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Article VII.—SOUTH AMERICAN LIZARDS IN THE COLLECTION OF THE AMERICAN MUSEUM OF NATURAL HISTORY

By Charles E. Burt and May Danheim Burt

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INTRODUCTION

In the past, particularly during the last twenty years, many members of the scientific staff of The American Museum of Natural History have maintained an active interest in the fauna of South America. As a consequence of this, numerous expeditions and exchanges have been made and many lots of amphibians and reptiles have accumulated. The importance of these specimens will be evident to those who study the papers based upon them and note the distributional representation of the various forms.

Since the appearance of Boulenger's 'Catalogue of the Lizards' in 1885 and 1887, there has been no comprehensive systematic treatment of the lizards of South America. Yet, during the interval between 1885 and the present time, much analytical work has been done on various small collections. This has resulted in the proposal and tentative recognition of many new forms, some of which are found to be invalid in the light of the present synthetic analysis.

This study, although usually confined in scope to the material at hand, presents a practical revision of various genera, among them the

little-known *Enyalioides* and many of the Teiidæ, and furnishes important facts pertaining to the representatives of many other genera. Also, in this regard, the most significant taxonomic data, such as the citation of recent synonyms, type localities, and the inclusion of distributional records on all of the specimens in The American Museum of Natural History, have been given under each form.

Data pertaining to the American Museum's expeditions in Colombia and Ecuador have been excellently summarized by Chapman (1917 and 1926), who has prepared extensive accounts of the bird-life of this section of South America. In addition, interesting accounts pertaining to the character of the Mount Roraima region (Tate, 1930) and of the Mount Duida region (Tate and Hitchcock, 1930) have recently appeared, these being based on data secured on American Museum's expeditions to the areas concerned.

The writers are indebted to Dr. G. K. Noble, who has maintained an active interest in South American herpetology (thereby doing much to build up the collection under discussion), for his enthusiastic support and helpful criticism of this study, and to G. H. H. Tate for checking the spelling of many of the localities mentioned therein. Thanks are extended here to Clifford H. Pope and William G. Hassler for the aid that they have given. The writers also take this opportunity to express their appreciation to Dr. Leonhard Stejneger and Dr. Thomas Barbour for permission to examine the large collections of the United States National Museum and the Museum of Comparative Zoölogy, respectively, for comparative material. All of the illustrations have been prepared by Mrs. William Beutenmüller.

SUMMARY OF TAXONOMIC ALTERATIONS

The following species and subspecies are described here for the first time:

The following forms are reduced to subspecific rank under the various formæ typicæ concerned:

Three species are referred to different genera in this manner:

A number of commonly recognized genera are placed in the synonymy of previously described genera, as follows:

This necessitates the transfer of many valid forms from one genus to another, as follows:

The following commonly recognized entities are here referred to the synonymy of previously described forms for the first time:

A number of very important changes in the nomenclature of South American lizards have been made since the appearance of Boulenger's catalogue (1885–1887). Nearly all are given recognition here, and in order that subsequent workers may have an index to these, special attention is called to the following lists.

(1). Genera placed in the synonymy are as follows:

(2). Species placed in the synonymy or transferred to other genera are as follows:

LIST OF THE SPECIES OF SOUTH AMERICAN LIZARDS IN THE COLLECTION OF THE AMERICAN MUSEUM OF NATURAL HISTORY

GEKKONIDÆ PAGE

IGUANIDÆ

SYSTEMATIC DISCUSSION OF THE LIZARDS OF THE FAMILIES REPRESENTED IN THE COLLECTION

AMPHISBÆNIDÆ

AMPHISBÆNA Linnæus

The species of *Amphisbæna* are in great taxonomic confusion, and the material available for this report is so limited that it is not possible to revise the South American section of the genus here.

Amphisbæna alba Linnæus

Amphisbæna alba LINNÆUS, 1758, 'Syst. Nat.,' X, p. 229, (type locality, America).

All of the specimens listed below have more than four preanal pores.

A. M. N. H. Nos.	Locality	Collector
37408	Buenavista, Santa Cruz, Bolivia	José Steinbach
1094, 1097–98	Brazil	Maximilian
22244–45	Puerto Velho, Brazil	Mulford Biol. Exp.
1095	Guiana	Maximilian
9032	Trinidad	R. R. Mole
17799	Trinidad	From N. Y. Aquarium

Amphisbæna camura Cope

Amphisbæna camura COPE, 1862, Proc. Acad. Nat. Sci. Phila., p. 350, (type locality, Paraguay). BOULENGER, 1894, Ann. and Mag. Nat. Hist., (6) XIII, p. 344.

In 1894 Boulenger rectified his mistake in synonymizing this species (1885), a form with 74 to 80 segments around the body, with *Amphisbæna darwinii* which has only 28 to 42 segments around the body. It is probable that the nearest relative of *camura* is *alba* of adjacent northern regions, and not *darwinii* of the same region.

PARAGUAY.—One topotype: No. 25173, collected at Villa Rica by Francisco Schade.

Amphisbæna darwinii Duméril and Bibron

Amphisbæna darwinii DUMÉRIL AND BIBRON, 1839, 'Erp. Gen.,' V, p. 490, (type locality, Montevideo, Uruguay).

ARGENTINA.—One specimen: No. 17023, collected at Buenos Aires by Pedro Serie.

Amphisbæna fuliginosa Linnæus

Amphisbæna fuliginosa LINNÆUS, 1758, 'Syst. Nat.,' X, p. 229, (type locality, America).

This is the commonest species of amphisbænid lizard in South America and, fortunately, one of the most distinct as well. The body is

variegated with black and white or pinkish, and either one color or the other may predominate, as noted by Boulenger (1885, p. 438). This type of coloration is not approached by other South American species of *Amphisbæna.*

All of the specimens listed below have more than four preanal pores. The size of the prefrontals and nasals, and hence the relative lengths of the sutures between them, are highly variable as shown by examination of numerous specimens. Also, it is found that the number of segments around the middle of the body is not constant in this and many other South American species of *Amphisbæna.* Thus, it appears that the relative value of such characters remains to be determined when some investigator finds an opportunity to examine large series of specimens, to gather much data upon them, and to compare carefully the variations found from both the geographical and specific standpoints.

