contained three times in its distance from tip of snout, rostral higher than wide; labials, eight above, 4 and 5 entering eye; lower labials ten, five in contact with anterior chin shields, which are as long as the posterior; nasal separated from loreal by prefrontal, which reaches labials 2 and 3. The scales of the fourth dorsal row bordered with black on upper posterior edge; scales of first, second and third rows, white anteriorly, darker on posterior part of body; dorsum above scale row four, brown; head and throat blue (green in life?); upper labials white, edged above with dark, which is continuous with the stripe along the fourth scale row; belly light gray anteriorly to dark gray posteriorly, a dark dot on ends of ventrals anteriorly.

The type is the only specimen of this form, but its peculiarities are such that there is no doubt of its specific distinctness. Apparently it is derived from *U. frenatus.*

Uromacer scandax sp. nov.

Diagnosis. — Like *Uromacer catesbyi,* but with 19–11 scale rows and 181 ventrals.

Type, adult female, U. S. N. M., no. 59,438, Tortuga Island, West Indies, May, 1917, collected by W. L. Abbott.

Description. — Scales, 19–11; ventrals, 181; caudals, 162+; oculars, 1–2; temporals, 1–2; eye contained twice in its distance from tip of snout; rostral twice as broad as high; labials eight above, 4 and 5 entering eye; lower labials ten, five in contact with anterior chin shields, which are shorter than the posterior; nasal separated from loreal by prefrontal, which is broadly in contact with second labial. Dark bluish, lighter on sides. A black line through eye; upper labials white. Belly light gray anteriorly, to dark bluish gray posteriorly.

Only the type has been seen. It is evidently allied to *catesbyi.*

On Gonaives we know *dorsalis* and *catesbyi.* The former probably represents the Haitian *frenatus.* One specimen of

catesbyi from Gonaives (M. C. Z., no. 12,869, ♀), I am unable to separate from those from Haiti. Its scale formula is Sc. 17, V. 174, C. ?

I do not know whether *oxyrhynchus* occurs on Gonaives. The similarity in form of *dorsalis* to *oxyrhynchus* might suggest that it takes the place of the latter on that island. On Tortuga *catesbyi* is represented by *scandax*. A specimen of *frenatus* from Tortuga (U. S. N. M., no. 59,920, ♂) has a lower ventral count than the Haitian specimens whose formulae Boulenger gives, *i.e.*, 171 against 182–193. But with only one specimen, and no other differences, I hesitate to separate it. Its formula is V. 171, C. 194, Sc. 17–11.

The Tortuga *oxyrhynchus* is apparently not separable from the Haitian form. Seven specimens (U. S. N. M., nos. 59,923–24, 59,456–60), afford the following figures: ventrals, 196–209 (average, 202.6); caudals, males, 199–213 (average, 205.3); caudals, females, 197–209 (average, 202).

In view of the fact that I have here dealt, however briefly, with the entire genus *Uromacer*, a key to the forms recognized may not be out of place. Also it is of interest to remark that in *catesbyi* the dorsal scale rows in both sexes are 17–11; in *frenatus* males have 17–11, and females 17–13; and in *oxyrhynchus* males have 19–11, and females 19–13. The types of Garman's *V. inornatus* are identical with specimens of *frenatus*. I cannot distinguish any difference between specimens of *oxyrhynchus* from Haiti and from San Domingo.

Snout twice as long as the eye, rostral twice as broad as deep.
- Scales, 17–11, V. 163–176, *catesbyi*
- Scales, 19–11, V. 181, *scandax*

Snout two and a half times as large as eye, rostral as broad as deep.
- Scales, 17–13 or 11, V. 171–193, *frenatus*

Snout three times as long as eye, rostral deeper than broad.
- Scales, 17–13, V. 205, *dorsalis*
- Scales 19–13 or 11, V. 196–210, *oxyrhynchus*

FEBRUARY 19, 1920 VOL. VII, PP. 45–47

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

TWO NEW AMERICAN HAWKS

BY OUTRAM BANGS AND THOMAS EDWARD PENARD

THE subspecies of *Accipiter superciliosus* and of *Elanus leucurus*, here described as new, were first noticed by us while we were identifying the hawks of the Lafresnaye Collection and making comparisons with material in the Museum of Comparative Zoölogy and the collection of Thomas E. Penard.

Later, through the kindness of Dr. Charles W. Richmond, Dr. Frank M. Chapman, and Mr. W. E. Clyde Todd, we borrowed the skins of these two species contained in the United States National Museum, the American Museum of Natural History, and the Carnegie Museum, which gave us, in all, a very fine suite of specimens.

Accipiter superciliosus exitiosus subsp. nov.

Type, M. C. Z., no. 120,776, young adult male; Costa Rica: Carrillo, 13 May, 1907; collected by C. F. Underwood.

Subspecific characters. — Similar to *Accipiter superciliosus superciliosus* (Linné), but slightly smaller, and darker in general coloration. The dusky bands of the under parts, in both sexes, much broader and more distinct, and, in the male, blacker, less grayish. Upper parts blacker, less suffused with dark gray.

MEASUREMENTS OF ADULTS (in millimeters)

Accipiter superciliosus superciliosus

			Wing	Tail	Tarsus	Culmen from cere
83,468[1]	" Cayana " (Lafr. coll. 648)	(♂)[2]	135	95	—	11.0
72,587[1]	Ceara (trade skin)	(♂)	137	90	41.0	11.0
83,470[1]	" Cayenne " (Lafr. coll. 650)	(♀)	159	111	45.0	12.5
83,469[1]	" Cayenne " (Lafr. coll. 649)	(♀)	160	112	45.0	—
68,777[3]	Upper Rocana, Para, Brazil	♀	155	103	43.5	12.0
442[4]	Near Paramaribo, Surinam	(♀)	164	112	47.0	—
44,968[5]	Essequibo River, British Guiana	♀	161	115	44.0	1.20

Accipiter superciliosus exitiosus

			Wing	Tail	Tarsus	Culmen from cere
120,776[1]	Carrillo, Costa Rica (type)	♂	129	86.5	41.0	10.5
13,282[3]	Guapiles, Costa Rica	♂	133	87.5	40.0	11.5
28,099[3]	El Hogar, Costa Rica	♂	133	88.0	40.5	11.0
44,977[5]	Panama (Line of Panama R.R.)	♂	133	89.0	39.0	10.5
117,601[5]	Barbacoas, western Colombia	♂	127	84.0	38.0	10.5
132,975[5]	Puerto Valdiva, Cauca River, Colombia	♂	134	88.0	39.5	11.5
26,731[3]	El Hogar, Costa Rica	♀	148	103.0	43.0	1.20

In addition to the specimens listed above, we have seen two immature birds, one from Panama, and the other from Santa Marta, Colombia, both in the characteristic ferruginous plumage. Judging from the material examined, the range of the new form extends from Costa Rica southward to, and including, Colombia.

Elanus leucurus majusculus subsp. nov.

Type, M. C. Z., no. 100,915, adult ♂; California: San Rafael, 1 December, 1883; C. A. Allen.

Subspecific characters. — Similar to *Elanus leucurus leucurus* (Vieillot) of Paraguay, but larger; wing and tail longer, the tail-feathers relatively wider. Coloration about the same.

[1] Collection of the Museum of Comparative Zoölogy.

[2] The inclusion of a sex mark in parenthesis indicates that the sex has been determined by measurement of the skin, not by dissection.

[3] Collection of the Carnegie Museum.

[4] Collection of T. E. Penard.

[5] Collection of the American Museum of Natural History.

Specimens examined.

Elanus leucurus leucurus, fourteen.—Argentina: Buenos Aires, 1. Chile: Santiago, 2; Chile,[1] 1. Uruguay: Concepcion del Uruguay, 2. Paraguay (Lafr. coll. 414, d'Orbigny), 1. Brazil: Pernambuco, 2. Venezuela: El Trompillo, 2; Merida, 1; Venezuela,[1] 2.

Elanus leucurus majusculus, twenty-five.— California: San Rafael (type locality), 1; Nicasio, 1; Palo Alto, 1; Holden, 1; California,[1] 2. Florida: Osceola Co., 2; Florida,[1] 1. Texas: Corpus Christi, 2; Santa Maria, 1; Brownsville, 4; Cameron Co., 1; Texas,[1] 1. Mexico: Altamira, 2; Mirador (near Vera Cruz), 1; Orizaba, 2; Mexico,[1] 1. British Honduras: Toledo District, 1.

Measurements.

E. l. leucurus, fourteen males and females: wing, 300.8 (290–310); tail, 162.1 (149–177); tarsus, 35.0 (33–37); culmen from cere, 17.7 (16.5–19.5) mm.

E. l. majusculus, twenty-five males and females: wing, 315.9 (300–325); tail, 178.8 (170–188); tarsus, 36.2 (32.0–40.5); culmen from cere, 19.2 (16.5–21.0) mm.

The smallest individuals in the series examined are from the southernmost portions of the range of the species — Concepcion del Uruguay, Buenos Aires, and Pernambuco.

The small southern form ranges from Argentina and Chile, northward to Venezuela; the large northern form from California, Texas, Oklahoma, South Carolina, and Florida, southward through Mexico to British Honduras and Guatemala.

There is thus a wide area in southern Central America and northern South America between the ranges of the two forms as outlined above, where the species apparently does not occur at all.

We suspect that there may be some constant difference in size between the sexes, although the measurements of our specimens do not indicate it. We cannot, however, rely absolutely upon the determinations of sex appearing on the labels, and so we are forced to list the specimens regardless of sex.

[1] The exact locality of these specimens is not stated on the labels.

March 11, 1920 Vol. VII, pp. 49–50

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

A NEW JAY FROM ANTICOSTI ISLAND

BY WINTHROP SPRAGUE BROOKS

Last summer, in company with Professor Theodore Lyman of Harvard University, I made a short collecting trip to Anticosti Island.

Since my return I have prepared a full list of the birds of the Island, but, owing to the congested condition of the Auk and other mediums of publication, this paper cannot appear for at least a year. I therefore have decided to describe in advance the remarkable resident jay of the Island, which differs so entirely in color from either *Perisoreus canadensis canadensis* (Linn.) or *Perisoreus canadensis nigricapillus* Ridg., that I am compelled to regard it as specifically distinct.

In pleasant reminiscence of many delightful days in the field, I take great pleasure in dedicating this new island form to my friend Dr. Thomas Barbour.

Perisoreus barbouri sp. nov.

Type, adult ♂, no. 82,105, Mus. Comp. Zoöl., Ellis Bay, Anticosti Island, Gulf of St. Lawrence, Canada. Collected September 8, 1919, by W. S. Brooks (original no. 1807).

Characters. — Size about as in *P. canadensis nigricapillus* Ridg. of Labrador. In color this jay differs at a glance from *P. canadensis nigricapillus* or *P. canadensis canadensis* in that the upper parts, including lesser wing-coverts and upper tail-coverts, are plain slate-color (instead of mouse gray), the black of crown and occiput slate-black (instead of brownish black), and the under parts deep gray, less brownish or smoky.

MEASUREMENTS (in millimeters)

Original no.	Age and sex	Locality	Wing	Tail	Tarsus	Culmen[1]
1807 (type)	ad. ♂	Ellis Bay	145	147	39	24.0
1808	ad. ♂	"	146	143	38	24.0
1809	ad. ♂	"	141	143	37	24.0
1811	ad. ♂	"	148	149	38	23.5
1777	ad. ♂	"	149	151	38	25.0
1743	ad. ♂	Little River	142	147	37	26.0
1805	ad. ♀	Ellis Bay	138	138	36	24.0
1806	ad. ♀	"	141	141	37	24.0
1810	ad. ♀	"	139	143	36	23.5

[1] Measured from tip of bill to base of forehead.

May 4, 1920 Vol. VII, pp. 51–52

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

A NEW JAY FROM ALBERTA

BY JAMES LEE PETERS

In a recent article[1] P. A. Taverner states that Canada Jays from the region about Red Deer, Alberta, "should probably be referred to *P. c. canadensis*." In the collection of the late William Brewster, now in the Museum of Comparative Zoölogy, were five adults of this species from Red Deer, Alberta, taken between the 4th and 18th of March, 1897. These hardly need comparison to show that they belong to an undescribed race, which I propose to call

Perisoreus canadensis albescens subsp. nov.

Type, no. 247,526, collection of Museum of Comparative Zoölogy, adult male. Red Deer, Alberta, March 18, 1897, collected by G. F. Dippie.

Subspecific characters. — Similar to *P. c. capitalis*, but smaller; paler above, much paler below; lower breast, flanks, and abdomen, pale smoky gray with only a faint drab wash. Similar also to *P. c. canadensis* in size and in the extent of white on the crown, but much paler throughout.

[1] The Birds of the Red Deer River, Alberta, Auk Vol. XXXVI, 1919, 252.

MEASUREMENTS (in millimeters)

M. C. Z. No.	Sex	Wing	Tail	Culmen (from base)
247,524	♂	142.5	146.0	21.5
247,525	♂	142.5	146.5	22.0
247,526 (type)	♂	140.0	140.0	21.5
247,528	♂	146.5	146.5	21.5
247,529	♀	139.5	141.0	21.5

This form is strikingly paler than any of the known races of *Perisoreus canadensis*. The contrast between the white throat and fore neck and the drab lower parts, so noticeable in the other subspecies, is quite lacking.

June 24, 1920 Vol. VII, pp. 53–54

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

A NEW CLAPPER RAIL FROM THE FLORIDA KEYS

BY WINTHROP SPRAGUE BROOKS

Through the interest of Dr. Thomas Barbour I have recently spent some time in Florida collecting natural history specimens for the Museum of Comparative Zoölogy. Among these is a series of three clapper rails from the Florida Keys, which, with two others already in the Museum, reveal color characters sufficient to warrant a subspecific separation. This new race may be known as

Rallus longirostris insularum subsp. nov.

Type, adult male, no. 82,583, M. C. Z., collected at Big Pine Key, Florida, April 20, 1920, by W. S. Brooks. Orig. no. 1951.

