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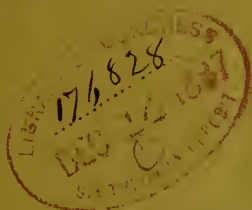
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from the Author



ON WEST INDIAN IGUANIDÆ,

AND

ON WEST INDIAN SCINCIDÆ,

IN THE COLLECTION OF

THE MUSEUM OF COMPARATIVE ZOOLOGY
AT CAMBRIDGE, MASS., U. S. A.

BY SAMUEL GARMAN.

[From the BULLETIN OF THE ESSEX INSTITUTE, VOL. XIX, 1887.]

C

ON WEST INDIAN REPTILES.

IGUANIDÆ.

BY SAMUEL GARMAN.

THIS notice contains a list of the species of Iguanidæ at present represented in the Museum of Comparative Zoology, at Cambridge, Mass., with localities and notes, and with descriptions of such as are new or little known. It includes a tolerable proportion of all the species hitherto recognized as belonging to this region, together with quite a number that do not appear to have been described. The list was prepared some years ago, but, owing to uncertainty in regard to some of the species discovered in the early part of the century, the types being inaccessible and the descriptions insufficient, it was laid aside until it might be put into more satisfactory shape. The splendid catalogues of Doctor Boulenger, recently published, have made it possible to identify with confidence many species which previously were, in the absence of typical specimens, only conjectural. The Doctor's classification has been followed pretty closely in the main; the departures made are principally due to differences of opinion concerning names adopted or the relative rank of certain forms. In answer to objections that may be urged against bringing varieties as prominently forward as is usual with species, it may be said that the nature of the case seems to demand it; abrupt separation and isolation on the different islands and consequent absence of gradual shading of the varieties, one into another, appear to entitle them to more prominence.



Unless otherwise specified the collections were made by the writer.

XIPHOCERCUS VALENCIENNI *Dum. Bibr.*, 1837.

A female has transverse bands of light brown on the limbs, a band across the neck, another immediately behind the shoulders and another in front of the thighs on the flanks; the tail is ringed with brownish; between the eye and the ear on each side of the head there is a quadrangular space enclosed by four short narrow lines of brown; a streak of light color extends from the loreal region beneath the eye to the angle of the mouth; the gular fold is purple with a creamy border; the lips are black; the upper and the lower surface of the head are whitish; there are short, narrow longitudinal streaks of brown arranged in transverse series on the flanks; and along the median line of the back there are several small, transverse blotches of brownish, with others of light color.

On a young one, less than an inch in length of body, the markings are similar though much lighter; a light brown band crosses the supraoculars and passes downward through the eye across the lips; vertical lines of brown cross both lips in front of the eyes; the gular fold is of a pink tint. In this little one the goitre is comparatively large, although the short snout, not longer than the orbit, convex on the upper surface, the disproportionate size of the eye and the bulged, swollen appearance of the parietal region indicate that it had been but a short time out of the egg.

Kingston, Jamaica.

ANOLIS EQUESTRIS *Merrem*, 1820.

There are five large specimens in the collection which are referred to this species. One of the lot is said to

come from Bahia, and, on examination of more individuals from the same locality, it may be found necessary to give a different specific name. It does not entirely agree with the others in shape in front of the eyes, where the rostral canthus curves outward more, making a broader snout. It differs to some extent in the squamation of the top of the head, but the scales are so confused it is difficult to discover the lines of separation. The number of lamellæ appears about the same as in the others.

Cuba; Bahia. ? Coll.

ANOLIS RICORDII *Dum. Bibr.*, 1837.

On a female from Samana, San Domingo, all of the supraoculars are keeled; the occipital scale is very small, hardly larger than the surrounding granules, but marked by the white spot in the centre; the color is a grayish brown, the light-colored transverse bands being sprinkled with brown scales and the brown spaces with lighter ones. Collected by M. A. Frazar.

ANOLIS CUVIERI *Merr.*, 1820.

A large specimen, presented by Dr. Aug. Stahl, of Porto Rico, is of a uniform bluish color, without the brown spots on the vertebral line; it is tinted with yellow beneath; the gular fold is yellow; and the frontal region and a streak from the loreal region beneath the eyes are whitish.

ANOLIS GUNDLACHII *Ptrs.*, 1876.

Young specimens have a vertebral band of yellowish color.

From Dr. Aug. Stahl, Porto Rico.

ANOLIS CRISTATELLUS *Dum. Bibr.*, 1837.

Collected by Professor Ackerman, Port au Prince, Hayti; Dr. D. F. Weinland, Jeremie, Hayti; J. A. A 1-

len, St. Thomas; and S. Garman, Bayamon, Porto Rico, Morant Island and St. Thomas.

ANOLIS SCRIPTUS sp. n.

Head moderate, about one and three-fourths times as long as broad, nearly one and a half times the length of the tibia, with flat crown, very slightly concave on the forehead and on the occiput; frontal ridges low, diverging anteriorly; with three large blunt-keeled scales; upper head scales with low keels; scales of the supraorbital semicircles large, in contact on the median line, or separated by a single row of small scales, continued as the frontal series; seven to nine enlarged, feebly-keeled supraoculars, separated from the supraorbitals by a single row of granules; occipital as large as the ear opening, separated from the supraorbitals by three or four series; rostral canthus sharp, of four scales; loreal rows four to six; six or seven labials to below the middle of the eye. Gular appendage moderate, smooth scaled. Body very little compressed, with a low dorso-nuchal fold. In the female, the goitre forms a low, longitudinal fold without the fan-like lobe. All scales obtusely keeled; dorsal and lateral granular, becoming larger toward a couple of rows of enlarged scales on the vertebral fold; ventrals larger than the dorsals, little smaller than the antefemorals, imbricate, with rounded posterior margins and feeble keels. Limbs moderate, the adpressed hind limb reaches the eye; digital expansions medium, twenty-two under phalanges ii and iii of the fourth toe. Tail compressed, slender posteriorly, more than twice the length of the body and head, with a sharp crest of unequal scales. On the male the neural spines support a fin-like expansion extending not more than half the length. Enlarged post-anal scales.