The specimens of *fuliginosa* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
37442–44	Cucuhy, Brazil	W. J. La Varre
1091–93	S. Maria, Brazil	Maximilian
7295	Georgetown, British Guiana	William Beebe
17688–89	Georgetown, British Guiana	W. F. H. Rosenberg
1085	Kaieteur, British Guiana	F. E. Lutz
8731	Kalacoon, British Guiana	William Beebe
25088	Kamakusa, British Guiana	W. J. La Varre
27495, 37455	Honda, Colombia	Nicéforo Maria
18237	Las Aminas Creek, Quito River, Colombia	R. D. O. Johnson
37440–41	Medellin, Colombia	Nicéforo Maria
27496	Muzo, Colombia	Nicéforo Maria
17659	New Granada, Colombia	Cope Collection
37439	San Pedro, Colombia	Nicéforo Maria
8134–35, 8140, 8157, 8649–51, 8678	Paramaribo, Dutch Guiana	J. A. Samuels
28742	Ecuador	H. E. Anthony
37862	Near Baños, Ecuador	E. Feyer
22090	Bucay, Ecuador	G. H. H. Tate
28784–85	Luoula, Rio Ripano, Ecuador	E. Feyer
2285, 23324–26	Riobamba, Ecuador	E. Feyer
5812	Guiana	Maximilian
6968	Caparo, Trinidad	P. S. Whelpley

Amphisbæna mertensii Strauch

Amphisbæna mertensii STRAUCH, 1881, Mél. Biol. Acad. St. Petersburg, XI, p. 385, (type locality, unknown).

The specimen from Paraguay listed below is apparently typical of *Amphisbæna mertensii*, described from an unknown locality. As translated by Boulenger (1885, p. 441), the type had "Two hundred and twenty-nine annuli on the body, and thirty-two on the tail . . . ; an annulus contains forty-four segments, twenty-four above, and twenty below the lateral lines. Latter distinct. Eight anal segments. Seven præanal pores." The specimen at hand exhibits some variation, and, in the manner of Boulenger, it may be described as follows: two hundred and thirty-two annuli on the body, and 28 to 30 on the tail; an annulus contains 34 segments, 18 above, and 16 below the lateral lines. Latter distinct. Eight anal segments. Six preanal pores.

PARAGUAY.—One specimen: No. 25172, collected at Villa Rica by F. Schade.

Amphisbæna pericensis Noble

Amphisbæna pericensis NOBLE, 1921, Ann. N. Y. Acad. Sci., XXIX, p. 141 (type locality, Perico, Peru).

PERU.—Three paratypes: Nos. 28501–503, collected at Perico by G. K. Noble.

Amphisbæna spurrelli Boulenger

Amphisbæna spurrelli BOULENGER, 1915, Proc. Zool. Soc. London, p. 659, (type locality, Anda Goya, at the junction of the Rio Condoto and San Juan, southern Colombia).

COLOMBIA.—One specimen: No. 18261, collected at Boca de la Raspadura by E. W. Johnson.

Amphisbæna vermicularis Spix

Amphisbæna vermicularis SPIX, 1824, 'Spec. Novæ Serp. Brasil.,' p. 73, (type locality, Province of Bahia, Brazil).

BRAZIL.—Two specimens: No. 1096 (the type), collected by Maximilian; and No. 3004, collector unknown.

ANOPSIBÆNA Stejneger

Stejneger (1916) has shown that the old generic name *Anops* is not available for the species listed below (which he regards as generically distinct from *Baikia africana*), since it is preoccupied by *Anops* Oken (1815), the name given to a crustacean. Therefore, he has proposed the new generic name *Anopsibæna* for the lizard.

Anopsibæna kingii (Bell)

Anops kingii Bell, 1833, Proc. Zool. Soc. London, p. 99, (type locality, South America).

Argentina.—One specimen: No. 17024, from Cordoba.

Leposternon Spix

Leposternon Spix, 1824, 'Spec. Nov. Serp. Bras.,' p. 70.
Lepidosternon Wagler, 1830, 'Syst. Amph.,' p. 197.

Leposternon microcephalum Spix

Leposternon microcephalus Spix, 1824, 'Spec. Novæ Serp. Bras.,' p. 70, (type locality, Rio de Janeiro, Brazil).

Brazil.—Two specimens: the type, No. 1101, from Rio de Janeiro; and No. 27351, collected by José B. Vianna. The latter shows incomplete sutures on the top of the head, the plates being outlined by folds or wrinkles only.

Anguidæ

Diploglossus Wiegmann

Diploglossus Wiegmann, 1834, 'Herpetologia Mexicana,' p. 36, (type species, *D. fasciatus* Wiegmann).

For some time, particularly more recently, there has been considerable confusion relating to the species of this genus and those of *Celestus* Gray (1839), a genus based on *C. striatus* (from an unknown locality), which is now considered a synonym of the previously described *C. occiduus* of Jamaica.

Boulenger (1885) considered *Celestus* a synonym of *Diploglossus*, but Stejneger (1904) in his 'Herpetology of Porto Rico' apparently regarded it as distinct and wrote as follows: "This genus [*Celestus*] is confined to the Greater Antilles and Central America, no species occurring in the Caribbean islands." Likewise, Barbour (1914 and 1919) has accepted *Celestus* as the name for the West Indian examples of the lizards under discussion, but apparently no one has specified the basis of its separation from the genus *Diploglossus*.[1]

From Boulenger's key (1885), it is evident that his combined genus *Diploglossus* (including *Celestus*) may be separated into two satisfactory sections (so far as known) in either of two ways: namely, (1) on the basis of the digital characters, or (2) on the basis of the cephalic scutellation. The digits of the South American species are found to terminate in a large ungual sheath, while the West Indian forms have no such

[1]Peracca (1890) presented a synopsis of *Diploglossus* in the present sense but did not specify its distinction from other anguids.

sheath. Also, the South American representatives, with the exception of *bilobatus, lessonæ* (Peracca, 1890), and *tenuifasciatus* (Parker, 1924), show a frontal which is in contact anteriorly with two or three shields, whereas those in the West Indies have a frontal which is in contact anteriorly with only a single, large shield. Since the intermediate species indicated above show the digital modifications of the South American examples and the cephalic scutellation of those in the West Indies, but may be separated from the West Indian forms by the digital modifications alone, it seems best to accept the latter characters in making a generic distinction. Therefore, in order to set a standard for the identification of the two groups under discussion, the following separation is proposed:

Digits terminating in a large compressed sheath; claws semi-retractile to retractile (South and Central America) ..... *Diploglossus* Wiegmann.

Digits not terminating in a large compressed sheath; claws free, not retractile (Central America and the West Indies) ..... *Celestus* Gray.

Celestus hancocki Slevin (1928) has been recently described from Malpelo Island, which lies about 250 miles off the mouth of the San Juan River, Colombia. It is apparent that this lizard belongs to the South American section outlined above. Therefore, it should henceforth be known as *Diploglossus hancocki* (Slevin).

Diploglossus fasciatus (Gray)

Tiliqua fasciatus GRAY, 1831, in Griffith's 'Cuvier's Animal Kingdom,' 'Synops. Reptilia,' p. 71, (type locality, not indicated).

Diploglossus fasciatus WIEGMANN, 1834, 'Herpetologia Mexicana,' p. 36.

BRAZIL.—Two specimens: No. 19440, from the Cope Collection and No. 27637, collected near Rio de Janeiro by Dr. Miranda-Ribeiro

Diploglossus monotropis (Kuhl)

Scincus monotropis KÜHL, 1820, 'Beitr. Zool. u. Vergl. Anat.,' p. 128, (type locality, unknown).