Characters. — In size this rail agrees essentially with its nearest relatives, — *coryi*, *cubanus* and *waynei*. Its breast is paler than in *cubanus* or *waynei*, but a trifle more intense than in *coryi*. On the back the brown centers of the feathers are lighter, more olive, and narrower, and the slate-colored

margins are wider and of a bluish cast, giving the back a lighter and more blue appearance than in other members of the genus.

Description. — Feathers of upper parts olive brown with bluish gray margins; rectrices with narrow olive brown centers, shading to neutral color on the margins; wings brown; outer web of first primaries lighter; the upper wing coverts with irregular buff-colored patches; under wing coverts dark brown with narrow white bars; crown and nape darker than back, with very little streaking; sides of the head and neck bluish gray, as on the margins of the back feathers; suborbital spot and supraloral streak white, washed with buff; upper throat white; lower throat and upper breast buff; belly dull white, the sides dark brown barred with white; under tail coverts with spots and bars of black.

MEASUREMENTS (in millimeters)

M. C. Z. no.	Sex	Locality	Date	Wing	Tail	Tarsus	Culmen
82,583 (type)	♂	Big Pine Key, Florida	April 20, 1920	140	63.0	50.5	58.5
82,584	♂	" " "	April 22, 1920	141	56.0	50.0	62.5
82,582	♀	" " "	April 20, 1920	135	56.5	45.5	54.5
38,912	♀	" " "	Dec. 24, 1888	128	53.5	45.5	51.5
38,913	♀	Raccoon Key, "	June, 1889	134	53.0	46.0	56.5

Mr. Paul Bartsch recently has used the name *Rallus longirostris helius* for the clapper rails of this general region. As this name appears to rest on no description, but to be purely a *nomen nudum*, it must be disregarded.

JULY 30, 1920 VOL. VII, PP. 55–59

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

NOTES ON TWO PACIFIC COAST AMBYSTOMIDAE

BY EMMETT REID DUNN

IN the course of work on the *Plethodontidae* certain facts regarding the *Ambystomidae* have come to light, and they are here offered.

I am able to support Van Denburgh's contention (Proc. Cal. Acad. Sci., (4), VI, p. 221) that *Ambystoma tenebrosum* Bd. and Gir. and *Triton ensatus* Eschscholtz (Zool. Atlas, V, p. 6, pl. 22, 1833) are the same species. A skull of *tenebrosum*, compared with the figure in the Zoologisches Atlas, shows a remarkable similarity even in trivial details. The hyoids also are exactly alike. *Chondrotus* Cope (Amer. Nat., 1887, p. 88) is a synonym of *Dicamptodon* Strauch (Mem. Acad. Sci., St. Petersbourg, (7), XV, 4, 1870), as *A. tenebrosum* was the type species of *Chondrotus*.

It would require a great deal more investigation to settle finally the status of the generic relationship of *Ambystoma*, *Dicamptodon*, and *Linguelapsus*. The hyoids of *A. ensatum*, however, differ markedly from those of *A. maculatum*, *A. opacum*, and *A. tigrinum*, all of which are quite alike. The larvae of our eastern species have a fin-fold on the back as far as the head. This is absent in *ensatum* larvae.

Examination of specimens of *Ranodon olympicus* Gaige (Occ. Papers Mus. Zoöl. Univ. Michigan, no. 40, p. 2, 1917), have convinced me that it has very little to do with *Ranodon sibiricus*, and would best stand alone.

RHYACOTRITON gen. nov.

Type: *Ranodon olympicus* Gaige.

Diagnosis. — An Ambystomid salamander with a ring-shaped otoglossal cartilage, no second epibranchial, premaxillas with large nasal processes embracing a fontanelle,no nasals, frontal bordering nares, separate prefrontals and lachrymals, vomerine teeth in two short series; larva with no dorsal fin-fold on body; ypsiloid cartilage aborted; lungs greatly reduced (7 mm. long in a specimen measuring 125 mm.) toes 4 or 5, free. Columella with broad and plate-like expansion, not fused with walls of otic capsule, operculum very small.

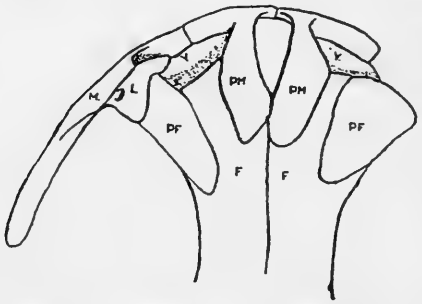

FIGURE 1. Dorsal view of fore part of skull. (Maxilla and lachrymal removed on right side.)
M = Maxilla. PM = Premaxilla. V = Prevomer. L = Lachrymal. PF = Prefrontal. F = Frontal.

Note: Save for the names of the ear bones, I have followed the recommendations of the 'Committee on the Nomenclature of the Cranial Elements in the Permian Tetrapoda.' (Bull. Geol. Soc. Amer., 28, pp. 973–986, 1917.)

All figures are of an adult female of *Rhyacotriton olympicus*, M. C. Z., no. 5880. They are camera drawings enlarged about ten diameters.

Distribution: Olympic Mts., Washington.

Cope proposed to divide the salamanders of this group into two families — one, to include *Ambystoma*, *Linguelapsus* and *Chondrotus* (= *Dicamptodon* Strauch), and the other, *Ranodon*, *Hynobius*, *Salamandrella*, *Batrachuperus* and *Onychodactylus*. The characters were, for the *Ambystomidae*, presence of otoglossal and absence of second epibranchial, and, for the *Hynobi-*

idae, absence of otoglossal and presence of second epibranchial. While I do not see the necessity of dividing this group of salamanders into two families, it is worth noticing that *Rhyacotriton* falls with the genus *Ambystoma* rather than with *Ranodon*.

Another character divides these genera into the same two series. Those of the Asiatic group have very small nasal processes of the premaxillaries which are widely separated on the middorsal line. The American, among them *Rhyacotriton*, have long and broad nasal processes which meet on the median line.

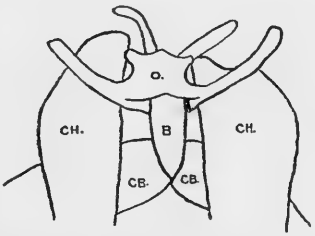

FIGURE 2. Dorsal view of fore part of the hyobranchial apparatus.
O = Otoglossal. B = Basihyal. CH = Ceratohyal. CB = First Ceratobranchial.

The otoglossal cartilage is ring-shaped, but with a broad dorsal expansion of the ring. This is quite unlike any of Cope's figures of hyoids, yet may be derived without difficulty from that of *A. tenebrosum* [*ensatum*] or that of *A. jeffersonianum*. The absence of nasals may be due to arrested development, as this bone appears quite late in the larval life of *A. ensatum*.

The otic capsule is nearly closed by a broad expansion of the columella, which is free all round. The projecting end of the columella has a ligamentous attachment with the squamosal. There is another small ossification anterior and ventral to the plate—like part of the columella, and attached to it. This is probably the operculum. From Reed's recent work (Journ. Morph., 33, 2, pp. 325–387, 1920) on the otic bones of *Caudata* it would appear that for some reason the columella has outstripped the operculum. This Reed postulated to have been the case in *Cryptobranchus*. *Rhyacotriton olympicus* spends much of its time in mountain streams, and unquestion-

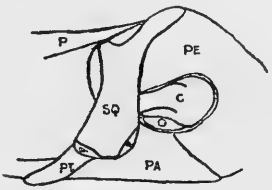

FIGURE 3. Lateral view of the otic region. (Slightly tilted.)
Q = Quadrate. Sq = Squamosal. Pt = Pterygoid. P = Parietal. Pa = Parasphenoid. C = Columella. O = Operculum? Pe = 'Periotic' (= Exoccipital + Paroccipital + Prootic).

ably breeds in them. Therefore the retention of a free columella and the non-development of the operculum is of advantage to the animal. The same thing applies to the entire family *Plethodontidae*, which seems to have had its origin in mountain brooks. Apparently the otic region of the ancestors of the Plethodontidae was further advanced at the period at which they entered the brooks than was that of *Rhyacotriton* (which indeed seems a fairly recent immigrant into that habitat), and hence, the operculum has been retained by that family.

It is interesting to find that, in *Rhyacotriton olympicus*, the lungs and the ypsiloid apparatus are greatly reduced. This reduction, which occurs in the whole family *Plethodontidae*, and in six or eight mountain-brook species of *Salamandridae*, is here found in an isolated member of the *Ambystomidae*, which lives in similar situations.

In connection with this genus I have examined the cranial structure of *Ranodon sibiricus*, *Batrachuperus sinensis*, *Onychodactylus japonicus*, *Ambystoma ensatum*, *A. opacum*, *A. tigrinum*, and *A. maculatum*. Wiedersheim's excellent plates of *Ranodon sibiricus* and *Hynobius naevius*, and his descriptions of *H. nebulosus* and *Salamandrella keyserlingii*, (Kapfskelat der Urodelen, 1877), as well as Okajima's figures of *Onychodactylus japonicus* (Zeitschr. f. wiss. Zool., XCI, 3, pp. 351–381, 1908), have been very useful for comparison. In the Asiatic *Ambystomidae* there are two types of vomerine dentition, a continuous or nearly continuous M-shaped series, and a very discontinuous series consisting of two widely separated patches of teeth. The former exhibit a number of transitions between a condition where the prevomers extend back over the parasphenoids and the tooth series extends further back in the middle than on the sides, and one where the prevomers have no such extension and the tooth row is not prolonged in the middle. These extremes are represented by *Pachypalaminus* and *Onychodactylus*, respectively, and the intermediates by *Salamandrella* and the species of *Hynobius*.

The second type has the prevomer not prolonged over the parasphenoids, and is represented by *Ranodon sibiricus* and

Batrachuperus sinensis. *Ambystoma*, in a broad sense, and *Rhyacotriton*, have similar prevomers, and dentition that varies from that of *Rhyacotriton olympicus* and *Ambystoma ensatum*, both of which rather resemble *Ranodon*, to the different condition observed in *Ambystoma tigrinum*. In this species there is a continuous, nearly straight, row of teeth across the roof of the mouth.

October 18, 1920 Vol. VII, pp. 61–63

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

A NOTE ON XIPHOCERCUS

BY THOMAS BARBOUR

I was greatly interested when my friend Mr. G. K. Noble told me not long ago that the American Museum of Natural History in New York had received from a correspondent in Bogotá some specimens of what has been called *Xiphocercus heterodermus*. In 1909, when in Jamaica, I had observed and collected a number of the *Xiphocercus valenciennesi*, and had often wondered how this would compare with the Colombian species. My doubt as to the monophyletic character of the genus, was completely substantiated when Mr. Noble very kindly allowed the Museum of Comparative Zoölogy to have one of his suite of Bogotá specimens in exchange.

A careful examination at once revealed the fact that the very superficial similarity was doubtless due to these two lizards having arisen through somewhat parallel modifications from undoubtedly very distantly related Anolis-like stocks. The character of the head scales and their arrangement, the contour squamation on the sides of the body, the formation of the digits, and the character of the tail, are quite unlike in the two species. The tail of the Colombian form appears to be somewhat prehensile: it curves in a vertical plane, and its squamation sug-

gests that such may have been the case, for there are no whorls, no enlarged scales to retard curving or coiling. The tail of the Jamaican lizard is very strongly compressed, curves laterally, is fragile, and, as would be expected of a very fragile tail, it is sharply segmented in scalation. It is not capable of use in life, although I seem distinctly to remember its being often carried rather sharply curled, laterally, after the manner of many Anoles, notably *Anolis homolechis* of Cuba.

There is good reason, therefore, for establishing the type from the Bogotá region as a distinct genus, and I propose for it a name which suggests that it has sailed under false colors.

PHENACOSAURUS gen. nov.

Type, *Anolis heterodermus* A. Duméril.

Tympanum distinct. Body compressed, covered with enlarged, slightly imbricating scales, each surrounded by smaller granules. A feebly developed biserial dorso-nuchal crest. Head with large plate-like scales, the peripheral series enlarged and forming a slightly elevated rim. Male with a feebly developed folding dewlap. Digits widely and evenly dilated, their sides parallel, with many smooth transverse lamellae below; the distal phalanx only, slender and compressed. No femoral or preanal pores. Tail one and one-fourth times as long as head and body, very slightly compressed, and apparently prehensile. Lateral teeth tricuspid; pterygoid teeth absent. No sternal fontanelle. Abdominal ribs.

Now, therefore, since Boulenger's diagnosis of the genus *Xiphocercus* was drawn up to include these two unrelated types, it would best be revised to include the unique Jamaican species only.

XIPHOCERCUS Fitzinger

Type, *Anolis valenciennesi* Duméril & Bibron.

Tympanum distinct. Body compressed, covered with small, flat, subequal, plate-like, rounded or polygonal scales, usually not in contact with each other. No dorsal or nuchal crest. Head with large plate-like scales,

no peripheral scales enlarged to form a rim. Male with a feebly developed dewlap. Digits slightly dilated proximally, widely dilated at the second and third phalanges, the distal phalanx being slender and compressed. No femoral or preanal pores. Tail very strongly compressed, not prehensile. Lateral teeth tricuspid, pterygoid teeth present or absent. No sternal fontanelle. Abdominal ribs.

I am unable to find pterygoid teeth in our example of *heterodermus*, while I find that they may or may not be present in *valenciennesi*. They are present in one half-grown individual, and absent in several adults, which I have examined. This is in keeping with the findings in Dr. Boulenger's recent studies of the Lacertidae (Monograph of the Lacertidae, I, 1920), where he points out that these teeth are constantly either present or absent in some species of *Lacerta;* for instance, in *Lacerta vivipara* (*sensu lata*) he speaks of their being "nearly always absent," and in *Lacerta laevis* as being "usually present." In his Catalogue of the Lizards in the British Museum (II, 1885, p. 8), Boulenger stated in his diagnosis of the genus *Xiphocercus* that pterygoid teeth were present. Their presence or absence is probably not of great significance.