Gray, greenish, bluish, or brownish, bronzed, with or without spots or vermiculations of brown on nape, flanks,

chin and limbs; lips with or without brown spots. A young one has a large, rounded white-edged spot of brown above each shoulder; on another these spots are obsolete.

Readily distinguished from *A. cristatellus*, which it closely resembles, by the greater size of the two vertebral rows.

From Professor L. Agassiz; Silver and Lena Keys, Fla.

ANOLIS STRIATULUS Cope, 1861.

From Professor Ackerman, Port au Prince, Hayti; Dr. Aug. Stahl, Porto Rico; Hassler Expedition, St. Thomas.

ANOLIS GINGIVINUS Cope, 1864.

Dr. W. J. Branch, Anguilla Island.

✓ *ANOLIS BIMACULATA*, *Sparman* sp.

These notes are taken from forty-six specimens secured on St. Kitts. The species is usually confounded with several others to which it is somewhat closely allied. It is distinguished by the size of its granules, the four to five loreal series, the broad smooth plates in front of the thigh, the meeting of the opposite supraorbital series on the forehead, in seven specimens of each eight, and by the coloration.

The color is blue or green, grayish to brownish; white beneath. Posteriorly, on the flanks and on the tail, usually there are present a number of small spots of black, irregularly scattered but often forming a rounded bunch in front of the thigh on the side of the abdomen. Above the axilla there is most often a rounded black spot. Rarely it is continued forward as a band to the angle of the mouth. From the upper labials there is a light band crossing the upper half of the ear to end on the flank above the shoulder.

Above and in front of the shoulder, below the dark spot, there is another band of light color, and there are faint indications of a third from each side of the occiput to the nape. The lips are yellowish; generally each bears a series of dark spots, more or less numerous. Commonly the head, from the hinder edge of the orbits forward above the labials, is dark brown. The throat and neck are in cases clouded by darker. The prominent marks are the black spots above the axilla, the white patch in front of the shoulder, the dark mark behind the ear, and the small black specks. None of these specimens have series of ocellate spots on the flanks. We have specimens of this lizard from Nevis, also, where it is the "Blue lizard"; this raises the question as to the identity of Merrem's species with Edwards' lizard from Jamaica.

ANOLIS OCVLATUS, sp. *Cope*, 1879.

At several points on Dominica a lot of eighty-one specimens was gathered. From them it is evident that the species should not be united with *A. bimaculatus* of Sparrman, although they discover a considerable amount of variation. In color they range from light grey to nearly uniform dark brown. On the majority the white marks form transverse series of six to eight spots each. A spot near the middle of the flank in each series is larger and more distinct than the others; in this way a longitudinal row is formed on each side which persists on specimens from which the transverse series have faded. In cases there is a short white line from the shoulder backward; occasionally there is also a second, parallel to the first, separated from it by a dark space. Above the shoulder, and a little backward, there is usually a dark spot including one of the white ones, often including a white one in each side of it, and behind this a short distance another,

the latter frequently followed by a third or a series. Some are freckled by white specks on body and tail. Many have dark spots on the upper edge of the tail. The bluish white spot on the occipital scale is always present.

The females are not so much spotted as the males and such marks as they have appear to be less distinct.

This species is separated from *A. bimaculatus* by its smaller scales, by the sharp keel on the largest scales in front of the thigh, by the greater number of loreal series, by the separation of the supraorbital series on the forehead, and by the coloration. It has six to eight loreal series and the supraorbitals are separated by one to three series of granules in seven of each eight individuals. There are about twenty-three lamellæ under phalanges ii and iii of the fourth toe. This may be one of the two species *A. maculatus* described by Dr. Gray, but it is not to be determined from his description.

Hab. Dominica.

ANOLIS ASPER, sp. n.

Head moderate, one and a half to one and two-thirds times as long as broad, longer than the tibia, crown flattened, cheeks swollen in the males; snout rather broad; forehead to occiput concave; frontal ridges low; upper head scales not keeled; scales of the supraorbital semi-circles broad, three pairs in contact on the median line, usually separated from the occipital scale, which is about the size of the ear-opening, by one to two rows; seven or eight indistinctly keeled supraoculars, smooth in young, most often in contact with the supraorbitals; rostral canthus sharp, straight, canthal scales three to four; loreal rows three to four; six labials to below the centre of the eye; ear opening rather small, vertically elongate. Gular fold moderate, small on the female; with smooth scales. Body

little compressed, male with a dorso-nuchal fold. Dorsal scales small, granular, keeled, rough to the touch, larger on the back than on the flanks; ventrals larger than dorsals, smooth under the abdomen; antefemorals larger than ventrals, keeled. The scales have a swollen appearance, and on the larger specimens might be described as sub-conical; this is especially marked near the occiput and among the larger ones of vertebral rows. The adpressed hind limb reaches the eye; digital expansions large; the lamellæ under phalanges ii and iii of the fourth toe number about thirty. Male with enlarged post-anal scales. Tail compressed, not twice as long as head and body, with a serrated upper edge, which in the male is borne on a broad fin-like expansion.

Greenish or olivaceous to reddish brown or grayish on the back and flanks, with or without cloudings of darker; forehead often darker; ventral surface lighter to whitish.

A series of more than thirty specimens was purchased from Mr. W. B. Richardson who secured them on the island Marie Galante.

Closely allied to *A. ferreus*, Cope, from Guadaloupe; distinguished by small lateral scales, three pairs of supra-orbitals in contact between the orbits, three to four loreal rows, etc.

ANOLIS MARMORATUS Dum. Bibr., 1837.

As has been remarked by Dr. Boulenger, this species is closely allied to *A. bimaculatus*. The principal distinction lies in the coloration. The average size of our specimens is much less; and apparently the snout is a trifle more pointed, with canthus and ridges sharper.