Diploglossus monotropis WIEGMANN, 1834, 'Herpetologia Mexicana,' p. 36.

ECUADOR.—Two specimens from the Cope Collection: No. 17667 from San José de Chimbo; and No. 17666 from Virona.

OPHIODES Wagler

OPHIODES striatus (Spix)

Pygopus striatus SPIX, 1825, 'Spec. Novæ Lacert. Brasil.,' p. 25, (type locality, Rio de Janeiro, Brazil).

Ophiodes striatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 296.

ARGENTINA.—Two specimens: No. 17660, from the Cope Collection; and No. 17019 from Tucuman.

BRAZIL.—Two topotypes: No. 12852 from Rio de Janeiro, collected by Louis Agassiz; and No. 17029 from Alto da Boa Vista, Rio de Janeiro, secured by E. G. Holt.

Ophiodes vertebralis Bocourt

Ophiodes vertebralis BOCOURT, 1881, 'Miss. Sci. Mex. et Amer. Centr.,' p. 459, (type locality, southern Brazil and Uruguay).

ARGENTINA.—Three specimens: No. 37476–77, collected at Mar del Plata by R. H. Beck; and No. 17018, secured at Buenos Aires.

GEKKONIDÆ

GONATODES Fitzinger

Most of the species of this genus present a remarkable sexual dimorphism in coloration, and often in scutellation as well, so that their taxonomy is made very difficult. It is not improbable that when this interesting variation is fully understood the number of recognized species may be reduced.

Gonatodes albogularis (Duméril and Bibron)

Gymnodactylus albogularis DUMÉRIL AND BIBRON, 1836, 'Erp. Gen.,' III, p. 415. (type locality, Martinique and Cuba).

Gonatodes albogularis BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 59.

A series of specimens from Mérida, Venezuela (Nos. 5285, and 13520–23), show the characteristics attributed to this species. In these, the ventral, femoral, and abdominal scales are larger than in the closely related *fuscus*, but it must be emphasized that this holds true only when male is compared with male, and female with female. Thus, a female of *albogularis* when compared with a male of *fuscus* is found to have correspondingly smaller, not larger, femoral and abdominal scutes.

Gonatodes annularis Boulenger

Gonatodes annularis BOULENGER, 1887, Proc. Zool. Soc. London, p. 154, (type locality, Maccasseema, on the Pomeroon River, British Guiana).

The coloration of this form may be very distinctive, the pattern being well defined as in the original illustration, or it may be very dull. The dark dorsal markings in a few specimens are confined to the posterior part of the back and to the tail, which is cross-banded. In a number of individuals the fore part of the back is brownish and there is a prominent black or dark brown spot in front of the shoulder, while in others

this spot is not in contrast due to fading or to the presence of a distinct dorsal pattern. In either case, the shoulder may or may not show white lines or other markings, these often bordering the dark antehumeral spot when it is present. The throat may be tiger-barred, spotted, suffused with dark pigment, or whitish, and in only a few specimens are the markings as well defined as in the original type illustration.

The specimens of *annularis* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
17687	Georgetown, British Guiana	W. F. H. Rosenberg
21252–54, 21339	Kaieteur, British Guiana	William Beebe
2714, 18193–94, 21299–301, 21318, 29922–24, 36248, 36250, 38971	Kartabo, British Guiana	William Beebe
8513, 8641	Paramaribo, Dutch Guiana	J. A. Samuels

Gonatodes atricucullaris Noble

Gonatodes atricucullaris NOBLE, 1921, Ann. N. Y. Acad. Sci., XXIX, p. 135, (type locality, Bellavista, Peru).

This species is very closely allied to *G. vittatus* of northern South America, having the same adult size, exhibiting the same general color pattern, and showing the same type of sexual dimorphism. However, it appears that the two forms may be constantly differentiated as follows:

Throat white or yellowish, without distinct dark markings. . *G. vittatus* (Lichtenstein).
Throat black (male) or with dark brown markings (female). . . *G. atricucullaris* Noble.

There are 22 paratypes (Nos. 28488–96, 28467–79) of *atricucullaris* in the collection of the American Museum, which were collected at Bellavista, Peru, by G. K. Noble.

Gonatodes beebei Noble

Gonatodes beebei NOBLE, 1923, Zoologica, III, p. 301, (type locality, Kartabo, British Guiana).

Besides, the type, No. 21251, the American Museum has a topotype of *beebei*, No. 38972.

Gonatodes caudiscutatus (Günther)

Gymnodactylus caudiscutatus GÜNTHER, 1859, Proc. Zool. Soc. London, p. 410, (type locality, western Ecuador).

Gonatodes caudiscutatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 61.

Like *vittatus*, this lizard often has a more or less distinct mid-dorsal light streak or line. Its sexual dimorphism in coloration has been well described by Boulenger (1885), but it is found that the dark dorsal markings of the female are obsolete in some examples, and that the throat of the female may be white or with brown reticulations.

The specimens of *caudiscutatus* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
35280–93	Villa Vicencio, Colombia	Nicéforo Maria
24196–200, 38767–80	Balzapamba, Ecuador	Enrique Feyer
38763–66	Between Baños and Canelos, Ecuador	Enrique Feyer
21906, 21915–19, 23001–24, 21923, 21957–63	Bucay, Ecuador	G. H. H. Tate
23430–31	Naranjal, Ecuador	G. H. H. Tate
28879	San José de Sumaco, Ecuador	Carlos Ollala
22236	Santa Rosa, Ecuador	G. H. H. Tate

Gonatodes fuscus (Hallowell)

Stenodactylus fuscus Hallowell, 1855, Journ. Acad. Nat. Sci. Phila., (2) III, p. 33, (type locality, Nicaragua).

Gonatodes albogularis fuscus Boulenger, 1885, 'Cat. Liz. British Mus.,' I, p. 59.

Discussion pertaining to the status of this form has been presented above under *albogularis* and by Stejneger (1917).

The specimens of *fuscus* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
38319	Colombia	Nicéforo Maria
27468–93	Honda, Colombia	Nicéforo Maria
36339, 38757, 38760	Medellin, Colombia	Nicéforo Maria
18231, 18247–48, 18250–56	Quibdo, Colombia	Nicéforo Maria
19900–57, 38756, 38673–74, 38758–59	Sabanalarga, on the Rio Cauca, Colombia	Nicéforo Maria
18257	Tambo, Rio Santa Monica, Colombia	R. D. O. Johnson

Gonatodes gaudichaudii (Duméril and Bibron)

Gymnodactylus gaudichaudii Duméril and Bibron, 1835, 'Erp. Gen.,' III, p. 413, (type locality, Coquimbo, Chile).

Gonatodes gaudichaudii Werner, 1898, Zool. Jahrb., Supplement, IV, Fauna Chilensis, I, p. 247.

Seventeen specimens of this little-known species were examined and reported by Werner (1898), who has described their variations. The American Museum has a single example, No. 38786, collected at Tofo, Chile, by T. Hallinan.