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PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

SIXTEEN NEW SPHINGIDAE

BY BENJAMIN PRESTON CLARK

OF the new sphingid forms described in the following pages ten are new species, three are new subspecies, and three are aberrations. Seven of them are from North America, including Mexico; of the others one is from Central America, one from the West Indies, two from South America, two from Africa, one from Madagascar, and two from Polynesia.

The discovery of such a number of Sphingidae in a relatively short time, together with the recent publication by Lord Rothschild and Dr. Karl Jordan of thirteen new forms, make it evident that many more must still await description. South America, Africa and Polynesia appear to offer the most promising fields for research.

It may be proper to state that my collection has now, in the course of eight years, reached a total of a thousand species and subspecies, represented by some 6500 specimens. It is my hope that, in the future, it may be the principal reference collection in the Western Hemisphere, and may serve to demonstrate geographical distribution as well as to aid the classification and determination of species.

It is a pleasure to be able to bear testimony to the kindness and the ability of all those who have given me assistance in my

work. Great as is the pleasure of coming to know, even imperfectly, one tiny spot in nature, the joy of counting as friends all these who have helped me, is far greater. In many walks of life I have found missionaries and priests of different faiths, curators, scientists, business men, army officers and privates, gardeners, teachers, economic botanists, and many more, — all with a common bond in their intense love for science, and their readiness to advance it. More than four hundred such men have collected specimens that are now in my collection. And the collection has its fullest interest as a human document showing the zeal with which men will unselfishly unite for such a cause.

I must express my regret that the present cost prevents these descriptions being accompanied by colored plates.

When one has made errors, his impulse is to correct them, rather than to leave it to others to discover his mistakes. I wish, therefore, before proceeding to describe the new forms, to make the following corrections in my previous papers in these Proceedings.

Protoparce hoffmanni Clark (Vol. VI, p. 58) is simply a dark form of *P. lanuginosa* Edwards.

Protoparce schausi Clark (Vol. VI, p. 101) proves to be *P. lichenea*, Burm. Its correct locality is Iguala, Guerrero, Mexico; also Tuis, Costa Rica.

Perigonia lusca bahamensis Clark (Vol. VI, p. 108) is simply a large and rather strongly marked form of *P. lusca interrupta*, Walker.

Isognathus rimosa australis Clark (Vol. VI, p. 65) is, I believe on further examination, a distinct species, and should therefore stand as *Isognathus australis.*

Sphinx dolli engelhardti Clark (Vol. VI, p. 104) is, as my friend Dr. Karl Jordan has kindly pointed out to me, a subspecies of *S. sequoiae*, Boisd, and should therefore be *S. sequoiae engelhardti.*

Protoparce hannibal mayi Clark (Vol. VI, p. 58) is a good subspecies, showing, in addition to the distinguishing marks pointed out in the above description, a difference in the genitalia. Penis

sheath is blunt at the point, instead of acute as in *P. hannibal.* This form, however, was described from N. Friburgo as *Sphinx hamilcar* Boisduval (1875, Spec. Gen. Lep. Het., p. 79, no. 12), and should be known as *P. hannibal hamilcar* Boisd. The name *mayi* lapses, as a synonym.

In speaking of the type of *Lapara halicarniae* Strecker (Proc. N. E. Z. C., Vol. VI, p. 102), I said "the color, which I believe to be faded, as are many of the specimens in the Strecker collection." My friend Mr. William J. Gerhard, of the Field Museum, called my attention to the fact that the Strecker collection is in as good condition as could be expected of specimens collected so long ago, and that it compares favorably with the other historic collections. This is entirely true, as it has been well cared for.

Protoparce kuschei sp. nov.

Al. ant. long., ♂, 39 mm.; ♀, 46 mm. Al. ant. lat., ♂, 16 mm.; ♀, 19 mm. Marg. ext., ♂, 21 mm.; ♀, 25 mm.

Habitat. — Venodio, Sinaloa, Mexico. Four males and two females in coll. B. Preston Clark, collected by Mr. J. August Kusche, June – August, 1918.

This species is closely allied to *P. dilucida* Edwards. The males are very difficult to distinguish, and I am not sure, after comparing a series of each species, of any certain means of distinction except the genitalia. The tooth of the penis sheath of this species is shorter than that of *P. dilucida*, and blunt instead of sharply acuminate.

The female, while showing the same maculation as *P. dilucida*, is readily distinguishable from it. The fore wing above is more uniform in color, the ground tone of both fore and hind wings above is gray with markings of darker gray and black, differing thus from *P. dilucida*, with its ground tone of brown and sharply contrasting white markings. Fore and hind wings below are gray, as compared with the brown of *P. dilucida.* The sharply marked white area of *P. dilucida*, extending in the female between M2 and the inner margin from the sub-basal portion of the wing more than halfway to the hinder angle, is in this species entirely lacking.

Chlaenogramma corumbensis sp. nov.

Al. ant. long., ♀, 56 mm. Al. ant. lat., ♀, 23 mm. Marg. ext., ♀, 30 mm.

Habitat. — Corumba, Matto Grosso, western Brazil. One female in coll. B. Preston Clark, received from Dr. O. Staudinger and A. Bang-Haas.

The largest of the known Chlaenogrammas, and a beautiful form.

Palpi white at base, with dark brown inner margin; dark brown at tips, irrorated with white. Antennae white above, brown below. Wing fringes brown at the veins, white between them. Head, thorax and abdomen above, gray. Collar dark brown, lightly bordered with yellow anteriorly, and tipped with white posteriorly. Two dark brown median spots at base of abdomen above. Legs brown, irrorated with white, especially at the joints. Abdomen below white, with four prominent median dark spots; dark brown side patches, bordered with white, on every segment.

Fore wing above: White irrorated with brown, the resultant color being gray. Two dark brown spots on costal margin, 6 mm. and 12 mm. distant from the base. A dark brown geminate antemedian line runs irregularly from the costal margin, at a point one third the distance from base to wing tip, to the inner margin, which it reaches at a point one third the distance from base to hinder angle. This geminate line is heavier costally as it approaches the margin. An obscure white stigma at apex of the cell. Two brown postmedian parallel lines, distant from one another 3 mm., enclose between them a darker area, making an irregular band extending from a point slightly more than half-way from the base to the wing apex, to the inner margin, which it reaches two thirds the distance from the base to the hinder angle. Across this band the two dark streaks, so characteristic of allied forms, extend between R2 and M1, and between M1 and M2, and parallel to them, the first being 10 mm. in length, the second 13 mm. A series of sagittate marks between the veins makes a third irregular band, extending from a point 13 mm. from the wing apex to the inner margin, which it reaches close to the hinder angle. An apical line runs heavily and irregularly to this third band, reaching it between SC5 and R1.

Hind wing above: Basal third dirty white, with dark basal spot, bordered posteriorly by a narrow, brown, lunulate band; the rest of wing gray, with a broad, brown, irregular, submarginal band extending from inner margin to anal angle, and narrowing posteriorly. In the gray postmedian area is a brown line at anal angle, extending obliquely into the wing.

Fore wing below: Basal half dark brown, with lighter area along costal and inner margins; apical area gray; the line of separation between these two areas sharply marked. A faint brown line extends parallel to the line of separation, and 3 mm. distant from it.

Hind wing below: Basal area dirty white. Antemedian band similar in color to that on upper side of the wing. A faint postmedian line runs parallel to it and 3 mm. distant. Submarginal band follows the line of the upper side of the wing, but is fainter.

Sphinx gordius borealis subsp. nov.

Al. ant. long., ♂, 40 mm.; ♀, 43 mm. Al. ant. lat., ♂, 15 mm.; ♀, 16 mm. Marg. ext., ♂, 23 mm., ♀, 24 mm.

Habitat. — Gull Lake, Muskoka, Ontario. One male and one female in coll. B. Preston Clark. Also one male from each of the following localities: Winnipeg, Manitoba; Murray Bay, Quebec; Mount Desert, Maine.

This evidently is a northern form of *S. gordius*, and it is sufficiently strongly marked to deserve subspecific recognition. The genitalia follow closely those of *S. gordius*, but the harpe of this form is straighter-edged on one side. That of *S. gordius* curves evenly to the apex from both sides. In general, *borealis* is markedly darker, both above and beneath, than *gordius*. It is gray where *gordius* is brown. The cilia of the fore wing are more prominently white between the veins, and in the hind wing they are more brightly and uniformly white than in the typical form.

Poliodes senegalensis sp. nov.

Al. ant. long., ♂, 25 mm.; ♀, 23 mm. Al. ant. lat., ♂, 9.5 mm.; ♀, 10 mm. Marg. ext., ♂, 12 mm.; ♀, 11.5 mm.

Habitat. — Kaolack, Senegal. One male and one female (type) in coll. B. Preston Clark, received from Mr. H. Bureau, Paris, France.

Antennae gray above, brown beneath. Head, thorax, and abdomen above, light gray. Breast and abdomen beneath, brown. Mesothoracic tegulæ paler. Dark brown band at base of abdomen above. Lighter in coloration and more distinctly marked than *P. roseicornis*.

Fore wing above: Light gray. An S-shaped line extends from a point on costal margin, 6 mm. from the apex, curving first distally, strengthening, and curving costally, reaching the inner margin 5 mm. from the wing base, and extending slightly along the margin. A lighter-colored, wavy, faint line, 1 mm. posterior to this one on the costal margin, runs roughly parallel to it to the inner margin. Posterior to the first S-shaped line is a dark brown, roughly triangular area, extending nearly to the hinder angle of the inner margin, and with its apex on R3. Within this area is a light-colored line, 3 mm. in length, extending apically and obliquely from a point midway on the inner margin. Between the second postmedian line and the distal margin is a third line, sharply marked, irregularly angled, extending from a point 4 mm. from the apex toward the hinder angle, which it almost

reaches. On the veins R1, R2, R3, and M1, and between this line and the distal margin, are four dark brown dots. A dark brown, apical, triangular area between SC4 and SC5 extends 3 mm. costally. Within it, distally, is a lighter, semicircular, marginal area. A dark brown stigma at apex of cell. A dark basal L-shaped mark, with its base at right angles to the costal margin, is very evident in the female, and less so in the male. A narrow, dark, angled, sub-basal line extends from a point 4 mm. from the base on the costal margin to the inner margin. The distal margin of the wing is wavy, produced at R2.

Hind wing above: Smoky gray. Extending from the anal angle submarginally is a dark, sharply marked line to M1. Basad of it, on SM2 and M2, are dark dots. Between these two veins, one third the distance to the wing base, is a dark dash 1 mm. in length. Between the submarginal line and the distal margin is another dark, but less prominent, line. These two submarginal lines extend faintly toward the inner margin, with dark dots on the veins.

Fore wing below: Wood-brown. Lighter along costal margin. A line, from a point on costal margin 7 mm. from the apex, convex distally to the inner margin, which it reaches at its median point. A dark, angled, submedian line duplicates that on the upper side from SC5 to the hinder angle. Distal to this line is a lighter area. Cilia dark at the veins.

Hind wing below: Light brown, similar to marginal area of fore wing. A dark, discal, curved line extends from a point on the inner margin to the anal margin. It first curves sharply distally to R3, basad to M2, and finally basad to anal margin. A dark, angled, postdiscal line extends, roughly parallel to the distal margin, from inner to anal margin. Between it and the margin at the anal angle is a dark area.

Isognathus allamandae sp. nov.

Al. ant. long., ♂, 30 mm.; ♀, 35 mm. Al. ant. lat., ♂, 9 mm.; ♀, 12 mm. Marg. ext., ♂, 14 mm.; ♀, 17 mm.

Habitat. — Pernambuco, Brazil. Four males and four females in coll. B. Preston Clark, taken in March by my friend Rev. A. Miles Moss, and named at his suggestion after the food plant. One male also in coll. B. Preston Clark, taken by Mr. T. T. Dyar in February, 1919, at Para, Brazil.

Closely allied to *Isognathus australis* Clark, but a narrower-winged insect.

Fore wing above: Gray, with darker markings, and lightly shaded with white. More uniform in color than in *I. australis*. The black streak, R3–M1, is 6 mm. in length; a second black streak, M1–M2, is 4 mm. in length; both are heavier than in *I. australis*, and are absent in the female. Distal margin dentate, convex, and obtusely angled at R3.

The evenly curved white line, SC2–R1, of *I. australis* is absent, being replaced by a straighter, geminate gray line, which takes the same course

but is angled at R3. Veins SC1–M1, inclusive, proximal to this line, are less sharply white with dark dots than in *I. australis.*

Hind wing above: Marginal band narrower than in *I. australis:* 3 mm. wide at anal angle, 4 mm. at inner angle.

Fore wing beneath: Brown, unicolorous. Yellow band along inner margin more extended than in *I. australis.*

Hind wing beneath: Yellow basal area more extended than in *I. australis,* extending obscurely to SC2. Dark marginal border narrow, only 1 mm. wide at hinder angle, as compared with a width of 4 mm. in *I. australis.*

Hemeroplanes ramsdeni sp. nov.

Al. ant. long., ♂, 29 mm.; ♀, 30 mm. Al. ant. lat., ♂, 11 mm.; ♀, 11.5 mm. Marg. ext., ♂, 15 mm.; ♀, 15.5 mm.

Habitat. — Guantanamo, Cuba. One male and one female (type) in coll. B. Preston Clark, given to me by my friend Mr. Charles T. Ramsden, who has males and females in his collection.

Closely related to *H. parce* Fabr., which it resembles in its maculation. It is a smaller insect; the tip of the fore wing is blunter and less acuminate.

Mesothoracic tegulae prominent, light brown, with a dark brown border mesially and sharply tipped with white posteriorly. Abdomen above with a heavy dark brown median line fading away anally.

Fore wing above: The patch of lunules on the costal margin so prominent in *H. parce* and in *H. inuus,* is in this species reduced to a smaller light brown area with traces of lunules. The silvery marking is shaped like a thin leg, from the knee down, with the foot on R3. A broad dark brown line extends costally from a point on the inner margin slightly more than half-way from the base to the hinder angle, terminating on M1.

Hind wing above: Somewhat redder than in *H. parce.* The heavy line at the anal angle is more sharply marked, and stands out prominently.

Fore and hind wings below: These are like *H. inuus,* but are lighter in color, and the markings are less conspicuous, being obscure and scattered.