Hab. Desirade. W. B. Richardson, 52 ex.

ANOLIS NUBILUS, sp. n.

Head large, somewhat similar in shape to that of *A.*

crisatellus, but longer and more pointed at the snout; cheeks and parietal regions swollen, about one and two-thirds times as long as broad, much longer than the tibia; forehead and occiput slightly concave; frontal ridges distinct, but not high; upper head scales not keeled; scales of the supra-orbital semicircles large, more or less in contact on the median line; eight to twelve enlarged faintly keeled supraoculars, separated from the supraorbitals by a single series; occipital as large as the ear, separated from the supraorbitals by two or three series of granular scales; canthus rostralis sharp, prominent, of three scales; loreal rows four to five; six to seven labials to below the centre of the eye; ear opening moderate, subelliptical, higher than long. Gular appendage medium, small in the female, smooth scaled. Body compressed; dorso-nuchal fold distinct. Dorsal scales small, keeled, larger in a couple of rows on the dorsal fold; smaller on flanks; scales of belly larger, smooth, imbricate, posterior margin rounded; antefemorals still larger, keeled, five or six near the knee about twice as broad as long, with several keels. Limbs moderate, the adpressed hind limb reaches the eye; digital expansions rather large, lamellæ under phalanges ii and iii of the fourth toe about twenty-eight. Tail compressed, with a low crest of subequal compressed scales, one of each four being a trifle larger and marking the segments, less than twice as long as head and body. Male with enlarged post-anal scales.

Grayish olive to olivaceous or reddish brown, with or without specks of light color on flanks and legs. With indistinct cloudings of darker, forming transverse bands on the tail and frequently also on the body. Ventral surface whitish; throat, at sides of the gular fold, darker.

Hab. Redonda. W. B. Richardson.

ANOLIS CEPEDI Merrem, 1820.

St. Pierre, Ft. de France, and Morne Rouge, Martinique. Seventy-four specimens.

ANOLIS GENTILIS, var. n.

Head moderate, about one and two-thirds times as long as broad, longer than the tibia; forehead with very little concavity; frontal ridges low; upper head scales smooth; scales in the supraorbital semicircles enlarged, the anterior one in each as large as three of the other four, the anterior four of each series in contact with the opposite four, and the hinder pair of each in contact with the enlarged occipital; the scales forward from the largest supraorbital rather small; internarials narrow, elongate; nine to fourteen enlarged feebly keeled supraoculars; canthus rostralis angular, canthal scales five or six; loreal rows four, rarely five; six or seven labials to below the centre of the eye. Ear opening half as large as the occipital scale, vertically oblong. Gular appendage moderate, covered with smooth scales. A low dorso-nuchal fold. Dorsal scales keeled, small, larger in two or more of the vertebral rows, smaller on the flanks; ventrals still larger than the dorsals, smooth; antefemorals larger than the ventrals, keeled. The adpressed hind limb hardly reaches the orbit; digital expansions larger than the average, twenty-two lamellæ under phalanges ii and iii of fourth toe. Male with a pair of enlarged post-anal scales. Tail compressed, twice as long as head and body; a dorsal series of large compressed subequal scales forms a crest; ventral series large, and strongly keeled in the two median rows.

Light grayish brown, with greenish, yellowish, or metallic tints; whitish beneath; with five to seven broad transverse badly defined bands of brownish between the head and the tail; legs and arms with similar bands; body

freckled or clouded with faint small blotches of brown and occasionally a few black spots. Tail ringed with broad bands and head clouded with brownish. A very young specimen has a dark edged vertebral band of light color which is not crossed by the transverse marks.

This variety of *A. cepedii* is known from twenty-five specimens taken by the writer on Petit Martinique, one of the Grenadines.

ANOLIS CINEREUS, var. n.

This variety of *A. cepedii* differs from *A. trinitatis* in being more olive or bluish; the legs show more of the lilac color, and, on our specimens, the transverse bands are obsolete. The color is intermediate between that of light-grayish varieties, from Trinidad and Petit Martinique, and the brownish, from Barbadoes.

Hab. Grenada. Twenty-four specimens.

ANOLIS TRINITATIS *Reinh. & Lütk.*, 1862.

This form has a lighter, more grayish color than the other varieties of *A. cepedii*, and in consequence the transverse bands and the small black or brown spots are more distinct.

Hab. Trinidad. Twenty-five examples, C. S. Cazon and S. Garman.

✓ *ANOLIS EXTREMUS*, var. n.

Head moderate, more than one and a half times as long as wide, much longer than the tibia; forehead and occiput concave, deeply so in old specimens; frontal ridges prominent, diverging; snout about one and a half times the length of the space between eye and ear; upper head scales more or less rough; scales of the supraorbital semicircles large, three or four pairs in contact across the interorbital space, anterior one of each series very large,

preceded by small ones in the frontal rows; ten to twelve enlarged, keeled supraoculars, separated by two series of granules from the supraorbitals; occipital larger than the ear, elongate, in contact with the supraorbitals; rostral canthus distinct, of one long and three smaller scales; loreal rows four to five; five to six labials to below the centre of the eye; ear opening moderate, vertical diameter longest. Gular appendage large, smooth scaled. Body compressed; a dorso-nuchal fold, surmounted by two rows of slightly enlarged carinate scales. Dorsal scales small, keeled, subhexagonal, smaller on the flanks. Ventrals little larger than the vertebrales, smooth, imbricate, posterior borders rounded; antefemorals larger, faintly keeled, one or two rows near the knee tricarinate. Adpressed, the hind limb hardly reaches in front of the ear; digital expansions moderately large; lamellæ under phalanges ii and iii of the fourth toe about twenty-seven. Tail slightly compressed, with a low crest of broad, keeled, subequal scales. No enlarged post-anal scales.

Grayish-brown to brown or to olive; with transverse bands which pass obliquely backward down the flank, sometimes separated by lines of small, white spots, and in cases the posterior margins are whitish. Belly white, tinged with olive toward flank and thorax; throat brown at side of goitre, often clouded under the chin.