Gonatodes hasemani Griffin

Gonatodes hasemani GRIFFIN, 1917, Ann. Carnegie Mus., XI, p. 304, (type locality, Villa Bella, near the Rio Beni, Bolivia).

Fresh specimens of this species (Nos. 22539–42), collected at Ivon, Bolivia, by N. E. Pearson of the Mulford Biological Expedition, show the characters described by Griffin, but it seems that the coloration of the back should have been given in greater detail. The male shows the single dorso-lateral light stripe on each side, and between these stripes are series of alternate, paired, more or less conspicuous dark and light areas or spots. The general ground color above is dark brown, lighter laterally. The female does not possess dorso-lateral light lines, but has a more or less widened, conspicuous whitish or tan-colored mid-dorsal streak with rather irregular edges. Paired dark-brown spots are apt to be present on the lateral borders of this area, or within it, but these are smaller than those in the males and fewer in number, and there are no white spots. The ground color of the sides is dark brown as in the male.

Gonatodes humeralis (Guichenot)

Gymnodactylus humeralis GUICHENOT, 1855, in Castelnau, 'Exp. de l'Amer. du Sud, Zool., Reptiles,' p. 13, (type locality, Rio Ucayali, Mission de Sarayacu, Peru).

BRAZIL.—Two specimens: Nos. 38782–83, secured at Serro de Cucuhy by W. J. LaVarre.

Gonatodes ocellatus (Gray)

Cyrtodactylus ocellatus GRAY, 1831, 'Synops. Reptilia,' in Griffith's 'Cuvier's Animal Kingdom,' p. 51, (type locality, not given).

This form was described from a single male specimen from Tobago. The female is apparently unknown. The American Museum has two males of this species: one specimen from Kartabo, British Guiana, No. 38784, collected by William Beebe; and one specimen from Trinidad, No. 6570, collected by Philip Whelpley.

Gonatodes vittatus (Lichtenstein)

Gymnodactylus vittatus LICHTENSTEIN, 1856, 'Nomenclator Mus. Zool. Berol.,' p. 6, (type locality, "LaGuaira, Puerto-Cabello, and Caracas," Venezuela).

The color pattern of the female of this gecko often resembles that of the male, with the exception that the ground color is much lighter,

usually grayish, instead of brown or blackish. The median light stripe is whiter and better defined in the males than in the females. In the latter it is often very indistinct or even absent. In the females, the dark pigment of the back, which is arranged in a narrow longitudinal band on each side of the mid-dorsal streak in the males, is often arranged in transverse rows of dark spots; two to four spots in each row.

The specimens in the collection of the American Museum are listed below.

Nos.	Locality	Collector
38761–62	Medellin, Colombia	Nicéforo Maria
38781	Santa Marta, Colombia	H. S. Blair
6563	Caparo, Trinidad	P. Whelpley
6565–66, 6568	Port of Spain, Trinidad	P. Whelpley

GYMNODACTYLUS Spix

Gymnodactylus horridus Burmeister

Gymnodactylus horridus BURMEISTER, 1861, 'Reise La Plata,' II, p. 522, (type locality, Mendoza, Argentina). BOULENGER, 1889, Proc. Zool. Soc. London, p. 143.

This lizard is closely allied to *G. fasciatus*, as stated by Boulenger (1889), differing in the larger granules on the forehead, the larger ventral plates, and in the absence of regular chin-shields.

ARGENTINA.—One specimen: No. 17003, collected at La Rioja by Pedro Serie.

BOLIVIA.—Nineteen specimens: Nos. 38787–805, collected at Concepcion, Chiguitos, by José Steinbach.

HEMIDACTYLUS Oken

Hemidactylus mabouia (Moreau de Jonnés)

Gecko mabouia MOREAU DE JONNÉS, 1818, Bull. Soc. Philom., Paris, p. 138, (type locality, Antilles and adjacent mainland).

Hemidactylus mabouia GRAY, 1845, 'Cat. Liz. British Mus.,' p. 154.

The back of this lizard is dull colored, without a pattern, or with more or less distinct dark spots or undulating cross-bands. The dark markings, if present, are apparently much more distinct in the young than in the adults. The general ground color may vary from white to very dark, almost black.

BRAZIL.—Two specimens: No. 36306, collected at Frechal by G. H. H. Tate and T. D. Carter; and No. 17027, taken in a human dwelling at Rio de Janeiro by E. G. Holt.

VENEZUELA.—One specimen: No. 36632, secured at Esmeralda by members of the Tyler-Duida Expedition.

HOMONOTA Gray

SYNOPSIS OF THE SPECIES

Median infracaudals cycloid or subtriangular, not much longer than broad.
H. darwinii Boulenger.

Median infracaudals elongate, subrectangular, much longer than broad.
H. whitii Boulenger.

Homonota darwinii Boulenger

Homonota darwinii BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 21, (new name for *Gymnodactylus gaudichaudii* Bell, preoccupied by *G. gaudichaudii* Duméril et Bibron).

ARGENTINA.—One specimen: No. 17001, collected at Chubut by Pedro Serie.

Homonota whitii Boulenger

Homonota whitii BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 22, (type locality, Cordova, Argentina).

Homonota whitei KOSLOWSKY, 1896, Revista Mus. La Plata, VIII, p. 166.

In most respects this form resembles the preceding. In the American Museum examples *whitii* is darker, with more deep brown and less grayish than *darwinii*, but this may as well be an individual variation as a specific difference.

ARGENTINA.—One specimen: No. 17002, secured in the Chaco by Pedro Serie.

LEPIDOBLEPHARIS Peracca

A review of this genus has been presented by Parker (1926), who has reduced the genus *Lathrogecko* to its synonymy.

Lepidoblepharis microlepis (Noble)

Lathrogecko microlepis NOBLE, 1923, Amer. Mus. Novitates, No. 88, p. 2 , (type locality, Rio Quesado, Atrato River region, Colombia).

As Ruthven (1928) has suggested, this species may be synonymous with the previously described *L. xanthostigma*. Therefore, its status is in need of investigation.

The type specimen, A. M. N. H. No. 18229, was collected near the Rio Quesado, Atrato River region, Colombia, by R. D. O. Johnson. It was found "running over the wet dead leaves of the jungle."

PHYLLODACTYLUS Gray

Although there has been much interesting and helpful work done on the lizards of this genus, there is need for more when sufficient material has accumulated, particularly in regard to the species inhabiting Ecuador and Peru. An early synopsis of *Phyllodactylus* was presented by Boulenger (1885). This has been elaborated for the American forms, exclusive of those on the Galápagos Islands, by Werner (1912), and for the latter by Van Denburgh (1912).

Phyllodactylus abrupteseriatus Werner

Phyllodactylus abrupteseriatus WERNER, 1912, Jahrb. d. Hamburg, Wiss. Anstalten, beiheft 2: Mitt. Naturh. Mus. Hamburg, XXX, p. 4, (type locality, "wahrscheinlich Brasilien").