Ampeloeca versicolor ab. **lutescens** ab. nov.

Al. ant. long., ♂, 30 mm. Al. ant. lat., ♂, 11 mm. Marg. ext., ♂, 15 mm.

Habitat. — Long Island, New York. One male received from Dr. H. Meeske.

The distinguishing mark of this aberration is the color of the hind wing above, in which the reddish brown of the typical *versicolor* is replaced by pale yellow. The fore wing above also shows a tendency to yellow.

Ampeloeca myron texana subsp. nov.

Al. ant. long., ♂, 29 mm.; ♀, 32 mm. Al. ant. lat., ♂, 11 mm.; ♀, 14 mm. Marg. ext., ♂, 15 mm.; ♀, 16 mm.

Habitat. — A male (type) from Shovel Mountain, Texas, and a male and a female from Jemez Springs, New Mexico, in coll. B. Preston Clark. The male from Texas was received from Dr. William Barnes, and the male and female from New Mexico, from Mr. J. Woodgate.

This form clearly belongs territorially to that group of Sphingidae referred to by the writer (Proc. N. E. Zoöl. Club, Vol. VI, p. 68) as occurring along the Gulf States of the United States, and west into Texas and New Mexico, but in this species the western form has departed sharply from *A. myron* f. *cnotus* Hubner, of Florida.

It is much lighter in color than either the typical *myron* or forma *cnotus*, following in this respect *C. myops occidentalis* Clark. It is also a somewhat larger insect. The ground tone of the fore wing and hind wing, above and below, is light brown. The darker markings of the fore wing above and below, and of the hind wing below, are a slightly deeper brown. The contrast between the light and dark areas of the fore wing above and below, and of the hind wing below, is much less than in typical *myron*, this being especially marked in the male.

Ampeloeca myron ab. **lutescens** ab. nov.

Al. ant. long., ♂, 23 mm. Al. ant. lat., ♂, 10 mm. Marg. ext., ♂, 12 mm.

Habitat. — New York State. One male in coll. B. Preston Clark, received from Mr. Jacob Doll.

The ground tone of the fore wing above is yellowish; that of the fore wing below is lemon-yellow. The hind wing above is clear lemon-yellow, save for a slight darkening at the anal angle. In other respects it follows the normal *myron* found in the same locality.

Panacra splendens salomonis subsp. nov.

Al. ant. long., ♀, 29 mm. Al. ant. lat., ♀, 12.5 mm. Marg. ext., ♀, 16 mm.

Habitat. — Solomon Islands. One female in coll. B. Preston Clark, received from Dr. W. M. Mann.

Differs sharply from the western form. Occiput and mesothorax gray, contrasting sharply with the dark brown mesothoracic tegulae, which shade red posteriorly.

Fore wing above: Semi-transparent discal spot SC5–R1 and smaller whitish spot are both narrower and less conspicuous than in *P. splendens.* Entire wing darker.

Hind wing above: Ochraceous rufous band narrow, becoming obscure at R3.

Fore wing below: Darker in tone than in *P. splendens.* The marginal ochraceous rufous area, which in *P. splendens* extends from the outer half of the inner margin toward the wing apex, narrowing anteriorly, is in this form replaced by a much more restricted area, extending from the median point of the inner margin half-way to the hinder angle, and ending abruptly between R2 and R3. The light spots corresponding to those on the upper side of the wing are smaller and less conspicuous.

Hind wing below: Darker in tone then in *P. splendens.* The band is reduced in area to correspond with that on the upper side of the wing.

Amphion nessus f. aest. floridensis subsp. nov.

Al. ant. long., ♂, 23 mm.; ♀, 24 mm. Al. ant. lat., ♂, 8.5 mm.; ♀, 9 mm. Marg. ext., ♂, 11.5 mm.; ♀, 12 mm.

Habitat. — Parish, Florida. Two males and one female in coll. B. Preston Clark; taken in September, 1918; received from Mr. William Reff.

A darker form than the typical *A. nessus.* The fore wing above lacks the yellow dusting, and the ground tone is so much darker as to lessen materially the contrast between the light and dark areas. This gives the impression of greater uniformity of coloration. The median band of the hind wing above is restricted in area, and is obscure. The ground tone of both the fore wing and the hind wing below is darker in tint, thus causing less contrast between the lighter basal and median areas, and the darker marginal portion.

This form evidently is the summer brood.

Temnora hollandi sp. nov.

Al. ant. long., ♂, 27 mm. Al. ant. lat., ♂, 11 mm. Marg. ext., ♂, 15 mm.

Habitat. — Efulan, Cameroons. One male in coll. B. Preston Clark, collected by Dr. H. L. Weber, and received in exchange from my friend Dr. William J. Holland of the Carnegie Museum.

This is perhaps the most beautiful of the known Temnoras, with variegated and strongly marked coloration. It is allied to *T. wallastoni.*

Antennae brown. Eye lashed. Palpus brown irrorated with blue, shading to tawny red on second and third segments. Dark brown along the eye. Head, thorax, and abdomen above, tawny red. Mesothoracic tegulae tipped with blue. Breast, legs, and abdomen beneath, rich red. Side tufts white. Two black spots on each segment beneath; border of each segment beneath tipped with bluish white. Cilia of both wings above and beneath yellow.

Fore wing above: In general shape like *T. wallastoni.* Distal margin blunt, SC4–SC5; concave from SC5 to R2; then concave between every vein from R2 to the hinder angle, which is bluntly produced. A dark triangular area 5 mm. in width on costal margin, and slightly apical of its median point, narrows to a blunt point on R3, whence it extends as a broad line to the distal margin, reaching it at M1. Basad of this line the general color of the wing is light olive green, crossed with darker markings.

A heavy and a light line, both brown, cross the wing sub-basally. A brown antemedian line extends from a point on the inner margin 6 mm. from the base to the costal margin, which it reaches 7 mm. from the base. It curves basad during its entire length. Posterior to this line, parallel to it, and 2 mm. distant, is a second one. These two lines are connected by a heavy brown line, M2–SM2, and costally of this heavy line there runs midway between the two parallel lines a third one. There is light blue scaling at the base of the wing, and between SM2 and the inner margin, also at the hinder angle. Two irregular, brown, postmedian lines, 1 mm. distant from each other, extend from a point midway on the inner margin to the dark brown costal triangular area, diverging as they go. The basal one reaches the triangle at the median point of its basal side, and the posterior one at its apex on R3. These two lines have between them and the hinder angle a dark area, narrowing and vanishing at M1. Apical of the dark costal triangle is a light blue area, extending 4 mm. apically on the costal margin, narrowing to R3, and including within it two dark lines. Apical of this area the wing apex is dark brown to R1, and heavily irrorated with light blue R1–R3.

Hind wing above: Unicolorous, dark brown. From M2 to SM2 is a light brown, marginal, semicircular patch, irrorated anally with light blue.

Fore wing below: Black from base more than half-way to the distal margin, then warm red. A light-colored stigma at apex of cell. A median and two postmedian lines extend from the costal to the inner margin. The median one is 10 mm., and the outer of the postmedian ones is 5 mm., distant from the apex on the costal margin. The wing is shaded darker on the distal margin.

Hind wing below: Warm red, unicolorous. No markings except a light-colored stigma at the apex of the cell and three lines similar to those on the fore wing.

Macroglossum tenimberi sp. nov.

Al. ant. long., ♀, 24 mm. Al. ant. lat., ♀, 9.5 mm. Marg. ext., ♀, 14 mm.

Habitat.—Tenimber Islands, Dutch East Indies. One female in coll. B. Preston Clark, received from Mr. Donckier de Donceel, Paris.

This form is allied to *M. phocinum* and *M. buruensis*, being closest to the latter, which it simulates in color.

Head and thorax deep olive. Abdomen above blackish olive, third and fourth segments lighter in color, and each with a pair of black basal spots. No yellow side patches. Side tufts white; last two large. Second and third abdominal tergites tipped with white, forming two narrow belts, the anterior one more prominent. Palpi and breast dirty gray, rest of abdomen below brown.

Fore wing above: But one distinct band, antemedian, narrowing costally; second antemedian, and first and second discal lines, faint; two subapical patches, SC4–R1, faint. Hind wing above unicolorous. Both wings below brown, with no white at the base. Marginal band of each wing lighter in color. Fore wing reddish along the inner margin from the base two thirds of the distance to the hinder angle.

Xylophanes mulleri sp. nov.

Al. ant. long., ♂, 32 mm. Al. ant. lat., ♂, 11.5 mm. Marg. ext., ♂, 18 mm.

Habitat. — Misantha, Mexico. One male in coll. B. Preston Clark, taken in May, 1914, given me by my friend, Mr. Roberto Muller.

A form allied to *X. eumedon*, *X. resta*, and *X. tersa*.

Palpi red, shading to green on second segment, third segment gray. Antennae brown. Head, thorax, and abdomen above, olive brown. Fringe of mesothoracic tegulae pink. A red line on each side of mesothorax. Thorax below orange. Legs and abdomen below pink, with a darker pink side stripe.

Fore wing above: A dark brown curved postmedian line extends from the wing apex to the inner margin, which it reaches at a point 7 mm. from the base. This line is bordered basad by a lighter line, which extends along the inner margin to the base of the wing. This line diverges slowly from the distal margin, being only 5 mm. distant from it at M1. The entire wing area basad of this line is olive brown, except that the cell and an area between M2 and SM2 are dark pink. Posterior to this postmedian line is another narrower one, parallel to it, from the wing apex to the inner margin. Two narrow submarginal lines, distant 1 mm. and 2 mm. from the distal margin, extend from the wing tip to the hinder angle.

Hind wing above: In coloration and in maculation in all respects like that of *X. eumedon*, except that the light submarginal band extends qiute to the anal angle, and the dark marginal band is narrower. The peculiar reddish tinge of the light band of *X. eumedon* extends farther posteriorly, almost to the anal angle.

Fore wing below: Distal marginal band dull pink, narrowing sharply between R2 and R3. Dark vein dots basad of this band extend regularly from costal margin to inner margin. Basad of the marginal band is a yellow area irrorated with dark dots. Basal area olive, shading posteriorly to pink, with an ill-defined dark shade extending from the costal margin, at a point 7 mm. distant from the apex, obliquely in the direction of the inner margin, which it does not reach.

Hind wing below: Very close to *X. tersa* in maculation: lines, dots and margin. But the ground tone of the entire basal area of the wing is light pink, the marginal band is dull pink, and the median area a lighter yellow than in *X. tersa*.

Xylophanes josephinae sp. nov.

Al. ant. long., ♂, 40 mm. Al. ant. lat., ♂, 14 mm. Marg. ext., ♂, 21 mm.

Habitat. — Cayuga, Guatemala. One male in coll. B. Preston Clark, given me by my friend Mr. William Schaus, who collected it in July, named after my wife.

This form is so closely similar in its general coloration to *X. damocrita* that it might easily be mistaken for it. It is, however, very distinct.

It is a longer-winged insect. The length of the fore wing, 40 mm., surpasses, by fully 5 mm., that of any specimen of *X. damocrita* which has been measured, while in breadth of fore wing and in marginal extent it exceeds *X. damocrita* by but 1 mm.

The lines of the fore wing are much straighter than in *X. damocrita*.

Fore wing above: The postdiscal cloud near the apex of the cell is faint. Line 1 starts at a point on the inner margin 5 mm. distant from the base of the wing, is the heaviest line on the wing, and runs almost straight in gen-

eral direction, curving slightly costad, but with slight irregularities, to SC5, reaching it at a point 10 mm. from the distal margin, where it fades away. Lines 2, 3, 4, are light, and run from points slightly distant from the inner margin, parallel to each other, nearly to the costal margin. They curve slightly costad, and diverge from line 1 anteriorly. Line 5 is broader than 2, 3, 4, and runs from a point midway on the inner margin to the wing tip, curving distally as it approaches that point. Line 6 is faint, and runs from a point on the inner margin, midway between line 5 and the hinder angle, to the wing tip, curving toward line 5 as it approaches that point. Lines 7 and 8 run submarginally from the inner margin to the tip of the wing. There is less contrast in color than in *X. damocrita.*

Hind wing above: The submarginal band diverges somewhat more from the distal margin anteriorly than in *X. damocrita.*

Fore wing below: The black vein dots are less prominent than in *X. damocrita.*

Hind wing below: The median bands are less pronounced than in *X. damocrita.*

The genitalia show no marked differences from *X. damocrita,* but the claspers are somewhat more blunt at the tips.

Basiothea medea ab. **nigrita** ab. nov.

Al. ant. long., ♂, 21 mm.; ♀, 20 mm. Al. ant. lat., ♂, 9 mm.; ♀, 8.5 mm. Marg. ext., ♂, 11.5 mm., ♀, 11 mm.

Habitat. — Tananarivo, Madagascar. One male and two females in coll. B. Preston Clark, received from Professor C. Lamberton.

The marked characteristic of this aberrant form is the color of the hind wing above. In normal *medea* the entire hind wing is yellow, except the dark marginal band, from which it is sharply separated. In this aberration the wing is warm reddish brown, shading gradually into the dark marginal band, but with no sharp line of demarcation. There is in addition a melanic tendency throughout the entire insect.

Epistor latipennis R. & J.

Epistor lugubris latipennis R. & J. has been considered as the Jamaican subspecies of *E. lugubris lugubris* Linne. At Mandeville, Jamaica, during December, 1919, and January, 1920, Mr. F. E. Watson took both the broad- and the narrow-winged form. Examination of the genitalia shows the tooth of the left clasper to be shorter in this form. On the fore wing R2 is more projected. The two forms occur in one locality. It seems therefore proper to consider the Jamaican form as a distinct species, to be called *Epistor latipennis* (R. & J.).

May 6, 1921 Vol. VII, pp. 79–80

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

A NEW LIZARD FROM GUAYMAS, MEXICO

BY THOMAS BARBOUR

In the years from 1906 to 1908 the well-known zoölogical collector, Mr. Wilmot W. Brown, made an extended journey in Lower California, during which he preserved a fair representation of reptiles. These were sent in 1912 to Miss Dickerson of the American Museum of Natural History, at her request, for study, and they recently have been returned to the Museum of Comparative Zoölogy. As it now seems improbable that Miss Dickerson will publish a report upon the material, I have no hesitation in describing this new species, which Mr. Brown took *en route* to Lower California, and which I previously had noted as represented by other material in our collection.