Young, rusty brown, with transverse bands on back, tail and limbs; frequently a vertebral series of black spots, each of which is white-edged posteriorly.

Hab. Barbadoes. A variety of *A. cepedii*. Thirty specimens, Hassler expedition and S. Garman.

ANOLIS GRISEUS, sp. n.

Head large, one and two-thirds to one and three-fourths times as long as broad, shaped like that of *A. cepedii*,

medium to large specimens with three pairs of ridges on the top, concave on forehead and occiput, longer than the tibia; snout depressed; prefrontal ridges low, forming an acute angle between the nostrils, not meeting the supra-orbitals; upper head scales rough; scales of the supraorbital semicircles enlarged, separated from each other by two (one to three) series and from the occipital by one series of small scales; occipital twice as large as the ear opening; eight to twelve enlarged, keeled supraoculars, separated from the supraorbitals by one row of granules; rostral canthus sharp, of four scales; loreal rows four to five; five to six labials to below the centre of the eye; ear opening small, vertical diameter largest. Gular appendages large, smaller in the female, scales indistinctly keeled. A dorso-nuchal fold. Dorsal scales keeled, small, larger at the sides of the two rows of large, compressed, elongate, keeled scales forming the crest on the fold, smaller on the flanks; ventrals carinate, larger than the dorsals, excepting the crest; antefemorals keeled, little larger than the ventrals, if we except a couple of scales immediately on the knee. Limbs long, the adpressed hind leg reaches in front of the eye; digital expansion moderate, about twenty-nine lamellæ under phalanges ii and iii of the fourth toe. Tail compressed, with a crest in which the large scales are nearly equal, close upon two and a half times as long as both head and body.

Grayish to brownish or olivaceous, clouded, freckled, or spotted with brown and white. Sometimes with a few rounded spots of black about the shoulders; in such cases the spots are arranged in series which descend backward from the crest. Many have an indistinct brownish band across the shoulders, the middle of the body, the femur and the tibia; they also have bands across the digits and

the tail. Top and sides of head usually dark. Ventral surface whitish.

Hab. St. Vincent. Twelve specimens.

ANOLIS TROSSULUS, sp. n.

Head rather large, about one and two-thirds times as long as wide, as long as the tibia; snout moderately broad, one and a half times as long as the distance from eye to ear; forehead and occiput concave, deeply so in large specimens; frontal ridges low, short; some of the upper head scales keeled; scales of the supraorbital semicircles large, partly in contact or entirely separated between the orbits; nine to fifteen enlarged, keeled supraoculars, in contact with or separated from the supraorbital semicircles; occipital larger than the ear opening, in a cup-shaped depression, in contact with or separated from the supraorbitals; rostral canthus angular, canthal scales two large and two small; loreal rows five (four to six); five to six labials to below the centre of the eye; ear opening medium, vertical diameter twice the longitudinal. Granules on the swellings behind the occipital very small. Gular appendage large, extending backward of the arms, its scales small, keeled. Body compressed; dorso-nuchal fold surmounted by two rows of enlarged, strongly-carinate scales. Dorsal granules small, rough to the touch, with strong keels, larger toward the vertebral rows, smaller toward the flanks; ventral scales larger than the dorsals, hexagonal, juxtaposed, strongly keeled; antifemorals larger, imbricate, keeled, tricarinate in two rows near the knee. Limbs strong; adpressed, the hind limb reaches the anterior border of the eye; digital expansions not large; lamellæ under phalanges ii and iii of the fourth toe about twenty-six. Tail compressed, near two and a half

times as long as head and body, crested above by large subequal strongly keeled scales; no fin-like expansion. Post-anal scales not enlarged. Total length of large specimen fourteen inches.

Reddish-brown to light-grayish or bluish; tail with faintly indicated transverse bands of brown; head darker, frequently with white spots on the supraorbitals or on the back of the head; chin and lips white to brownish, blotched or clouded with dark. Ventral surface whitish, tinted with blue or olive toward the flanks. Young with a brownish-vertebral band and limbs freckled with small spots of lighter or darker.

Hab. Grenada. Sixteen specimens.

ANOLIS GRAHAMII Gray, 1845.

This lizard was found to be very numerous in the neighborhood of Kingston, Jamaica.

ANOLIS CONSPERSUS Garman, 1887, Pr. Am. Phil. Soc.

The specimens from which this species was described, eighty-seven in number, were collected on the island Grand Cayman by Mr. W. B. Richardson.

✓ *ANOLIS SABANUS*, sp. n.

Head moderate, about one and three-fourths times as long as broad, longer than the tibia; snout broad; cheeks but little swollen in the male; forehead and occiput concave, former with two distinct ridges. Upper head scales smooth; scales of the supraorbital semicircles large, anterior twice as long as wide, in contact between the orbits, rarely separated by a single row of granules, continued forwards, in the frontal series, decreasing in size, to the nostrils; eight to eleven enlarged feebly keeled supraocular scales, separated by a single series of granules from the supraorbitals; occipital as large as or larger than the

ear-opening, separated from the supraorbital series by one to three rows of small scales; rostral canthus sharp, of four or five scales; loreal rows four to five; six or seven labials to below the centre of the eye. Ear opening moderate, vertical diameter elongate. Gular appendage large in the male, with smooth scales. A low dorso-nuchal fold bearing a couple of rows of larger, blunt keeled scales which increase in size toward the middle of the body. Body slightly compressed. Dorsal scales small, obtusely keeled, larger than those on the flanks, much smaller than the (smooth or faintly keeled) ventrals. The adpressed hind limb reaches the eye; digital expansions moderate, twenty-five lamellæ under phalanges ii and iii of the fourth toe. Tail somewhat compressed, not twice the length of head and body, with unequal-sized scales, which mark the segments; crest low in female, higher in male. All of our specimens are adult, but none bear the fin-like expansion of *Xiphosurus*. Enlarged post-anal scales on the male.