A specimen which fits the diagnosis given for this species, described as "probably from Brazil," has been found in the collection of the American Museum from Ecuador (No. 24343, secured at Puente de Chimbo, near Bucay, by G. H. H. Tate). The enlarged dorsal tubercules are in twelve longitudinal rows, the third and sixth (outer) on each side being much shortened. Otherwise the example resembles *tuberculosus*. Another example, No. 21845, secured at Guayaquil, by G. H. H. Tate, also shows the characters attributed to this form.

Phyllodactylus baurii Garman

Phyllodactylus baurii GARMAN, 1892, Bull. Essex Inst., XXIV, p. 10, (type locality, Las Cuevas, Charles Island, Galápagos Archipelago).

Phyllodactylus bauri VAN DENBURGH, 1912, Proc. Calif. Acad. Sci., (4) I, p. 426. BARBOUR AND LOVERIDGE, 1929, Bull. Mus. Comp. Zoöl., LXIX, No. 10, p. 319.

CHARLES ISLAND, GALÁPAGOS ARCHIPELAGO.—Seven specimens: Nos. 5203 and 20446–51, collected by J. R. Slevin.

Phyllodactylus galapagoensis Peters

Phyllodactylus galapagoensis PETERS, 1869, Monatsbr. Berlin Akad. Wiss., p. 720, (type locality, Galápagos Islands).

ALBEMARLE ISLAND, GALÁPAGOS ARCHIPELAGO.—One specimen: No. 20524, collected by J. R. Slevin.

Phyllodactylus gerrhopygus (Wiegmann)

Diplodactylus gerrhopygus WIEGMANN, 1835, Nova Acta Acad. Caes. Leop.-Carol., XVII, part 1, p. 242, Pl. XVIII, fig. 3, (type locality, Chili).

Phyllodactylus gerrhopygus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 95.

This species is very closely allied to *microphyllus* from which it is supposedly distinguished by the uniform lepidosis of the back. However,

an examination of a series of both forms shows that there is considerable variation in each in regard to the dorsal lepidosis, so that certain specimens listed below do not have an entirely uniform arrangement of the dorsal granules. Moreover, in view of the variation seen, it is not readily apparent that Roux (1907) was justified in bringing *lepidopygus* from the synonymy of this species and of *inæqualis* and *microphyllus*. These lizards deserve critical study when sufficient material is available.

P. inæqualis differs from *gerrhopygus* in having the unequal dorsal lepidosis of *microphyllus*, and also in having better developed digital expansions. The coloration of all three forms is nearly the same, the ground color being white or light gray, now and then brownish, with or without dark brown bars across the back. The tail is usually with dark brown annuli above, but is white below as are the other under parts. Likewise, the mental scutellation is highly variable, there being from two to six postmentals, or even more. The number of postmentals may be odd as well as even and the size of the plates is inversely proportional to the number, as a rule.

PERU.—Seventeen specimens: Nos. 36508–509 and 31513–19 from Ancon; Nos. 36525–26 from Arequipa; and Nos. 36505–507 and 36510–12 from Paragas; all obtained by R. H. Beck.

Phyllodactylus gilberti Heller

Phyllodactylus gilberti HELLER, 1903, Proc. Washington Acad. Sci., V, p. 61, (type locality, Wenman Island, Galápagos Archipelago).

WENMAN ISLAND, GALÁPAGOS ARCHIPELAGO.—One topotype, No. 20522, collected by J. R. Slevin.

Phyllodactylus inæqualis Cope

Phyllodactylus inæqualis COPE, 1876, Journ. Acad. Nat. Sci. Phila., (2) VIII, p. 174, (type locality, Pacasmayo, Peru).

PERU.—One specimen: No. 22238, taken at Arequipa by E. Escomel.

Phyllodactylus leei Cope

Phyllodactylus leei COPE, 1889, Proc. U. S. Nat. Mus., XII, p. 145, (type locality, Chatham Island, Galápagos Archipelago).

CHATHAM ISLAND, GALÁPAGOS ARCHIPELAGO.—Two topotypes: Nos. 5204 and 20523, collected by J. R. Slevin.

Phyllodactylus magister Noble

Phyllodactylus magister NOBLE, 1924, Occas. Pap. Boston Soc. Nat. Hist., V, p. 110, (type locality, Perico, Peru).

This species is very closely allied to *tuberculosus*. The series listed below shows that the large dorsal tubercules may be arranged in either

14 or 16 longitudinal rows, and that the size of the postmental plate is variable.

The specimens of *magister* in the collection of the American Museum are all paratypes secured by G. K. Noble.

PERU.—Twenty-four specimens: Nos. 28405–11 and 28504–505 from Bellavista; No. 28460 from Paita; Nos. 28538–40 and 28560–68 from Perico, the type locality; and Nos. 28426–27 from Tamboa.

Phyllodactylus microphyllus Cope

Phyllodactylus microphyllus COPE, 1876, Journ. Acad. Nat. Sci. Phila., (2) VIII, p. 175, (type locality, valley of Jequetepeque, Peru).

PERU.—Ten specimens: Nos. 28517–18, collected by G. K. Noble at Eten; Nos. 38753–55, found on the island of Lobos de Tierra by R. C. Murphy; and Nos. 28460–64, taken at Paita by G. K. Noble.

Phyllodactylus phacophorus (Tschudi)

Discodactylus phacophorus TSCHUDI, 1845, 'Fauna Peruana, Herpetologie,' p. 38, (type locality, Peru).

Phyllodactylus phacophorus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 84. NOBLE, 1924, Occas. Pap. Boston Soc. Nat. Hist., V, p. 111.

The back of the adult of this species is brownish with a series of broad, transverse dark-brown bands on each side of the whitish vertebral line, but in the young these dorsal markings are either inconspicuous, or absent. All specimens show a dark brown, whitish-edged streak on the side of the head, this passing through the eye. The lower surfaces are whitish or bluish.

PERU.—Twenty specimens: Nos. 28525–27 and 39338–43, collected at Bellavista by G. K. Noble; No. 28465, taken at Chongollapi by G. K. Noble; No. 28466, from Huancabamba; and Nos. 28428–36, secured at Perico by G. K. Noble.

Phyllodactylus tuberculosus Wiegmann

Phyllodactylus tuberculosus WIEGMANN, 1835, Nova Acta Acad. Caes. Leop.-Carol., XVII, part 1, p. 241, Pl. XVIII, fig. 2, (type locality, California).

ECUADOR.—Three specimens: Nos. 18304–305, collected near the Rio Casanga by H. E. Anthony; and No. 22068, secured at Santa Rosa by G. H. H. Tate.

PSEUDOGONATODES Ruthven

Pseudogonatodes barbouri (Noble)

Lepidoblepharis barbouri NOBLE, 1921, Ann. N. Y. Acad. Sci., XXIX, p. 133, (type locality, Perico, Peru).

Pseudogonatodes barbouri PARKER, 1926, Ann. and Mag. Nat. Hist., (9) XVII, p. 298.