Holbrookia thermophila sp. nov.

Type, ♂, no. 14,281, M. C. Z., from San José de Guaymas, Sonora, Mexico, collected in the spring of 1908 by W. W. Brown, and presented to the Museum of Comparative Zoölogy by John E. Thayer, Esq.

Paratypes: ten adults from San José de Guaymas, collected by Brown with the type, and two very large specimens, now somewhat faded, collected at Guaymas by Captain E. P. Stone in 1859 (M. C. Z., no. 640).

Diagnosis. — Size large; habit stout; tail cylindrical, longer than head and body; many frontal scales, all large, equal to the supraoculars, or even larger, and not separated from them by many much smaller scales as in *Holbrookia propinqua.* No black spots under tail; sides with oblique black spots.

Description of the type. — Head moderately large, somewhat depressed; nostril moderately large, directed upward and outward; head scales rather large and smooth; on the frontal region a triangular area covered with large irregularly squarish scales which are separated from the supraoculars, of similar or slightly smaller size, by a number of still very slightly smaller scales — thus the head scales are not sharply differentiated on snout, forehead or above the eyes; occipital large, roundish; a long infraorbital; six or seven very oblique, narrow supralabials; dorsal scales small, irregularly hexagonal, some distinctly keeled; edge of gular fold somewhat denticulated; limbs moderately long, the appressed hind limb reaching the tip of the snout; foot as long as distance from axilla to groin; fourteen femoral pores; male with enlarged postanal scales; tail cylindrical, much longer than head and body.

Color. — Brown above with tiny white flecks; a double dorsal series of darker blotches; lower surfaces white; two large oblique blue-black lateral spots; tail above light brown with transverse chevron-shaped markings, beneath white.

Total length, 132 mm.; head, 15 mm.; width of head, 9.5 mm.; body, 56 mm.; fore limb, 26 mm.; hind limb, 47 mm.; tail, 76 mm.

This species obviously is related to *Holbrookia propinqua* B. & G., but differs from it conspicuously in color and in the arrangement of the head scales. In the latter character the two are so unlike as to make it very improbable that we are dealing with a geographic race or subspecies, rather than a full species.

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PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

SOME REPTILES FROM OLD PROVIDENCE ISLAND

BY THOMAS BARBOUR

Not long since, my friend Mr. E. R. Dunn chanced upon a jar of reptiles from Old Providence Island, which had been preserved for some time in the United States National Museum. At Mr. Dunn's suggestion Dr. Stejneger with characteristic generosity sent them to me for examination, as I have long been interested in the fauna of Carribaean Islands.

Subsequent search for additional specimens from the same island revealed the fact that there were two specimens of *Aristelliger* (U. S. N. M., no. 13,878), an example of *Micrurus nigrocinctus* (Girard) (U. S. N. M., no. 1371) and four frogs, apparently a large *Leptodactylus* (U. S. N. M., no. 13,873 (2)) which also had been catalogued in the National Museum years ago but had not been studied. These were forwarded to me in Cambridge; but very unfortunately they disappeared in transit, having been sent by ordinary post, uninsured and not registered!

Old Providence, or Providencia la Vieja, as it is often called, lies, a single small island about four and one-half miles long, on a submarine bank of much larger size. As with Saint Andrew (San Andrés) and the other islets near at hand, this one also belongs to Colombia. It is situated in Latitude 13° 22′, one hundred and twenty miles from the nearest point of the Mosquito coast, and on the north side there is a little village, called

Isabel, with an anchorage. The island supports a small population engaged very largely in turtling, and it is visited by schooners from Key West several times a year. These little vessels go to the island for cargoes of green turtles which are then kept in the Key West 'crawls,' whence they are shipped North or are slaughtered for the cannery.

Old Providence was visited in 1884 (April 4–9) by the U. S. Fisheries steamer Albatross, and the naturalists aboard made the small collection here recorded.

Iguanidae

Ctenosaura sp.

A single young *Ctenosaura* was obtained, which certainly is closely related to *C. completa* Bocourt. It is, however, not improbably distinct and undescribed. The genus *Ctenosaura*, however, is in a quite chaotic condition, but it cannot be revised to meet the modern requirements of the discriminating systematist until the types of the early authors can be examined; and in this case the types are widely scattered in various European Museums.

Teiidae

Cnemidophorus lemniscatus (Daudin)

A single example agrees well with examples from Curaçoa and from Margarita Island, and with others from the Spanish Main.

Cnemidophorus espeuti (Boulenger)

Three typical specimens apparently offer the second occasion for this name to appear in the literature. Boulenger's type was a single specimen, a female, from this same island (Cat. Liz. B. M., 2, 1885, p. 362). The species has not been found elsewhere. One of these specimens is now in the Museum of Comparative Zoölogy.

Ameiva panchlora sp. nov.

Type, no. 13,879 A, U. S. N. M., from Old Providence Island, Colombia, Albatross expedition of 1884. Two paratypes, catalogued under the same number, one of which is now in the Museum of Comparative Zoölogy.

Rostral forming a little less than a right angle behind; nostril between the two nasals; anterior pair of nasals broadly in contact; frontonasal a very little longer than wide, in contact with the loreal; praefrontals broadly in contact; frontal broadly in contact with the first two supraoculars; and just in slight contact with the third; one pair of frontoparietals; five occipitals, the second and fourth of the row reaching slightly anterior and the first and fifth the smallest; six or seven superciliaries, the first very much the largest; four supraoculars, the first separated from the loreal, one row of granules separating the three posterior supraoculars from the superciliaries and three rows of granules separating the fourth and half of the third supraocular from the mesial head scales; seven upper labials; five large lower labials; between infralabials and chin shields a row of granules extends from behind forward to about the anterior third of the third lower labial; chin and throat covered with very small almost uniform granules except those over a wide zone extending across the middle of the throat, and these granules are slightly enlarged; a number of enlarged rows of scales between the two throat folds, the median two or three rows largest; under side of the body with twelve transverse rows (the outer row on each side reduced in size), and with thirty-two rows of transverse scales; preanal plates in a triangle of about seven enlarged scales; on the lower arm three rows of antebrachials, the outer vastly the widest; on the upper arm a single, median, much enlarged row, well separated from the antebrachials, and flanked by a much smaller row on each side; a group of small postbrachials near the elbow; under side of thigh with about five rows of scales distally, and up to about fifteen proximally; about eighteen femoral pores (17–19) on the under side of the tibia four, proximally five, rows of scales; the outer toes reaching to the same point; tail covered with straight keeled scales; about forty-six scales on the fifteenth annulus from base.

Coloration. — Dorsal surface light olive green, three indistinct rows of dark blotches, the median row tending to double and anastomose with the lateral series; upper surfaces of legs and arms with indistinct wavy darker markings; sometimes some indistinct light lateral spots, very irregularly distributed. Under surface very dark, especially in adult males.

The three specimens before me are very similar in coloration and in pattern. The coloration may be misleading, but the pattern is a very valuable taxonomic factor in *Ameiva*. There is some variation in squamation, and in the largest example the

scales of the postfrontal region are curiously broken up and mosaic-like without any evidence of injury.

If it were a mainland form I should hesitate to describe this species as more than a race of *Ameiva ameiva;* but I incline always to denominate isolated island forms as full species even though as yet they may not be very sharply differentiated.

This form can be readily distinguished from *Ameiva ameiva praesignis,* the local race of Central America, by its totally different pattern and color, and also by the different arrangement of the brachial scales. The scales of upper and lower forearm in the race of *Ameiva ameiva* are larger, and they are continuous, while in this new species the series on the two portions of the arm are well separated by granules.

There is a large male and there are two females in the series; one of the latter was chosen to be the type, since the male had abnormal parietals.

In 1878 Bocourt (Ann. Sci. Nat. (6) 7, art. 16, p. 1) described what he called *Eumeces* (*Riopa*) *Fischeri* from Puerto Cabello, Venezuela. Later, in 1880 (Miss. Sci. Mex., Livr. 7, 1880, p. 416, pl. 22 F (1881) fig. 1) he definitely changed the name to *Riopa Fischerii* and showed that his concept of the genus was really not very different from our own. In the Zoölogical Record for 1878 and 1880 both of the references mentioned above are cited. In the later reference, in the Record, the name stands without comment as *Riopa fischeri.* I cannot find that the species was subsequently mentioned in the literature until 1887, when the third volume of the Catalogue of Lizards by Boulenger appeared, and here we find *Riopa fischeri,* unceremoniously relegated to the synonymy of Gray's *Riopa albopunctata,* which, with its fellows, Boulenger merges into his *omnium gatherum* called *Lygosoma.* The two descriptions given by Bocourt indicate at once a distinct type of coloration; although, as often happens, the rather few scale characters which he gives agree singularly with the, beyond doubt, wholly unrelated Indian species. So the form has rested in oblivion until now I find in this Old Providence collection four scincs which seemed to me at first sight almost

better placed in *Riopa* than elsewhere. Bocourt had before him apparently a distinct species of what we have been calling *Mabuya*, a genus which, to my way of thinking, is perhaps more closely related to some of the sections of Boulenger's *Lygosoma* than these are to each other.

Mabuya pergravis sp. nov.

Type, no. 13,875 A, U. S. National Museum, collected April, 1884, by the Albatross Expedition of 1884. Of three almost identical paratypes, one is now in the Museum of Comparative Zoölogy.

Body moderately elongate, limbs pentadactyl, well developed; the distance between the end of the snout and the fore limb is contained one and three-fourths times in the distance from axilla to groin; snout long, flat, but rounded at the tip; supranasals present and in contact behind the rostral; frontonasal much broader than long, narrowly in contact with the frontal; praefrontals large; frontal shorter than the frontoparietal, and interparietal in contact with one supraocular only; three supraoculars (four in one paratype); six superciliaries, second largest; frontoparietal single (or double); parietals forming a suture behind the interparietal; one pair of enlarged nuchals; five upper labials anterior to the elongate suboc-ular; ear opening medium-sized, round, with no lobules; thirty-four scales around the body; twelve dorsals equal the distance from the tip of the snout to the posterior border of the parietals; the scales are perfectly smooth or very faintly tricarinate; marginal preanals scarcely enlarged; the fore limb pressed forward reaches the ear; the fourth toe is longer than the third; seventeen unicarinate lamellae under fourth toe; tail rather slender, somewhat longer than head and body.

Coloration. — Rich brown above with scattered black dots, belly lighter, no sharply defined lateral demarcation; an ill-defined dark band for a short distance behind the eye.

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PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

A NEW BORNEAN LIZARD

BY THOMAS BARBOUR

Professor Harrison W. Smith, who has so often enriched the collections of the Museum of Comparative Zoölogy with the booty of his many journeys, has forwarded to me recently a fine suite of reptiles and amphibians from the Mt. Lundu and the Tinjar River districts of Sarawak, Borneo. Among the lizards appears a curious *Tropidophorus*. The East Indian species of this genus have been summarized, as recently as 1915, by Miss Nelly De Rooij (Reptiles Indo-Australian Archipelago, I, 1915, p. 275). Her descriptions unfortunately take little or no account of variation within the species, and no one specimen appears to be the basis of each description, and while the diagnoses are apparently drawn from series of individuals, we are not informed as to the number actually examined. Miss De Rooij's book is invaluable, yet one notes for instance (p. 277) under the description of *Tropidophorus brookei* that the praefrontals are said to be in contact. Boulenger, who had but two specimens when he wrote his diagnosis in the Catalogue of Lizards in the British Museum (III, 1887, p. 361) says "praefrontals forming a median suture (separated, probably abnormally, in the type specimen)." Now the fact is that the opposite,

viz., praefrontals widely separated, is really the normal condition, as is shown by six examples from Professor Harrison Smith's collection. Nevertheless, since I do not know how many specimens Miss De Rooij had, I am at a loss to determine whether possibly this character is linked with some definite area of distribution. Smith's lot came, five from Mt. Lundu, and one from Baram, whence the species has previously been recorded. To cite another occasion where Miss De Rooij has, unfortunately, copied Boulenger, in what may have been a lapsus, both speak of *Cylindrophis rufus* as having an eye equal in diameter to half its distance from the nostril. In our large series not one has an eye nearly so large. Again, in this species the ventrals are spoken of as being larger than the surrounding scales, whereas, in fact, they are so very little larger except in extremely young specimens, that the character has no conspicuous diagnostic value. These, also, have eyes a little larger than in the adults. Thus unfortunately do errors perpetuate themselves, which at first sight appear trivial but which multiply synonyms as the years pass. I confess, frankly, to having already sought names for another new *Tropidophorus* and a new *Cylindrophis* until I had gone farther than I was led by these otherwise most useful keys.

The lizard which I believe undescribed, I shall call

Tropidophorus perplexus sp. nov.

Type, a single male specimen, M. C. Z., no. 14,632, from a hill near the Fort at Long Loba, Tinjar River, Sarawak. "Very swift. Taken when splitting open a rotten log. Caught with difficulty." — H. W. Smith.

Shields of head rugose; frontonasal divided, the pair as broad as long; praefrontals considerably in contact; frontal as long as frontoparietals and interparietal together; five supraoculars, first largest; five or six superciliaries anterior to the fourth supraocular, which itself borders the eye; frontoparietals shorter than interparietal; parietals broadly in contact behind the latter; six upper labials, fifth very large and entering the orbit; four lower labials, second and third extremely long and narrow; tympanum nearly as large as eye opening; body moderately slender, with thirty rows of scales around the middle; dorsal and laterals strongly keeled, ten median

dorsal rows somewhat enlarged and very strongly keeled; laterals only oblique on postaxillar areas; ventrals large, cycloid, imbricate, smooth; gulars keeled; one very large praeanal; tail very slightly compressed, longer than head and body, with keeled scales, the upper rows spinose. Limbs rather short, the hind limb reaching only to the wrist of appressed fore limb; digits with very feebly keeled lamellae below.