Light grayish or yellowish brown profusely spotted with large spots of black, separated by spaces of equal width, often confluent on the back and behind the head; the three series, or lines, on each side of the head, the median from the eye, converge toward the back of the neck. On the flanks there are three to four rows of spots, arranged in ten or a dozen transverse series, the upper of which are frequently confluent, forming transverse bands. The top and sides of the head are yellowish, and spotted with large black spots. The ventral surface is whitish. On a female the ground color is a little darker and the spots less distinct and more elongate.

Eggs supposed to belong to this species—sent with a lot made up entirely of males—have a leathery envelope and measure in length about five-, and in width about three-tenths of an inch.

This species has been reported only from the island of Saba, whence thirteen specimens were sent us by Mr. F. Lagois and others.

ANOLIS VIRGATUS, sp. n.

Head rather large, one and two-thirds times as long as broad, much longer than the tibia; forehead hardly concave in adults, frontal ridges distinct, occipital scale in a concavity; upper head scales faintly keeled; scales of the supraorbital semicircles large, continuous forward with the frontal series, in contact or separate mesially; five to ten enlarged feebly keeled supraoculars, partially or entirely separated from the supraorbitals by a single row of granules; rostral canthus angular, of four scales; occipital scales usually larger than the ear-opening, separated from the supraorbital semicircles by one to three series of granular scales; loreal rows five; six or seven labials to below the centre of the eye. Ear-opening small, vertically oblong. Gular appendage medium, covered with smooth scales. No dorso-nuchal fold. Dorsal scales keeled, granular, little larger than those on the flanks, slightly larger at the sides of two enlarged vertebral rows; scales around the occipital and on the parietal prominences larger; ventrals much larger than the largest dorsals, smooth, imbricate; three or more rows of broad, smooth, antefemorals. The adpressed hind limb reaches the eye; digital expansions medium; twenty-three lamellæ under phalanges ii and iii of the fourth toe. Tail compressed; serrated on the upper edge in a crest in which the large scales are separated from each other by a pair each of which is about half as large. Males with a pair of enlarged post anal scales, in contact or separated by a single scale.

Gray; white beneath. On back and flanks there are

numerous longitudinal streaks or elongate spots of dark brown, in cases forming vermiculations; a whitish band extends from the arm above the axilla along the flank to the hinder part of the thigh or the base of the tail; tail with indistinct transverse bands of brownish; back, in cases, with faint cross bands.

The types from which this description is taken are fifteen specimens collected by Mr. F. Lagois on the island St. Bart's.

ANOLIS DISTICHUS Cope, 1861.

About forty specimens are in the collection. They were secured at Jeremie, Hayti, by Dr. Weinland, at Samana and Puerto Plata by M. A. Frazar, and at Isle des Vaches, western Hayti, by the writer.

ANOLIS CYBOTES Cope, 1862.

From Jeremie, Hayti, Dr. Weinland; and Samana, San Domingo, M. A. Frazar.

ANOLIS HAETIANUS, var. n.

A variety of *A. cybotes* which is introduced under this name, from Tiburon, Hayti, has keeled ventral scales and eight to ten rows of loreals. The canthus rostralis is very prominent laterally and makes a curve considerably rounded or convex upward.

ANOLIS CITRINELLUS Cope, 1864.

From Port au Prince, Hayti; Prof. Ackermann.

ANOLIS SPECIOSUS, sp. n.

Head moderate, one and two-thirds to one and three-fourths times as long as wide, longer than the tibia; forehead and occiput slightly concave; frontal ridges low; upper head scales rugose; scales of the supraorbital semi-

circles large, continuous forward as frontal series, most often separated between the orbits by a single series of granules, occasionally in contact; six to twelve enlarged supraocular scales, smooth or with a faint keel, separated from the supraorbitals by a single series of granules, sometimes in contact; occipital about as large as the ear opening, separated from the supraorbitals by two (one to three) series; canthus rostralis distinct, scales three or four, loreal rows four to five; seven to eight labials to below the centre of the eye; parietal granules enlarged, convex; ear opening small, vertically widest. Gular appendage small, scales smooth or faintly keeled. Body slightly compressed, a very low dorso-nuchal fold surmounted by several rows of enlarged keeled granules. Dorsal granules small, a little enlarged at the sides of the dorsal fold. Ventral scales large, imbricate, faintly keeled, posterior margin rounded. Antefemorals larger, with low keels. Limbs moderate, the adpressed hind limb reaches the orbit; digital expansions rather small; about twenty-four lamellæ under phalanges ii and iii of the fourth toe. Tail compressed; with a low crest of large subequal scales, those marking the segments slightly larger; nearly twice the length of head and body. Enlarged post-anal scales.

Body uniform greenish to olivaceous blue, legs and head brownish; lighter beneath, clouded with brownish on the chin, throat and anterior portion of the goitre. No white spots.

A small species, reaching the size of *A. principalis*. Common on Marie Galante, whence our specimens were brought by Mr. W. B. Richardson.

✓ *ANOLIS LIVIDUS*, sp. n.

Head moderate, one and two-thirds to one and three-fourths times as long as wide, much longer than the tibia; occiput and frontal regions slightly concave; frontal ridges

distinct, low; upper head scales not keeled; scales of the supraorbital semicircles large, continuous forward with the frontal series, usually one of each in contact across the interorbital space; eight to twelve enlarged supraoculars, smooth or with a low tubercle on the centre, separated from the supraorbitals by one series of granules; occipital scale larger than the ear opening, separated from the supraorbitals by one series or more; rostral canthus angular, of four scales; loreal rows five; six labials to below the centre of the eye; ear opening medium, vertical diameter longer. Gular appendage moderate, smooth scaled.