PERU.—Three paratypes: Nos. 28965–67, collected at Bellavista by G. K. Noble.

SPHÆRODACTYLUS Wagler

This genus has been recently revised by Barbour (1921), who has published a very helpful series of illustrations pertaining to the various species.

Sphærodactylus molei Bœttger

Sphærodactylus molei BŒTTGER, 1894, Journ. Trinidad Field Nat. Club, II, p. 80, (type locality, Caparo, Trinidad). BARBOUR, 1921, Mem. Mus. Comp. Zool., XLVII, p. 237. ROUX, 1926, Revue Suisse de Zool., XXX, p. 296.

Sphærodactylus buergeri WERNER, 1900, Verh. Zool.-bot. Ges. Wien., L, p. 264, (type locality, Port of Spain, Trinidad).

There is apparently nothing distinctive in *Sphærodactylus buergeri* Werner. Barbour (1921) and Roux (1926) have already suggested its identity with *molei*, the present form.

All of the specimens listed below are young and do not show the lines on the body mentioned by Barbour (1921). The young male is uniform light brown behind the occiput, but has a distinctive cephalic pattern. A narrow dark brown band runs from the nostril to the middle of the eye on each side, this bordered above by a prominent white stripe; both continued posterior to the eye and above the tympanum to the occiput. The white postorbital line just mentioned is margined above by a second dark streak, and the top of the head is covered by small white spots which form two or three more or less obviously longitudinal series.

As remarked by Roux (1926), the (young) female is uniform, clear brown in coloration. When compared with the male, the ground color of the female, above and below, will be found to be much lighter in shade. Although the cephalic pattern is not distinct, an obscure dark streak, bordered above by a light line, may be seen extending from the nostril through the eye and backward above the tympanum as in the male.

BRITISH GUIANA.—Eight specimens: Nos. 15136, 18192, 21255–57, 21297–98, and 36249, collected at Kartabo by William Beebe.

Sphærodactylus scapularis Boulenger

Sphærodactylus scapularis BOULENGER, 1902, Ann. and Mag. Nat. Hist., (7) IX, p. 54, (type locality, St. Javier, northwestern Ecuador).

The two lizards listed below have the striking digital modifications of *Sphærodactylus* rather than those shown by *Lepidoblepharis*, *Pseudogonatodes*, and *Coleodactylus*. The tail of each specimen is broken and lost, so it is impossible to know the type of caudal coloration. However, the back is brownish with a series of more or less irregular dark patches, these more distinct posteriorly. The dark band mentioned by Boulenger in describing his single type is not present across the scapular region, but the lower surfaces are brownish white, and the scutellational and proportional features present little variation from those discussed in the original description.

ECUADOR.—Two specimens: Nos. 8934–35, collected near the Rio Cayapos by S. A. Barrett.

THECADACTYLUS Oken

Thecadactylus rapicaudus (Houttuyn)

Gekko rapicauda HOUTTUYN, 1782, Verh. Zeeuwsch. Genoot. Wet. Vlissingen, IX, p. 323, (type locality, American Islands).

Lacerta rapicauda GMELIN, 1788, 'Syst. Nat.,' XIII, p. 1068.

Thecadactylus rapicaudus GRAY, 1845, 'Cat. Liz. British Mus.,' p. 146. BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 111.

This strikingly distinct species is the only representative of its genus in the New World. The specimens in the American Museum are listed below.

Nos.	Locality	Collector
22505	Huachi, Bolivia	Mulford Biol. Exp.
22461	Tumupasa, Bolivia	Mulford Biol. Exp.
8106–8109	Kalacoon, British Guiana	William Beebe
14110	Kartabo, British Guiana	Tropical Research Exp.
21291, 21302–303, 21320	Kartabo, British Guiana	William Beebe
18303	Boca de la Raspadura, Colombia	E. W. Johnson
13455	Jimenez, Colombia	
36354	Medellin, Colombia	Nicéforo Maria
17645–49	New Granada, Colombia	Cope Collection
32659–72, 38063	Sabanalarga, Colombia	Nicéforo Maria
13252	Bonaire, Dutch Leeward Islands	
13454	Curaçao, Dutch Leeward Islands	
28883	San José de Sumaco, Ecuador	Carlos Ollala
28533	Bellavista, Peru	G. K. Noble
5252	Rio Pacayo, Peru	
28552	Tamboa, Peru	G. K. Noble
29324, 29333	Cuchivano, Venezuela	G. H. H. Tate

IGUANIDÆ

AMBLYRHYNCHUS Bell

Amblyrhynchus cristatus Bell

Amblyrhynchus cristatus BELL, 1825, Zool. Journ., II, p. 206, (type locality, "Mexico," no doubt in error).

GALÁPAGOS ARCHIPELAGO.—Twenty-one specimens: Nos. 24936–39, 24950, 24976–79, 24981–85, 31564, 31590–91, 31700–701, 31712, and 31802, collected by William Beebe and presented to the American Museum by the New York Zoölogical Park.

ABINGDON ISLAND, GALÁPAGOS ARCHIPELAGO.—One specimen: No. 20540, collected by J. R. Slevin.

DUNCAN ISLAND, GALÁPAGOS ARCHIPELAGO.—One specimen: No. 12609, collected by Louis Agassiz.

INDEFATIGABLE ISLAND, GALÁPAGOS ARCHIPELAGO.—Two specimens: Nos. 42892–93, collected at Academy Bay by James P. Chapin.

ANOLIS Daudin

Anolis æneus Gray

Anolis æneus GRAY, 1840, Ann. Nat. Hist., V, p. 114, (type locality unknown). RUTHVEN, 1923, Occas. Pap. Mus. Zool. Univ. Mich., CXLIII, p. 6, (Trinidad).

Anolis trinitatis REINHARDT AND LÜTKEN, 1863, Vidensk. Meddel. nat. foren Kjöbenh. for 1862, p. 269, (type locality, Trinidad). BARBOUR, 1914, Mem. Mus. Comp. Zoöl., XLIV, p. 281.

Anolis alligator BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 31, (part).

Anolis gentilis GARMAN, 1887, Bull. Essex Inst., XIX, p. 34, (type locality, Petit Martinique, one of the Grenadines); reprint, p. 10.

Anolis cinereus GARMAN, 1887, Bull. Essex Inst., XIX, p. 35, (type locality, Grenada); reprint, p. 11.

After an examination of the excellent series of specimens from this region in the collection of the Museum of Comparative Zoölogy, Barbour (1914) made some extensive changes in the classification of the Anoles of the Lesser Antilles closest to the South American mainland. Under *Anolis cepedii* Merrem (1820), the following comment is given (p. 277): "Garman identifies an enormous series of specimens from Màrtinique with this poorly characterized species. There seems, however, to be no reason why this should not be done; and the name thus takes precedence over *A. alligator* Duméril and Bibron (1837), which had been used by Boulenger and many others. This species seems to be confined to Martinique, and is closely related to *A. trinitatis* Reinhardt and Lütken."