Color. — Rich brown above, with paler narrow cross bands; belly yellowish.

Head and body 73 mm. Tail 104 mm.

The only other East Indian species which has the frontonasal divided is *Tropidophorus grayi*, but this is a very different creature, having more enlarged dorsal scales, three praeanals and other distinguishing characters.

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PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

REPTILES AND AMPHIBIANS FROM THE BRITISH SOLOMON ISLANDS

BY THOMAS BARBOUR

The material, now in the Museum of Comparative Zoölogy, upon which this report is based, is probably the most extensive single collection ever made in the Solomons. Dr. W. M. Mann, the collector, visited many localities previously unworked and received much kind aid from both officials and traders, as well as missionaries. Acknowledgments to these various persons have been made by Dr. Mann himself, and he has also given a synopsis of the localities which he visited, as well as the duration of his sojourn in each one, so that it seems unnecessary to repeat these details here. (Cf. Mann, Bull. M. C. Z., 63, 1919, p. 273.)

The reptiles and amphibians of the Solomons have been made known almost wholly through the studies of Boulenger, based upon the famous collections of Guppy and Woodford. Boulenger suspected that our knowledge of the fauna was fast approaching completion, when the last two collections made by Woodford, *viz.*, those reported upon in the Proceedings of the Zoölogical Society for 1888 and 1890, contained only a few species which hitherto were unknown. Mann's large booty only emphasizes this fact, and we now may safely say that the fauna is really well known—unless exploration of the highlands of the interior of the islands reveals unexpected upland forms. The interior of the islands remains little known.

The fauna of the Solomons, so far as concerns the reptiles and amphibians, is obviously Papuan and not Australian in its origin. The fauna of the group also is more homogeneous than at first appeared, when Boulenger noted that Faro was more Papuan than San Cristóbal. This homogeneity is most significant, for the species which occur widely in the Solomons, in general are absent from New Britain and New Ireland, and this fact indicates a long period of isolation during which the islands were not broken up into small land masses as they are at present. The phylogenetic development of *Ceratobatrachus* and *Batrachylodes* must perforce have been a slow process. The latter was supposed to be confined to Faro, but Dr. Mann found it upon New Georgia, hence it probably occurs as widely spread as *Ceratobatrachus* itself, which is better known since it is far more conspicuous. Dr. Mann's large series of several of the amphibians reveal hitherto unsuspected variability, and several species in the past considered to be distinct are forced into the synonymy. This affects the number of species of *Rana*, *Hyla* and *Cornufer* which have been recorded. But after these reductions have been made, and the new locality records added, the final facies of the fauna remains essentially unchanged. It still appears an ancient, somewhat depauperate, continental, and not an oceanic, fauna which probably has spread under rather adverse conditions. The amphibians reaching the group are those which could disperse themselves and reproduce in areas where standing water in the shape of ponds or permanent pools is practically non-existent, and where heavy rainfall and steep hills combine to form torrents which would carry off larvae rather than permit their leisurely development. Thus those forms have persisted, which have skipped a free-swimming larval stage. Van Kampen has well expressed these ideas. (Bijblad. Nat. tijd Ned. Indië, 3, 4, 1909, pp. 1–24. Translated by T. Barbour, Amer. Nat., 45, 1911, p. 537–560). A general discussion of the relation of the fauna of the Solomon Islands with that of the neighboring regions may be found in my 'Contribution to the Zoögeography of the East Indian Islands.' (Mem. M.C.Z., 44, 1912, p. 59–62.)

AMPHIBIA SALIENTIA

Hyla thesaurensis Peters

Hyla thesaurensis Peters, Mon. Berl. Ac., 1877, p. 421.
Hyla macrops Boulenger, Ann. Mag. Nat. Hist. (5), 12, 1883, p. 164; Trans. Zoöl. Soc., 12, 1886, p. 59, pl. 11, fig. 3.
Hyla lutea Boulenger, P. Z. S., 1887, p. 337, pl. 28, fig. 4.

Peters' type was a young specimen, 28 mm. in length. The measurements which Boulenger gave when he described *H. macrops* were: male, 38 mm., and female, 54 mm., in length, while later he stated *H. lutea* to be 67 mm. long. Boulenger himself was in doubt as to the validity of *macrops*, and (1886) inclined to consider it a color variety only of *thesaurensis*. *H. lutea*, however, was said to have the fingers half webbed; while in *macrops* no web in the fingers is mentioned, and Peters also states that the fingers are free in *thesaurensis*. Boulenger mentions a slight trace of finger web in the little, 31-mm.-long individual which in 1886 he called *thesaurensis*. The character seems to be variable, and while none of our specimens shows as much web as is drawn in his figure of *lutea*, nevertheless many of them do show a very considerable and a very variable degree of webbing. The types of *thesaurensis* and *macrops* both came from Treasury Island, those of *lutea* from Faro, near by. Mann's booty shows that the species is very abundant, and wide-ranging throughout the group. We have the following specimens:—

One from Fulakora, Ysabel Island, small, colored as the type of *thesaurensis;* four, two adults and two young, from Yandina, Russell or Pavuvu Island, northeast of Guadalcanar (Lat. 9° 4′ S., Long. 159° 5′ E.); one adult from Rubiana Lagoon, New Georgia; twelve adults from Ysabel. A very variable series, as to finger webs; three adults from Tulagi, two males and one female, fingers of male less webbed than the female's; two adults from Malaita, near the coast; ten adults from Malaita, high hills of the interior.

Ceratobatrachus guentheri Boulenger

Ceratobatrachus guentheri Boulenger, P. Z. S., 1884, p. 212; Trans. Zoöl. Soc., 12, 1886, p. 56, pls. 12–13.

The Museum previously considered itself very fortunate to possess two of the types of this beautiful frog, which Mr. Guppy collected upon Faro Island. Dr. Mann found it abundant, as did Guppy, who, however, found it only on Faro and Treasury Islands. Our collection contains the following:

Seven from Ysabel; three from Tulagi; seventeen [1] from Malaita, and one from Atta high in the interior of Malaita, a region hitherto unvisited by white men.

Boulenger created a special family to include this monotypic genus alone, the *Ceratobatrachidae*. The only character, however, which separated it from the Ranidae was the possession of teeth on both upper and lower jaw. Recent studies of some of the South American Leptodactylid genera show that teeth on the jaws may be very easily lost and probably almost as easily acquired, so that families based on the presence or absence of teeth alone are likely to be unnatural assemblages, and frequently to separate very closely allied species. A case in point is to be seen in the frogs of the Andean Lakes Titicaca and Junin. About Titicaca *Telmatobius aemaricus* is an abundant inhabitant of the brooks and swamps, while its apparent derivative *T. culeus* inhabits the deep water of the lake and is highly modified for a wholly aquatic existence. About Lakes Junin and Jauja-paca *T. jelskii* occurs as an abundant terrestrial form, while its strictly aquatic ally in the deep lakes is *Batrachophrynus microphthalmus*, a form modified similarly to *T. culeus*, but which has gone a single short step further and has lost its vomerine and maxillary teeth. It has been placed in the *Batrachophrynidae*, when in reality to put it in a genus other than *Telmatobius* is to mask its true relationship. So here it seems best to suggest

[1] From this series specimens already have been distributed to the Museums in Washington, New York, Leyden and Ann Arbor.

the suppression of the family *Ceratobatrachidae*, as being based on insufficient grounds, although it must be confessed that it is at present hard to suggest any very close relatives for this most curious form or to postulate its immediate ancestor. As the family is monotypic no unnatural assemblage is possible. Vankampen [1] proposes to consider this a subfamily, which is perhaps a convenient solution.

Batrachylodes vertebralis Boulenger

Batrachylodes vertebralis Boulenger, P. Z. S., 1887, p. 337, pl. 28, fig. 3.

Three specimens from Marova Lagoon, New Georgia Island, Solomon Islands.

Of these one example, a male, is marked as is Boulenger's figure (P. Z. S., 1887, p. 387, pl. 28, fig. 3); the other two, one a male also, are marked very differently. In one the dorsum is dark brown, with no light mid-vertebral stripe, and with the sides dirty yellowish, and below this another dark zone and then the belly creamy yellow. In the third example the colors are reversed; the dorsum is dirty yellowish, quite immaculate, the sides dark but flecked with lighter spots, while the belly is creamy yellow. In all three the throats are somewhat suffused with dusky gray. Another noteworthy character, which is not mentioned by Boulenger (his unique type was a female), is that in our three examples, which all are males, the snout is projected anteriorly at the tip and slightly thickened at the lip margin, very much as is sometimes seen in *Leptodactylus albilabris*. What may be the significance of this modification, I do not know. In *Leptodactylus* it does not seem to be a sex-linked character (cf. Bull. M. C. Z., 63, 1920, p. 406). This, however, does not mean that it may not be such a character in *Batrachylodes*. In this genus it is less conspicuous, but nevertheless it

[1] Die Amphibienfauna von Neu-Guinea; Fest-nummer, Bijd tot de Dierkunde, Kon. Zool.Genoots "Natura Artis Magistra; part 21, Amsterdam, 1919, p. 51.

very strongly suggests something more than a mere fortuitous somatic variation, and forces still the inclination to conclude that this modification, which quite surely must aid either in burrowing in the ground or in pushing under logs and stones, is very probably an adaptation acquired to this end.

The stomach of our specimens contained only ants and a few small chilopods.

Platymantis solomonis (Boulenger)

Plates II, III, IV

Cornufer solomonis Boulenger, P. Z. S., 1884, p. 212; Trans. Zoöl. Soc., 12, 1886, p. 54, pl. 11, fig. 2.
Cornufer corrugatus Boulenger, P. Z. S., 1888, p. 88.
Platymantis solomonis Boulenger, Ann. Mag. Nat. Hist., (9), 1, 1918, p. 373.

This species proves to be extremely variable, as an examination of the figures of selected individuals will show. In the description Boulenger pointed out that this species was near the Papuan species, *corrugatus*, adding that it differed in having a larger head, larger eyes, shorter hind limbs and stronger subarticular tubercles. Again, however, as in the case of *Cornufer guppyi*, Boulenger quite without comment recorded the Papuan *corrugatus* from New Georgia and Guadalcanar. Until I had handled our series for some time I was inclined to describe a new species based on the smooth old adults; but variations are very great, and the fact that Boulenger ignored these records in his synopsis published in 1918, shows that he had beyond doubt been misled by scanty material.

Dr. Mann procured a splendid series: twenty-seven, of all ages, from Ysabel; eighteen from Tulagi; four from Malaita; four from Atta, high Malaita; one from Rubiana, New Georgia.

Several of the specimens from Atta are tiny individuals, evidently just emerged.

Cornufer guppyi Boulenger

Cornufer guppyi Boulenger, P. Z. S., 1884, p. 211; Trans. Zoöl. Soc. 12, 1886, p. 53, pl. 11, fig. 1.
Cornufer dorsalis Boulenger, P. Z. S., 1887, p. 337.

When Boulenger described this species he had two specimens from Treasury Island, and he closed his description with the remark that: "*Cornufer guppyi* is allied to *C. dorsalis* A. Dum., from the Fiji Islands, but differs chiefly in the broader and more depressed head and the larger disks of the toes." In 1887, without any comment whatsoever, and by name alone, he recorded the Fijian species from Faro Island. This may have been a lapsus, or perhaps, with insufficient material, — for Woodford usually obtained only very small series, — Dr. Boulenger was misled by the variability of the species. Dr. Mann obtained six from the coast of Malaita, one enormous adult, over 100 mm. long; one large adult from Ysabel; one, half-grown, from Santa Ana; five, half-grown and young, from Atta, highlands of Malaita.

It has been possible to compare these with fresh specimens of *C. dorsalis* from Fiji. The adults are easily separable, but the characteristic form of the head is not assumed at once and the size of the digital dilatations varies so that until some much more detailed evidence is forthcoming it is best to exclude this most obviously improbable record.

Rana krefftii Boulenger

Rana krefftii Boulenger, Cat. Batr. Ecaud., 1882, p. 64, pl. 3, fig. 2; Rec. Indian Mus., 20, 1920, p. 186.

This frog is the Solomon Island representative of the Hylorana stock, which is widely spread in Papuasia. Krefft's frog has been reported from New Britain and from most of the Solomon

Islands. It evidently is common. Dr. Mann collected the following specimens: fifty-seven from Bio Island, a small islet near Ugi; three from Ysabel; one from Santa Ana; two from San Cristóbal; one from Graciosa Bay, in the Santa Cruz Archipelago, east of the Solomon Islands and northeast of the New Hebrides.

Rana guppyi Boulenger

Rana guppyi Boulenger, P. Z. S., 1884, p. 211. Rec. Indian Mus., 20, 1920, p. 113.

A really enormous species, by far the largest member of the subgenus *Discodeles*. It has been found on many of the Solomons, but not outside of the Group. Boulenger records the species from New Georgia and Rubiana Islands, among others, but Dr. Mann informs me that the name Rubiana applies to a lagoon on New Georgia, as the literature also indicates. He caught four of these great frogs upon Malaita, apparently a new locality. The specimens previously in the Museum were from Guadalcanar.

Rana bufoniformis Boulenger

Rana bufoniformis Boulenger, P. Z. S., 1884, p. 210; Rec. Indian Mus., 20, 1920, p. 110.
Rana opisthodon Boulenger, P. Z. S., 1884, p. 211; Rec. Indian Mus., 20, 1920, p. 111.

Apparently the only specimens of these frogs which Boulenger had seen when he wrote his revision of the Australasian species of *Rana*, were the type and one other female of *bufoniformis* and five specimens of what he called *opisthodon*. The characters supposed to separate the two species follow:

Tympanum about one third diameter of eye; tibio-tarsal articulation reaching temple; tibia two and one fourth to two

and three fourths times as long as broad; upper parts very warty, with an interrupted glandular dorso-lateral fold; belly granulate ..... *bufoniformis.*

Tympanum two fifths to one half diameter of eye; tibio-tarsal articulation reaching eye; tibia three to three and one half times as long as broad; upper parts smooth or warty; belly feebly granulate ..... *opisthodon.*

Now, most of these characters will be seen at once to be chiefly of degree, and not of kind. The degree of wartiness on the back, and of granulation on the belly, might be expected to vary with age and with various preservation; this is the case. The size of the tympanum and the length of limb, while more stable characters in this case, nevertheless overlap, and no great variability is necessary to bring this about, as a glance at the key will show. The only character then, which might really be expected to separate the species, proves to be most unstable, and I cannot find any line which will separate our series into two categories.