Body little compressed, dorso-nuchal fold slight. Dorsal scales small, granular, keeled, enlarged near the large ones of the median rows; ventrals large, carinate, imbricate, posterior border rounded; antefemoral scales larger than ventrals, keeled. Limbs moderate, adpressed the hind leg reaches the eye; digital expansions rather large; lamellæ under phalanges ii and iii of the fourth toe about twenty-five. Tail compressed, rough, serrated on the upper edge by large scales of which that marking the end of a segment is somewhat larger, less than one and a half times as long as head and body. Male with enlarged postanal scales.

Blue to olive or brownish; head lighter, yellowish to yellowish brown, a light streak along the upper lip; belly lighter, yellowish posteriorly; legs whitish beneath. The back is uniform or sprinkled with indistinct small spots of whitish on neck and shoulders, rarely on the flanks. Young ones are light grayish and have a dark-edged vertebral band of light color, which is sometimes crossed by hour-glass-shaped transverse bands of brown.

Hab. Montserrat. Fifty-three specimens.

✓ *ANOLIS LUCIÆ*, sp. n.

Head longer than the tibia, one and three-fourths times

as long as broad ; snout depressed, twice as long as the distance from orbit to ear ; forehead and occiput deeply concave ; frontal ridges distinct, having the appearance of dividing into two or three anteriorly ; a few only of the upper head scales keeled ; scales of the supraorbital semicircles large, not separated between the orbits ; eight to twelve enlarged, smooth to feebly keeled supraocular scales, in contact with or separated from the supraorbitals, by a single series ; occipital about twice as large as the ear opening, in contact with the supraorbitals ; rostral canthus not prominent, of five scales ; loreal rows four to five ; six to seven labials to below the centre of the eye ; ear opening small, twice as high as long. On large specimens the supraorbital ridges become very prominent and continued backward enclose a cup-shaped depression on the occiput ; the parietal granules are greatly enlarged. A couple of rows of much enlarged granules extend back from the orbit and bend down toward the ear. Gular appendage moderate, smooth scaled. Body hardly compressed, dorsonuchal fold indistinct, marked by a couple of rows of enlarged keeled scales. Dorsal scales small, very irregular in sizes, six or eight rows of the vertebrales enlarged and keeled, those on the flank smaller. Ventrals larger, subhexagonal, juxtaposed, smooth. Limbs medium ; adpressed, the hind leg reaches a little in front of the ear ; digital expansions moderate ; lamellæ under phalanges ii and iii of the fourth toe about twenty-seven. Tail feebly compressed, nearly twice as long as head and body, serrated on the upper edge with low subequal strongly keeled scales. No enlarged post-anal scales.

Grayish to brownish olive, with or without faint transverse bands of brown on the anterior portion of the body and on the tail ; more blue on the flanks and beneath ; head darker. On back and flanks there are indistinct traces of

vermiculations in light iridescent tints. On young ones there are five transverse bands on the body; these individuals are more gray, or brown, than the large.

Hab. St. Lucia. Thirty-three specimens.

ANOLIS VINCENTII, sp. n.

Head of medium size, about one and three-fourths times as long as wide, longer than the tibia, deeply concave on the forehead and occiput, slightly depressed on the snout; frontal ridges distinct, not extending forward, prominent and rough between the orbits in adults; upper head scales not keeled; scales of the supraorbital semicircles large, more or less in contact between the orbits; nine to fourteen enlarged keeled supraoculars, separated from the supraorbital series by a series of granules; occipital twice as large as the ear-opening, anterior border rounded, in contact with the supraoculars; canthus rostralis not very distinct, of two large and two or three short scales; loreal rows five to six; seven to eight labials to below the centre of the eye; ear opening hardly half as large as the occipital, vertically oval. Gular appendage large, reaching behind the thorax, scales smooth. Body little compressed; a slight dorsonuchal fold. Dorsal scales small, keeled, increasing in size toward the two mesial rows which are largest. Ventral scales smooth, subhexagonal, hardly imbricate, smaller than a few of the antefemorals; the latter moderate, keeled, near the knee tricarinate. Limbs medium, the adpressed leg reaches the ear; digital expansions not large; lamellæ under phalanges ii and iii of the fourth toe about twenty-six. Tail compressed, serrated on the upper edge by large, sub-equal, pointed scales, more than twice (two and one-fourth times) as long as head and body. Postanals not enlarged.

Green to brownish olive; flanks, sacral region, limbs and tail more or less purple or lilac in life; ventral surfaces whitish; gular fold darker, anteriorly, as also in cases, the lower surface of the neck. Head most often darker; upper lip frequently whitish. Very young ones are bronzed, light reddish brown, with faint transverse bands and cloudings; white beneath.

Hab. St. Vincent; eighty-seven specimens.

ANOLIS LINEATOPUS Gray, 1840.

On very young specimens there are four vertical bands of brownish on the flank, sometimes more or less subdivided, and from each a sharp angle is presented to one from the opposite flank, meeting at the vertebral series.

Hab. Kingston, Jamaica. Twenty-five specimens.

ANOLIS SAGRAE (Coct.) Dum. Bibr., 1837.

From Cuba, 5 ex., S. H. Scudder; 7 ex. Caibarien, Cuba, N. H. Bishop; 60 ex., Matanzas, Havana, and Bahia Honda, Cuba, S. Garman.

ANOLIS ORDINATUS Cope, 1864.

We have this variety of *A. sagrae* from the Bahamas, by C. J. Maynard; New Providence, Bahamas, by F. K. Shaw; the Florida Keys by Count L. F. de Pourtales; and from Nassau, Bahamas, by J. C. Comstock.

ANOLIS PORCATUS Gray, 1840.

This *Anolis* is usually confounded with the *A. principalis* Linné, from the southern part of the United States. The species are in reality quite distinct, though bearing considerable resemblance to each other. Compared with representatives of *A. principalis* from the Carolinas, *A. porcatus* has a longer snout, stronger and sharper cephalic ridges, a longer tail, longer legs, more digital lamellæ and

larger scales on the loreal region and on the flanks. The snout is twice the length of the space between the orbit and the ear; the frontal ridges are very prominent, sharp and comparatively straight, forward from the interorbital space; adpressed, the leg reaches to the middle of the space between the orbit and the ear; the lamellæ under phalanges ii and iii of the fourth toe number about twenty-eight; the tail is more than twice as long as both head and body; and the loreal rows are commonly three, sometimes four.