Yet, more recently, Ruthven (1923) has stated that "the name of the Martinique form is apparently *Anolis roquet* (Bonnaterre, 1789). This name is based on "Le Roquet" Lacépède, and antedates Merrem's *Anolis cepedii.*"

Anolis trinitatis was established by Barbour (1914, p. 281) as follows: "Boulenger (1885) considers *A. trinitatis* a synonym of *A. alligator* so-called. A comparison of numbers of specimens from Trinidad and Martinique shows that this is not justified, and the species should stand alone as quite distinct from *A. extremus* from Barbados, on the one hand, and from *A. cepedii* from Martinique, on the other." This name, like that of *cepedii* which is mentioned above, was relegated to the synonymy by Ruthven (1923), who has found that the type of *Anolis æneus* Gray (1840) is identical with it (*A. trinitatis* Reinhardt and Lütken 1863), and was described much earlier.

This species is brownish or grayish above, and is usually more or less spotted and reticulated with blackish. Often there is a series of rather dull brownish cross-bars extending across the back.

The specimens in the collection of the American Museum are listed below.

Nos.	Locality	Collector
38545–63, 38566, 38568–70, 38573	Akyma, Demerara River, British Guiana	William Beebe
36246	Bartica District, British Guiana	William Beebe
38603–607	Demerara, British Guiana	William Beebe
8087	Georgetown, British Guiana	P. G. Howes
21292	Kartabo, British Guiana	William Beebe
38575–96, 38598–600, 38602	Mahaica, British Guiana	William Beebe
6564	Caparo, Trinidad	P. Whelpley
38747	Paulo, Mt. Roraima, Venezuela	G. H. H. Tate and T. D. Carter

Anolis apollinaris Boulenger

Anolis apollinaris BOULENGER, 1919, Proc. Zool. Soc. London, p. 79, (type locality, Bogotá, Colombia).

This form apparently represents the *chrysolepis* stock of *Anolis* in Colombia, differing from typical *chrysolepis* in the reduction of the size of the dorsal scales, and, to a lesser extent, in coloration. The dorsal rows of scales of *chrysolepis* are much larger than the lateral granules,

whereas the dorsal rows of *apollinaris* are only a little larger than those granules. Also, there is usually more brownish and less grayish in the coloration of *apollinaris*.

The type of *apollinaris* was evidently atypical of the species, as here considered, in that the occipital plate was not enlarged. The series of specimens listed below show this character to be highly variable in this *chrysolepis* stock, although usually the occipital is considerably enlarged, being at times as large, or even larger than the ear opening.

The coloration is highly variable. The general ground color varies from light grayish or brownish to dark olive, and a fine or a coarse blackish spotting or network may be found on the sides of the body and tail, or none may be found at all. There may, or may not be a broad, light brownish, vertebral band and, if this is present, it may, or may not support dark transverse processes. Likewise, small round light spots may, or may not be present on the sides and tail. The lower parts may be white or yellowish, or suffused with green, or bluish. Often the belly and the base of the throat fan are brightly colored while the other under parts are dull. The throat is often tiger-barred and the tail is frequently banded with alternate light and dark rings.

In many ways this form closely resembles *Anolis gemmosus* of Ecuador, with which it may prove to be identical or subspecifically allied.

The specimens in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
38704–705	Angelopolis, Colombia	Nicéforo Maria
37564–65, 38706–18	Envigado, Colombia	Nicéforo Maria
38687–94, 38727–33, 38734–37	Medellin, Colombia	Nicéforo Maria
38401–38544	San Pedro, Colombia	Nicéforo Maria
19970–73, 38738–46	Santa Rosa de Osa, Colombia	Nicéforo Maria
35278–79	Villa Vicencio, Colombia	Nicéforo Maria

Anolis bitectus Cope

Anolis bitectus Cope, 1864, Proc. Acad. Nat. Sci. Phila., p. 171, (type locality, western Ecuador).

Ecuador.—Two specimens: Nos. 23033 and 23035, taken at Ventura by G. H. H. Tate.

Anolis bœttgeri Boulenger

Anolis bœttgeri BOULENGER, 1911, Ann. and Mag. Nat. Hist., (8) VII, p. 19, (type locality, Huancabamba, Peru, above 3000 feet).

PERU.—One topotype: No. 13534, secured from W. F. H. Rosenberg.

Anolis chloris Boulenger

Anolis chloris BOULENGER, 1898, Proc. Zool. Soc. London, p. 110, (type locality, Paramba, Ecuador).

ECUADOR.—Five topotypes: Nos. 13446–50, secured from W. F. H. Rosenberg.

Anolis chrysolepis Duméril and Bibron

Anolis chrysolepis DUMÉRIL AND BIBRON, 1837, 'Erp. Gen.,' IV, p. 94, (type locality, Guiana).

The dark cross-band which Boulenger (1885) stated to be present between the eyes of this species is frequently absent, and the back may be unicolor, or with many markings, the latter consisting of either reticulations or spots.

Boulenger's records of *chrysolepis* from Ecuador were probably based on specimens of *gemmosus* or *apollinaris*. Also, there is need of investigating the Honduras record to determine if *chrysolepis* really occurs undifferentiated in Central America.

The specimens of this species in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
38564–65, 38567, 38571–72	Akyma, Demerara River, British Guiana	William Beebe
6510, 8509, 36244–45, 36247	Bartica District, British Guiana	William Beebe
8564–66	Georgetown, British Guiana	P. G. Howes and G. L. Hartley
17693–94	Georgetown, British Guiana	
25141	Georgetown, British Guiana	W. S. Lang and W. J La Varre
2716	Kaieteur, British Guiana	F. E. Lutz
8178	Kalacoon, British Guiana	William Beebe
25119–27, 25129–32, 25134–40, 25143–45, 25147–69, 25172–81	Kamakusa, British Guiana	W. S. Lang and W. J. La Varre

Nos.	Locality	Collector
15137–42, 18184, 21306–308, 21310–14, 21321–23	Kartabo, British Guiana	William Beebe
32273–78	Kartabo, British Guiana	George Morgan
25133, 25142	Grenada Island, W. I.	W. S. Lang and W. J. La Varre
29325	Cuchivano, Venezuela	G. H. H. Tate
36653, 36656	Six miles north of Esmeralda, Venezuela	Tyler-Duida Exp.
36657	Ten miles north of Esmeralda, Venezuela	Tyler-Duida Exp.
36639	Rio Pescada, Mt. Duida, Venezuela	Tyler-Duida Exp.
36646	Summit Brook, Mt. Duida, Venezuela	Tyler-Duida Exp.
36648	Vegas Falls, twenty miles north of Esmeralda, Venezuela (Summit of Mt. Duida)	Tyler-Duida Exp.
6569	Trinidad	P. Whelpley
6567	Port of Spain, Trinidad	P. Whelpley

Anolis fasciatus Boulenger

Anolis fasciatus Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 59, (type locality, Guayaquil, Ecuador).