This species likewise pertains to *Discodeles.* Dr. Mann captured a fine series of various ages, but did not find the remarkable eggs which Boulenger figured and described (Trans. Zoöl. Soc., 12, 1886, p. 50, pl. 10). We have thirteen adults and young from Ysabel; eight from Ugi, four very large; two from Tulagi; one from Malaita; five from San Cristóbal; two from Santa Ana.

The only previous records were for Faro and Treasury (Mono), both small islands in the Shortland Group, so that Dr. Mann's collection adds greatly to our knowledge of the distribution.

A single specimen in the Museum, received from the Australian Museum as *bufoniformis,* but with no definite data except Solomon Islands, is really smoother on the back than any of Dr. Mann's examples, but it has a fairly distinct dorso-lateral glandular fold. This example, however, has been preserved for many years, and is soft and flabby.

SAURIA

Gymnodactylus pelagicus (Girard)

Heteronota pelagica Girard, Proc. Acad. Nat. Sci. Phila., 1857, p. 197.
Gymnodactylus pelagicus Boulenger, Cat. Liz. Brit. Mus., 1, 1885, p. 40.

Dr. Mann secured one example at Rubiana Lagoon, New Georgia, an island from which there was no previous record, although the species was known from the Shortland Group and from Guadalcanar and its occurrence was to be expected.

Gymnodactylus louisiadensis De Vis

Gymnodactylus louisiadensis De Vis, Ann. Queensland Mus., I, 1892, no. 2, p. 11
Gymnodactylus loriae Boulenger, Ann. Mus. Civico, Genoa, (2), 18, 1897 (1898), p. 695, pl. 1.
Gymnodactylus olivii Garman, Bull. M. C. Z., 39, 1901, p. 1, pl. 1, fig. 1.

Werner first showed that *loriae* was a synonym of this species (Verh. zool.-bot. Ges. Wien, 51, 1901, p. 604), a conclusion which later was doubted by Waite (Rec. Austr. Mus., 6, 1905, p. 13) although the latter has no hesitation in relegating Garman's species to the synonymy. In this I quite agree. Waite doubts strongly that the type of *olivii* ever really came from Queensland, and he quotes Mr. E. A. Olive to the effect that he "Thinks he must have obtained the original [type] from New Guinea." It is interesting, however, to record the presence of a second specimen, in a small collection from Rockhampton, Queensland, which I obtained several years ago, and which contained several typically Australian species. So the species probably does occur in Australia; and, as with so many geckos, its presence or absence is not a matter of moment or a cause for surprise. Waite tells us that the subject of his note, the first

record of this species for the Solomon Islands, was "Taken from the chart drawer in the Government Residency." At first sight these seem the most precisely accurate data; but, however familiar the location of this building may have been to Mr. Waite, I have had some difficulty in locating it. After several changes, it is now at Tulagi in the Florida Islands, and Dr. Mann thinks that in 1904, the year Waite's specimen was captured, the seat of government was at Aula on Guadalcanar. In any case, Mann's capture of a specimen at Auki, Malaita, appears to be the first for that island and the second record for the Solomons.

Gekko vittatus Houttuyn

Gekko vittatus Houttuyn, Verh. Zeeuw. gen. Vlissingen (Middleburg), 1782, 9, p. 325, pl., fig. 2.

The majority of the Solomon Island specimens do not show the bifurcate marking which, with some minor details of squamation pointed out by Peters and Doria (Ann. Mus. Civ. Gen., 13, 1878, p. 368), serve to distinguish the 'variety' *bivittatus* (D. and B.). The details of scalation are very variable, and the distribution of the variant is entirely haphazard. We have, besides two old specimens from Faro, the following from the Solomons: one from Ugi, tail bifurcate; one from Rubiana Lagoon, New Georgia, marking very conspicuous; ten from Wainone Bay, San Cristóbal, mostly wholly unmarked; one from Wai-ai, San Cristóbal.

Gehyra oceanica (Lesson)

Gecko oceanicus Lesson, Voy. Coquille, Zool., 2, 1830, 1, p. 42, pl. 2, fig. 3.
Gehyra oceanica Boulenger, Cat. Liz. Brit. Mus., 1, 1885, p. 152.

This widespread species is represented by three examples from Ugi, one from Rubiana Lagoon, New Georgia, and two from Graciosa Bay in the Santa Cruz Islands.

Gonyocephalus godeffroyi (Peters)

Lophura godeffroyi Peters, Mon. Berl. Ac., 1867, p. 707, pl., fig. 1.
Gonyocephalus godeffroyi Boulenger, Cat. Liz. Brit. Mus., I, 1885, p. 295.

Of this species, already known from many of the Solomons, Dr. Mann took three specimens from Ugi, and four from Wainone Bay and one from Wai-ai, both places on San Cristóbal.

Boulenger (*l. c.*) records a specimen in the British Museum from Fiji, and curiously enough then or since he never thought to query the record. Mann collected for a year in Fiji, where many other naturalists also have worked, without finding a *Gonyocephalus*. To be sure the mongoose has played havoc with the native fauna; but *Brachylophus* has not been exterminated, although it is growing very rare, and did a *Gonyocephalus* occur, we should expect it to have a similar status.

Corucia zebrata (Gray)

Corucia zebrata Gray, P. Z. S., 1855, p. 218, pl. 8.
Corucia zebrata Boulenger, Cat. Liz. Brit. Mus., 3, 1887, p. 142.

This gigantic scinc seems to be rare, for Dr. Mann secured only one example from Wainone Bay, San Cristóbal, the island whence it first was described. It has been found in the Shortlands and Guadalcanar.

Emoia cyanogaster (Lesson)

Scincus cyanogaster Lesson, Voy. Coquille, Zool., 2, 1830, p. 47, pl. 3, fig. 3.
Lygosoma cyanogaster Boulenger, Cat. Liz. Brit. Mus., 3, 1887, p. 292.

Four localities are represented: Wainone Bay, San Cristóbal, with forty-six specimens; Santa Ana, one; Ugi, two; and

Fulakora, Ysabel, with one. In 1895 Boettger separated the representative of *E. cyanogaster* in the Halmabera Group of the Moluccas, under the name of *sorex*. It is very probable that with adequate material a still further division of the species can be made, similar to that proposed for *Dasia smaragdinum*. Our specimens from the Solomons are very different in appearance from our Papuan specimens, and from Polynesian examples. Unfortunately we need more material before revision can be attempted.

Emoia nigrum (Hombr. and Jacq.)

Eumeces niger Hombr. and Jacq., Voy. au Pôle Sud (Astrolabe et Zélée), 1842, p. 11, pl. 4, fig. 2.
Lygosoma nigrum Boulenger, Cat. Liz. Brit. Mus., 3, 1887, p. 297.

Mann preserved nine specimens at Sikiana in the Stewart Islands, another at the Rubiana Lagoon, New Georgia, and ten at Ugi. None of these specimens shows a lateral band darker than the dorsal coloration. The whole series is very dark brown above, quite unspotted, the bellies are creamy white. Another series of eleven, however, from Wainone Bay, San Cristóbal, agree well in squamation, but are more lustrous and have the dorsal surface decorated with many narrow, almost black, wavy cross-bars upon a dark slaty gray field.

Emoia cyanurum (Lesson)

Scincus cyanurus Lesson, Voy. Coquille, Zool., 2, 1830, p. 49, pl. 4, fig. 2.
Lygosoma cyanurum Boulenger, Cat. Liz. Brit. Mus., 33, 1887, p. 290.

Apparently very common. There are about one hundred from Wainone Bay, San Cristóbal; seventeen from Auki, Malaita; six from Ugi; one from Ysabel; and four from Graciosa Bay, Santa Cruz Archipelago. The specimens from Malaita

especially seem very large, much larger than any which I saw or preserved from the Moluccas or Papua in 1905–1907. Werner (Zool. Anz., 21, 1898, p. 553) described *Lygosoma* (*Emoa*) *impar* from Mioko and Ralum, in the once German Bismarck Archipelago. This species is supposed to differ from *E. cyanurum*, in that the midvertebral stripe is on a single row of scales instead of on parts of two rows. The latter condition obtains in our specimens from New Guinea, as well as from the Solomons, and *E. mivarti* has the stripe similarly situated.

Leiolepisma anolis (Boulenger)

Lipinia anolis Boulenger, Ann. Mag. Nat. Hist., (5), 12, 1883, p. 161.
Lygosoma anolis Boulenger, Cat. Liz. Brit. Mus., 3, 1887, p. 253.

A most curious pallid wraith-like scinc, one of the very characteristic species of the Solomons, and represented by one example from Graciosa Bay, Santa Cruz; four from Ugi; two from Auki, Malaita; and twelve from Wainone Bay, San Cristóbal. The first three localities establish new records.

Leiolepisma noctua (Lesson)

Scincus noctua Lesson, Voy. Coquille, Zool., 2, 1830, p. 48, pl. 3, fig. 4.
Lygosoma noctua Boulenger, Cat. Liz. Brit. Mus., 3, 1887, p. 256.

Previously known to range widely in Polynesia, to occur also in Fiji and in Papua, this beautiful little lizard has never been taken in the Solomon Islands before. Dr. Mann took a single individual at Rubiana Lagoon in New Georgia. There are two specimens in the Museum of Comparative Zoölogy, recently received from the Rev. J. Annand at Tangoa, Espiritu Santo Island, in the New Hebrides, another new locality. Thus the species ranges widely through Melanesia as well as Polynesia. A curious fact well worthy of note is that, unlike most

of the very widespread species, this form is evidently a very rare one wherever it occurs. Out of all the very many scincs caught by Mrs. Barbour and myself in Dutch Papua only one represented this form, while Mann had exactly the same experience in the Solomons.

Sphenomorphus woodfordi (Boulenger)

Lygosoma woodfordi Boulenger, P. Z. S., 1887, p. 335; Liz. Brit. Mus., 3, 1887, p. 511, pl. 25, fig. 4.

Described from a single specimen, this rare form appears now from two new localities, one specimen from Ugi and six from Wainone Bay, San Cristóbal.

Sphenomorphus solomonis (Boulenger)

Lygosoma solomonis Boulenger, P. Z. S., 1887, p. 334; Cat. Liz. Brit. Mus., 3, 1887, p. 510, pl. 23, fig. 4.

A single specimen from Auki, Malaita, varies somewhat from the original description in having 22, not 24–26, rows of scales about the body, and about 20 or 21 lamellae under the fourth toe, instead of seventeen.

Sphenomorphus concinnatus (Boulenger)

Lygosoma concinnatum Boulenger, P. Z. S., 1887, p. 335; Cat. Liz. Brit. Mus., 3, 1887, p. 511, pl. 26, fig. 4.

A rare species which for a long time was known apparently only from the types, four specimens from Faro Island. It appears, however, to be more widespread, for Mann got one from New Georgia, twelve from Auki, Malaita, and four from

Tulagi. One specimen from each of the last two localities lacks the very characteristic black blotch just aft of the fore limb, on the side. In a specimen already in the Museum, from Bougainville Island, this is replaced with several narrow oblique black bars.

Dasia smaragdinum perviridis subsp. nov.

Type, M. C. Z., an adult from Fulakora, Ysabel Island, Solomons, collected by Dr. W. M. Mann.

Paratypes: five from New Georgia, two from Ysabel, one from Malaita, and seven from Graciosa Bay, Santa Cruz Archipelago.

Similar to *D. s. smaragdinum* of Papua, but wholly brilliant green throughout; not with a green head, and a body fading to bronzy, or in alcohol to brownish, posteriorly.

In 1912 I pointed out that this lizard was one of the few of the widely distributed scincs which had broken up into very distinct geographical races, differing constantly and widely from each other in pattern. I noticed this first while observing the living specimens in the field in the Dutch East Indies. In 1915 Miss de Rooij in her 'Reptiles of the Indo-Australian Archipelago' (Vol. I, Leyden, 1915, p. 201) described and added the race from Celebes, equally distinct. Unfortunately she gave this a new name, *celebense*, although she mentioned having Oudemans' type of *acutirostre* from Saleyer, and that it represented the very form she was naming. The races therefore should stand: —

Dasia smaragdinum smaragdinum (Lesson). Misol, Waigiu, Papua, and perhaps New Britain and New Ireland, from which last two islands I have not seen specimens.

Dasia smaragdinum acutirostre (Oudemans). Celebes and the surrounding islands.

Dasia smaragdinum moluccarum Barbour. The Moluccas, widespread.

Dasia smaragdinum viridipunctum (Lesson). Pelew, Marshall and Caroline Islands.

Dasia smaragdinum perviridis Barbour. The Solomon Islands.

Riopa albofasciolata (Guenther)

Eumeces albofasciolatus Guenther, Ann. Mag. Nat. Hist., (4), 10, 1872, p. 370.
Lygosoma albofasciolatum Boulenger, Cat. Liz. Brit. Mus., 3, 1887, p. 302, pl. 24.

A fine great scinc, previously recorded in the Solomons from Faro and Guadalcanar and now brought by Mann from Auki, Malaita (one specimen), from Ugi (two), and from Wainone Bay, San Cristóbal (one adult and one young).

SERPENTES

Typhlops aluensis Boulenger

Typhlops aluensis Boulenger, P. Z. S., 1887, p. 336, pl. 28, fig. 2.

This snake was described from a single specimen taken at Alu in the Shortland Islands. Dr. Mann sends us another single specimen from Keri Keri, on San Cristóbal Island. It agrees very well with Boulenger's short original description and with the excellent figure.

Typhlops olivaceus reduncus subsp. nov.

Plate V

Type, M. C. Z., no. 14,269, from Keri Keri, San Cristóbal Island, Solomon Islands; Dr. W. M. Mann, collector.