On *A. principalis* the snout is but about one and two-thirds times the length of the space between the orbit and the ear; the frontal ridges are less sharp and prominent, and spread farther apart or are more crooked in the prefrontal region; the leg reaches the anterior border of the ear; there are about twenty-five lamellæ under phalanges ii and iii of the fourth toe; the tail is about one and three-fourths times as long as head and body; and the loreal rows are five, rarely six or four.

Forty specimens, from Caibarien, by N. H. Bishop, and from Matanzas, Havana, and Bahia Honda, by the writer.

ANOLIS CHLOROCYANUS *Dum. Bibr.*, 1837.

Hab. Samana, San Domingo. Collected by M. A. Frazar.

ANOLIS CÆLESTINUS *Cope*, 1862.

From Hayti by Doctor Weinland; from Tiburon, Hayti, by S. Garman.

ANOLIS PULCHELLUS *Dum. Bibr.*, 1837.

From Port au Prince, Hayti, by Professor Ackermann; from Bayamon, Porto Rico, and from St. Thomas by the writer. Thirty-three specimens.

ANOLIS SEMILINEATUS Cope, 1864.

From Samana, San Domingo, M. A. Frazar.

NOROPS OPHIOLEPIS Cope; Bocourt.

Cuba, Prof. S. H. Scudder.

POLYCHRUS MARMORATUS L.; Merr.

Trinidad. Eleven specimens, C. S. Cazabon and S. Garman.

LIOCEPHALUS VITTATUS Hallow.; Reinh. & Lütk.

Cuba, and Matanzas, Cuba, C. J. Maynard and S. Garman.

LIOCEPHALUS MELANOCHLORUS Cope, 1862.

Jeremie, Hayti, Doctor Weinland; Tiburon, Hayti, by the writer.

LIOCEPHALUS PERSONATUS Cope, 1862.

Jeremie, Hayti, Doctor Weinland: Puerto Plata, San Domingo, M. A. Frazar.

LIOCEPHALUS CARINATUS Gray, 1827.

Cuba and New Providence, Bahamas, C. J. Maynard.

LIOCEPHALUS VARIUS Garman, 1887, Pr. Am. Phil. Soc.

Grand Cayman Island, W. B. Richardson.

URANISCODON PLICA L.; Kaup.

Trinidad.

CYCLURA CARINATA Harl., 1824.

Turks Island, A. S. Bickmore.

There are combs on both third and fourth toes. Scales above the snout small and irregular; teeth serrated.

CYCLURA NUBILA Gray, 1831.

Cuba ?. Collector ?.

The plates above the snout are broad and flattened ; the combs appear on both third and fourth toes ; teeth serrated.

CYCLURA CORNUTA, *Daudin* sp.

Metopocerus cornutus Wagl.

Jeremie, Hayti, Dr. D. F. Weinland ; Navassa, Prof. S. F. Baird.

In the memoirs of the Mus. Comp. Zoöl., VIII, 1883 (Rept. and Batr. N. Amer., Introd., p. xiii) the writer called attention to the peculiar specialized corneous digging combs on the third and fourth toes of the hind foot of this lizard. Since that time this apparatus has been found by Professor Cope to mark the species of *Cyclura*, also of burrowing habits, and to afford a most important character in distinguishing them from the species of *Ctenosaura*.

IGUANA TUBERCULATA *Laur.*, 1768.

Trinidad, C. S. Cazabon ; Saba, F. Lagois ; St. Thomas, S. Garman ; Grenada, P. Gellinau.

The Grenada specimens are intermediate between *I. tuberculata* and *I. rhinolopha*. They have one prominent series of tubercles on the neck, and several scattered ones above the hinder extremity of the series. The tubercles on the snout are not so prominent as in *I. rhinolopha* from Central America, but the arrangement is the same. The tubercles on the neck are comparatively few as compared with those on Nicaraguan types.

IGUANA DELICATISSIMA *Laur.*, 1768.

Nevis and St. Barts, F. Lagois.

The eggs of these specimens are elongate, about one and seven-eighths inches by one and one-eighth.

ON WEST INDIAN REPTILES.

SCINCIDÆ.

BY SAMUEL GARMAN.

MABUIA SLOANII *Gray*, 1845.

Supranasals separated behind the rostral; parietals in contact behind the interparietal; two pairs of broad nuchals; four supraorbitals; four labials in front of the suborbital, sometimes five; scales smooth, in thirty rows around the body; fifty-four to fifty-five from chin to vent in the mesial row.

Jamaica.

MABUIA NITIDA, sp. n.

Supranasals in contact; parietals in contact; two pairs of nuchals; four supraorbitals, sometimes three; four supraciliaries; five labials in front of the suborbital, sometimes four; scales smooth, in thirty rows, sixty to sixty-three from chin to vent. Tail one and one-half times the length of head and body.

Olive, bronzed; a brownish band from nostril to hip is edged with an indistinct band of lighter above and below; a few, angular small spots of brown, with white lateral edges, on back and limbs.

Porto Rico; San Domingo.

MABUIA LUCIÆ, sp. n.

Supranasals in contact; parietals in contact; one to two pairs of nuchals; four supraorbitals; four labials in front

of the suborbital; scales striate, in thirty rows, sixty-six from chin to vent. Tail one and one-half times the length of body and head.

Olive, bronzed; nearly uniform brownish posteriorly; anteriorly with an irregular and broken band of brown from snout to shoulder; arm and neck to flank with dark-edged small spots of white; dark edges on the scales form obliquely transverse streaks on the back; dark lateral edges of the ventrals form longitudinal lines of brown from chin to tail.

St. Lucia.

MABUIA DOMINICANA, sp. n.

Supranasals separate; parietals in contact; nuchals one pair; four supraorbitals; four labials in front of the suborbital, sometimes five; scales rugose, in thirty to thirty-two rows, sixty-eight to seventy-two from chin to vent. Tail about one and two-thirds times as long as head and body.

Brownish-olive, bronzed; a dark band from snout to hip, edged above by a paler one and below by a white line that becomes indistinct backward; white beneath. Forward on young specimens the pale bands are white, and at the inner edge of each, on the back, there is a series of brown spots.

Dominica.

MABUIA MABOUIA, sp. *D. & B.*

Supranasals separate; parietals in contact; nuchals one pair; three supraorbitals; four labials in front of the suborbital, sometimes five; scales with faint striæ, in twenty-eight to thirty rows, sixty-three to sixty-five from chin to vent.

St. Pierre and Ft. de France, Martinique.

MABUIA AENEAE Gray, 1845.

Supranasals separate; parietals separate; nuchals one pair; four supraorbitals; five labials in front of the sub-orbital, sometimes four; scales feebly striate, in twenty-eight to thirty rows, fifty-four to fifty-eight from chin to vent.

St. Vincent; Grenada; Trinidad.

MABUIA AGILIS Radd.; Fitz.

Supranasals in contact; parietals in contact; nuchals one pair; four supraorbitals; four labials in front of sub-orbital; scales in thirty rows, striæ faint, fifty-four to fifty-six scales from chin to vent.

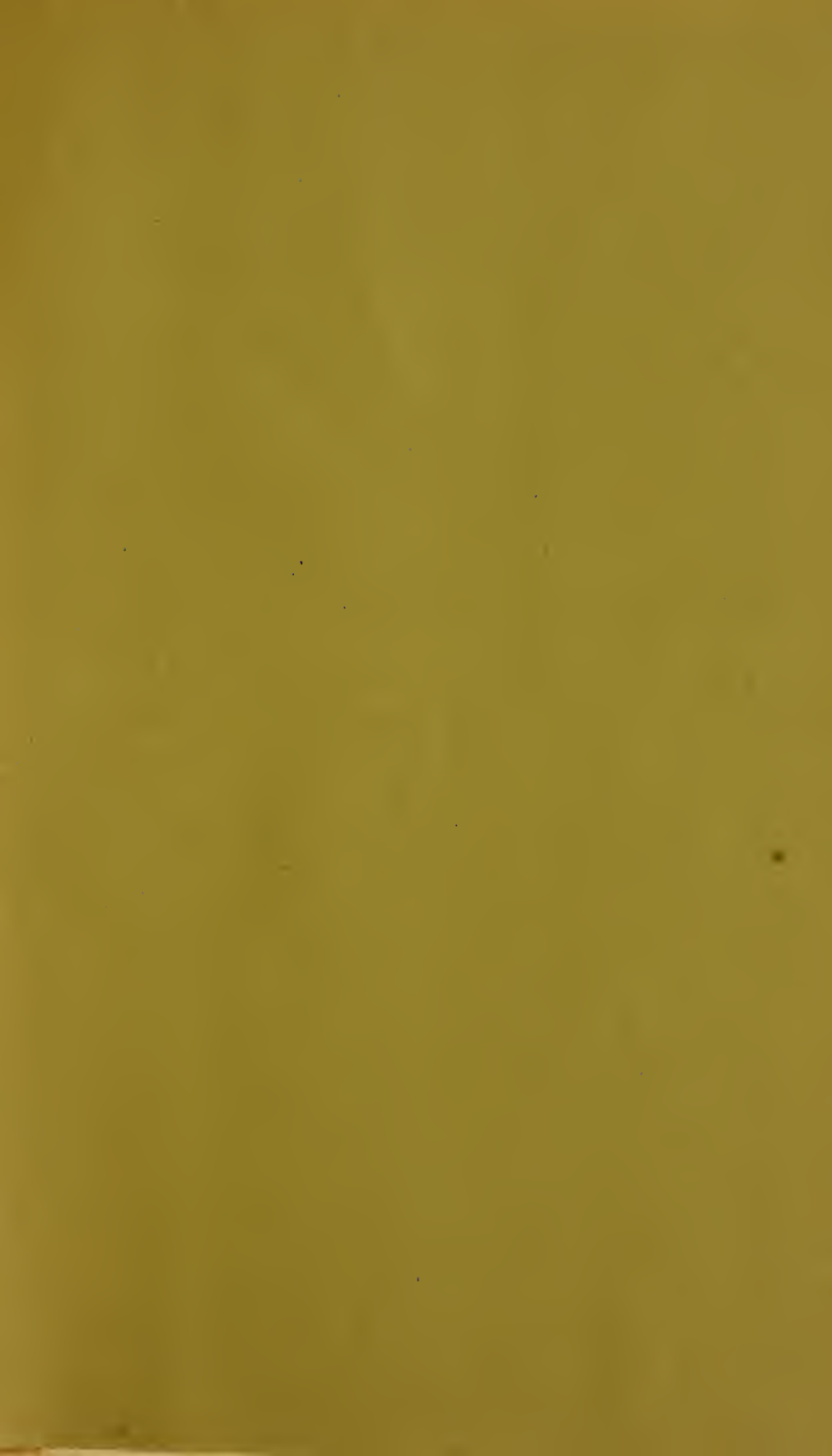
Rio Janeiro, Para and Villa Bella, Brazil.

MABUIA AURATA Schn.; Ptrs.

Supranasals usually separated; parietals in contact; nuchals one pair; four supraorbitals; four labials in front of the suborbital; scales smooth, in twenty-eight to thirty rows, fifty-eight to sixty-two from chin to vent.

Rio Janeiro and Goyaz, Brazil, to Turbo, Chagres River and Nicaragua on the Isthmus.

The specimens from which the foregoing notes have been taken are in the Museum of Comparative Zoology at Cambridge, Mass., U. S. A.







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