Very similar to true *T. olivaceus*. Miss Joan Proctor has very kindly compared a drawing of this specimen with the series of *olivaceus* in the British Museum. She considers our example

olivaceus with " an extra prominent snout." I did not send her profile sketches, but only dorsal views to show especially the excrescences which, she informs me, are more marked than in any of the examples in the British Museum. Had I sent her a profile of this Solomon Island specimen, she would possibly agree to my establishing a race on the following diagnosis:—

Similar to true *T. o. olivaceus* from the Philippines, which has been recorded also from the Moluccas and Australia, but with a much longer and more sharply produced rostral scale and a much more conspicuously developed ornamentation of excrescences.

It is not improbable that large series will show that other geographic races occur within this species for, in general, *Typhlops* individuals from one locality do not vary extensively in the configuration of the cephalic shields.

Typhlops cumingii mansuetus subsp. nov.

Plate VI

Type, M. C. Z., no. 14,270, from Keri Keri, San Cristóbal, Solomon Islands; W. M. Mann collector.

Similar to *T. c. cumingii* from the Philippine Islands, but with numerous fine warty excrescences on the snout, which lacks the narrow, subcrescentic, sharp, transverse edge described for the type. The rostral is somewhat wider, and the prefrontal seems to be somewhat larger, than in the type which Miss Proctor has very kindly sketched for me.

I sent Miss Proctor drawings of the upper surfaces of the head in this and in the preceding species. I wish I had sent her profile views as well, as the differences are thus more visible. For her kindness in making comparisons and sketches I wish to thank her most heartily. It is also only fair to Miss Proctor to say that

she in no wise suggested my naming these forms.[1] I have done so because I think more material will prove them to be valid geographic races.

Enygrus australis (Montrouzier)

Boa australis Montrouzier, Rev. et Mag. Zool., 12, 1860, p. 95.
Enygrus australis Boulenger, Cat. Snakes Brit. Mus., 1, 1893, p. 105.

Mann procured four at Graciosa Bay, Santa Cruz Islands, and writes me that they were very common there. He also preserved three on Ugi.

Enygrus carinatus (Schneider)

Boa carinata Schneider, Hist. Amph., 2, 1801, p. 261.
Enygrus carinatus Boulenger, Cat. Snakes Brit. Mus., 1, 1893, p. 107.

Several color phases are represented in Mann's series of one from Bio Island, one from Ysabel, seven from Malaita, and twelve from Ugi.

Enygrus bibronii Hombr. and Jacq.

Enygrus bibronii Hombr. and Jacq., Voy. Pôle Sud (Astrolabe et Zélée), 1842, p. 18, pl. 1.
Enygrus bibronii Boulenger, Cat. Snakes Brit. Mus., 1, 1893, p. 106.

Two from Bio Island near Ugi were the only ones found.

[1] She writes, under date of May 2, 1921, as follows: "I have at last found time to compare your drawings with the types and other specimens of *Typhlops olivaceus*. Neither drawing corresponds exactly, and as the differences are very difficult to describe, I have made some very rough sketches which may convey my meaning better than words. You will notice that although they all agree in essentials, there is considerable variation, especially in the shape of the rostral. Personally, judging from your drawings alone, I should say that 14,269 was *T. olivaceus* with an extra prominent snout, and that 14,270 resembled *T. cumingi* in general outline, etc. In none of our specimens are the excrescences as marked as in yours."

Dendrophis calligaster Guenther

Dendrophis calligaster Guenther, Ann. Mag. Nat. Hist., (3), 20, 1867, p. 53.
Dendrophis calligaster Boulenger, Cat. Snakes Brit. Mus., 2, 1894, p. 80.

The type came from Cape York, Australia, where the snake is very rare. The Museum of Comparative Zoölogy has it from Rockhampton, Queensland, from Murray Island in Torres Straits, and from New Britain. Miss Proctor writes me that the British Museum has received it only once from Australia (Cooktown) since the type was discovered. In the Solomons it is more common, and Dr. Mann preserved two adults from Malaita; one adult and one young from Rubiana, New Georgia; one adult from Fulakora, Ysabel, and one from Bio, a small island near Ugi.

Boiga irregularis (Bechstein)

Coluber irregularis Bechstein, Ueber Lacépède, 4, 1802, p. 239, pl. 37, fig. 1.
Dipsadomorphus irregularis Boulenger, Cat. Snakes Brit. Mus., 3, 1896, p. 75.

While this snake was known to Boulenger (P. Z. S., 1887, p. 90) from most of the Solomons, except the group about San Cristóbal, nevertheless Mann's localities are all new. He has two from Fulakora, Ysabel; three from Auki, Malaita, and one from Ugi.

Denisonia melanura Boulenger

Hoplocephalus melanurus Boulenger, P. Z. S., 1888, p. 88; P. Z. S., 1890, p. 30, pl. 2, fig. 1.
Denisonia melanura Boulenger, Cat. Snakes Brit. Mus., 3, 1896, p. 345.

Boulenger gave no type locality for this species when he described it; in his table of distribution or summary of the

fauna, however, he credits the species to Guadalcanar. A single specimen in Dr. Mann's collection agrees so well with the description that there can be little question of its identity with *melanurus*, yet it came from Fulakora on Ysabel Island. Guadalcanar is some distance away, and is separated from Ysabel by Tulagi and the Florida Group, — among many other lesser islets, — and Florida Island, which thus divides the range of *melanurus*, is the type locality of *D. elapoides* Boulenger. These most curious and unusual circumstances require further elucidation.

Denisonia woodfordi Boulenger

Hoplocephalus woodfordi Boulenger, P. Z. S., 1888, p. 89; P. Z. S., 1890, p. 30, pl. 2, fig. 2.
Denisonia woodfordi Boulenger, Cat. Snakes Brit. Mus., 3, 1896, p. 346.

One adult and one young from Rubiana Lagoon, New Georgia Island. The young is typical, but the adult lacks the cross bands figured by Boulenger (*l. c.*); nevertheless it has seventeen rows of scales and proportions also agreeing perfectly, so that except for coloration it is really a counterpart of the type. Another fine typical adult affords a new locality record for Rendora Island, which is southeast of New Georgia and hitherto has been little known.

Laticauda colubrina (Schneider)

Hydrus colubrinus Schneider, Hist. Amph., I, 1799, p. 238.
Laticauda colubrina Stejneger, Herpetology of Japan, Bull. U. S. Nat. Mus., 58, 1907, p. 406.

Two adult specimens from Rubiana, New Georgia Island, give us a definite record from a region whence exact data for this species are rare.

EXPLANATION OF THE PLATES

Plate II

Large adult of *Platymantis solomonis*, from Ysabel Island, showing almost smooth dorsum.

Plate III

Two half-grown individuals of *Platymantis solomonis*, the upper from Ysabel and the lower from Rubiana, New Georgia, to show varying rugosity.

Plate IV

Two other individuals of the same species, both from Tulagi, showing variation in rugosity. The variability illustrated on these three plates is in no wise correlated with locality.

Plate V

Dorsal and lateral aspects of head of *Typhlops olivaceus reduncus*, type.

Plate VI

Dorsal and lateral aspects of head of *Typhlops cumingii mansuetus*, type.

Sept. 7, 1921 Vol. VII, pp. 113–115

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

A NEW PHRYNOSOMA FROM CERROS ISLAND

BY THOMAS BARBOUR

My colleague Mr. K. P. Schmidt, of the American Museum of Natural History, has very courteously called my attention to the fact that the species of *Holbrookia* which I recently described (Proc. New Eng. Zoöl. Club, VII, 1921, p. 79) as *H. thermophila*, is probably the same as Bocourt's *H. elegans*, a species which I had not seen. I was misled by Cope's statement (Rep. U. S. Nat. Mus., 1898 [1900], p. 286) that in *elegans* the tail was shorter than head and body, whereas in reality the reverse is true. Most of my typical specimens came from Mr. W. W. Brown's collection made during the John E. Thayer expedition to Lower California. Again I am describing a novelty from Mr. Brown's material. This time my notice has been brought to it by Mr. Schmidt himself, and for this reason I gladly dedicate it to him, with the sincere hope that the name may not find a prompt abiding place in the limbo of synonymy as did its predecessor.

Phrynosoma schmidti sp. nov.

Type, M.C.Z. no. 15,142, from Cerros Island, Lower California, Mexico, collected by Mr. W. W. Brown. There are three paratypes having the same data.

This species is clearly a derivative from the *Phrynosoma blainvillii* stock of the mainland, and it is nearest to that form. It

differs conspicuously in having much smaller and much more rugose frontal scales; in having the head spines directed backward along the shoulders, not upward at all; in having the temporal regions covered with small rugose scales, instead of larger scales which are almost smooth. The groups of enlarged gular scales are very different. In *blainvillii* the outer row of each of the enlarged group of four rows is but slightly greater in size than the third, while the second and first, or mediad rows, diminish in size each in similar slight degree. In *schmidti*, however, all the enlarged rows are smaller, the fourth or outer row, however, being very much larger than the other three rows which are more nearly the same size. In *schmidti* the ventrals are smaller, averaging about 55 across the belly, while in *blainvillii* they number usually 40 or 41.

The most conspicuous difference, however, is by no means easy of exposition. In the mainland horned-toad the large postorbital spine is connected with its fellow of the opposite side by a distinct row of enlarged, slightly spinose, scales; between these and the row formed by the large posterior temporal and occipital spines is an area occupied medially by three large, rather spinose scales and a small spine which projects backward between the occipitals. In the island form the postorbital spines are obsolescent; the intermediate region between the two blunted postorbital spines is composed of rather small, quite irregular, rugose scales; so also is the region just anterior to the great head spines. The latter is covered with a number of small, irregular, corrugated scales, although there is a short spine, more triangular than in *blainvillii*, between the occipitals.

The squamation of the body and limbs offers no conspicuous diagnostic characters. The color, however, differs constantly. In Schmidt's horned-toad the dark nuchal patches are much less extensive than in the form named for Blainville, while the general dorsal coloration is apparently darker, the blackish cross-bars being very narrow and inconspicuous, whereas in the mainland species they are invariably broad and conspicuous.

It is important to point out that this new type shows no close relationship with the rare form collected by Lyman Belding, also on Cerros Island, and named by Stejneger *P. cerroense.* (N. Amer. Fauna, 7, 1893, p. 187).

I have adopted this rather informal method of description for the reason that authentic examples of *Phrynosoma blainvillii* Gray are to be found in every museum, while in comparing the stereotyped formal descriptions of horned-toads it is very easy to miss the crucial characters in species at first sight as similar yet really as fundamentally distinct as these.

Oct. 22, 1921 Vol. VII, pp. 117–118

PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

THE FLORIDA PINE SNAKE

BY THOMAS BARBOUR

An examination of the pine snakes from the eastern seaboard States reveals the fact that Daudin's old name *Coluber melanoleucus*, based on the pine snake of Bartram, which he speaks of as being "pied black and white," includes two different forms at least. Bartram travelled in both Carolina and Florida, and these regions constitute the type locality for the species. Bartram, however, makes no mention of actually having seen pine snakes in both of the regions he visited, and as the pine snakes which I have seen from South Carolina and New Jersey are 'pied black and white,' I propose to restrict Daudin's name to this black form, to stand as *Pituophis melanoleucus melanoleucus* Daudin, with the type locality Carolina.

Florida specimens are brown-pied, not black-, and have a larger number of scale rows and on the average a higher number of combined ventrals and subcaudals. This race may be called

Pituophis melanoleucus mugitus subsp. nov.

Type, M.C.Z. no. 15,525, adult male, from spruce-pine ridges, ten miles north of West Palm Beach, Florida; T. and R. Barbour, collectors, 1919.

Similar to *P. m. melanoleucus*, but heavily washed and pied with rusty brown, not black. Ventrals and subcaudals of Florida examples average

about 280, as against 267 for specimens from Carolina and New Jersey. The scale rows about the middle of the body are 31–33 (usually 33), on the neck 29–31, and anterior to the vent 22, 23, or 24. In the Northern specimens examined the mid-body rows were 27, neck 25, and anterior to vent 21 or 22.

This description is offered as preliminary to a more complete revision of the Eastern pine snakes, which will be continued as more material becomes available for study.

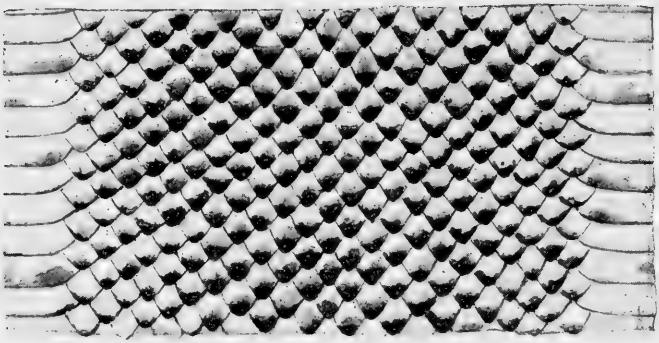
INDEX

In references to subspecies the name of the species is omitted. New scientific names are in heavy-faced type.

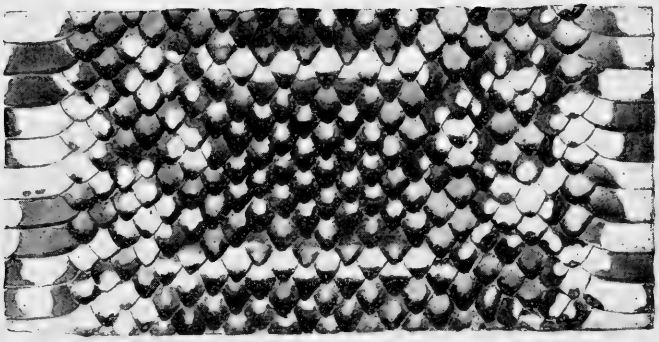
PLATES

ERRATA

Page 44, line 23, for V. read U.
Page 76, line 12, for qiute read quite.
Page 106, line 6, for **perviridis** read **perviride.**



LAMPROPELTIS GETULUS BROOKSI SUBSP. NOV.



LAMPROPELTIS GETULUS FLORIDANA BLANCHARD