Anolis elegans Boulenger, 1898, Proc. Zool. Soc. London, p. 109, (type locality, Chimbo, Ecuador).

Peracca (1904, p. 3) is followed in regarding *elegans* as a synonym of *fasciatus*.

Ecuador.—Four specimens: No. 24344, collected at Puenta de Chimbo, near Bucay, by G. H. H. Tate; No. 28900, taken on Sumaco Mountain by Carlos Ollala; and Nos. 28804–805, secured at Normandia by Enrique Feyer.

Anolis fraseri Günther

Anolis fraseri Günther, 1859, Proc. Zool. Soc. London, p. 407, (type locality, western Ecuador).

Ecuador.—Two specimens: No. 23432 from Rio Pescada; and No. 23030 from Bucay; both collected by G. H. H. Tate.

Anolis frenatus Cope

Anolis frenatus Cope, 1899, Sci. Bull. Phila. Museums, I, p. 6, (type locality, New Granada, Colombia).

A specimen typical of this form, No. 4844, taken in western Colombia by R. D. O. Johnson, has a body length of 130 millimeters. The general ground color is a uniform dark brown.

Anolis fusco-auratus D'Orbigny

Anolis fusco-auratus D'Orbigny, 1837, in Duméril and Bibron, 'Erp. Gen.,' IV, p. 110, (type locality, Chile).

Anolis antonii Boulenger, 1908, Ann. and Mag. Nat. Hist., (8) II, p. 517, (type locality, San Antonio, Colombia).

There is much variation in the cephalic scutellation of this lizard, and the comparison of examples from British Guiana with Colombian representatives that are typical of *antonii* indicates that the two populations are of the same species. It seems significant that Boulenger in describing *antonii* did not cite differences from *fusco-auratus*.

If the type specimen of this species really came from Chile, it is probable that these lizards, here reported from northern South America in accordance with the present conception of the species, will subsequently be known by another name—probably *antonii*.

The specimens of *fusco-auratus* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
21270–71	British Guiana	William Beebe
38574	Akyma, Demerara River, British Guiana	William Beebe
6794	Kaieteur region, British Guiana	H. E. Crampton
18185, 21324	Kartabo, British Guiana	William Beebe
18233–34	Quesada River, Colombia	R. D. O. Johnson
18259	Between Tambo and Istomuria, Colombia	R. D. O. Johnson
38749	Macas, Oriente of Ecuador	Enrique Feyer
28880	San José de Sumaco, Ecuador	Carlos Ollala

Anolis jacare Boulenger

Anolis jacare Boulenger, 1907, Ann. and Mag. Nat. Hist., (7) XI, p. 482, (type locality, Merida, Venezuela).

Venezuela.—Eight specimens: Nos. 13530–33, from Rio Chama; and Nos. 13441 and 13443–45, from Rios Alborregas y Milla, near Mérida; all secured from W. F. H. Rosenberg.

Anolis latifrons Berthold

Anolis latifrons Berthold, 1846, Mitth. zool. Mus. Göttingen, I, p. 11, (type locality, Province Popayan, Colombia).

A specimen of *Anolis*, collected near the Quesada River, a part of the Atrato River system, in western Colombia, by R. D. O. Johnson, is apparently the female of this species. It has been compared with a

male in the collection of the United States National Museum, No. 4318, which shows a nuchal fold and the other characters described by Berthold. The female does not have a nuchal fold, but the coloration, including the possession of "a quadrangular large black spot in front of the shoulder" (Boulenger, 1885, p. 62), is nearly the same.

Anolis lemniscatus Boulenger

Anolis lemniscatus BOULENGER, 1898, Proc. Zool. Soc. London, p. 113, (type locality, Chimbo, Ecuador).

ECUADOR.—Two specimens: Nos. 21914 and 21924, found by G. H. H. Tate at Bucay, near the type locality.

Anolis lineatus Daudin

Anolis lineatus DAUDIN, 1802, 'Hist. Nat. des Reptiles,' IV, p. 66, (type locality, South America).

ARUBA, DUTCH LEEWARD ISLANDS.—One specimen: No. 13529, secured from W. F. H. Rosenberg.

Anolis lionotus Cope

Anolis lionotus COPE, 1861, Proc. Acad. Nat. Sci. Phila., p. 210, (type locality, Cocuyas de Veraguas, Colombia).

COLOMBIA.—One specimen: No. 18258, collected at Boca de la Raspadura, western part, by R. D. O. Johnson.

Anolis nitens (Wagler)

Draconura nitens WAGLER, 1830, 'Nat. Syst. Amph.,' p. 149, (type locality, America).

Anolis nitens BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 91.

Anolis nitens bondi FOWLER, 1913, Proc. Acad. Nat. Sci. Phila., p. 171, (type locality, Cariquito, Venezuela).

The collection of this species listed below shows such variability that it seems impractical to recognize *Anolis nitens bondi* as a distinct entity. The tibia may be shorter than the length of the head, or just as long, and in one specimen it is a little longer. The upper head scales are partly smooth and partly ridged or keeled, so that the presence or absence of keeling becomes largely a matter of conjecture. The enlarged rows of vertebral scales were supposedly two in *nitens* and "about four" in *bondi*, but they may vary from two to six, the inner two being largest, the next two being next largest, and so on. Again, the condition is largely a matter of conjecture, for when a graded series is examined there is no set rule for discrimination between enlarged rows, in this case, and those that are not enlarged.

Certain specimens of *nitens* are nearly unicolor, while others have prominent lateral dark areas, often cross-bars, especially posteriorly.

VENEZUELA.—Seven specimens: Nos. 36327, 36329, and 38684–86, taken at Arabupu, Mt. Roraima, by G. H. H. Tate; No. 38683, found at the Glycon Swamp, Mt. Roraima, by G. H. H. Tate; and No. 36654, secured six miles north of Esmeralda by the Tyler-Duida Expedition.

Anolis ortonii Cope

Anolis ortonii COPE, 1868, Proc. Acad. Nat. Sci. Phila., p. 97, (type locality, Napo or Upper Marañon).

The ground color of the examples listed below is grayish purple.

BOLIVIA. Two specimens: No. 32987, collected near the Rio Chimate, La Paz region, by G. H. H. Tate; and No. 22510, found at Rurrenabaque by N. E. Pearson.

PERU.—One specimen: No. 23186, taken at Perené by Carlos Schunke.

Anolis peraccæ Boulenger

Anolis peraccæ BOULENGER, 1898, Proc. Zool. Soc. London, p. 108, (type locality, Chimbo, Ecuador).

This species is very closely allied to *Anolis fusco-auratus*, from which it differs in having prominent, dark brown, chevron-shaped bars on the back. Specimens of this type were included under *fusco-auratus* by Boulenger (1885), who called attention to their differentiation at that time.

ECUADOR.—One specimen: No. 23034, collected at Ventura by G. H. H. Tate.

Anolis punctatus Daudin

Anolis punctatus DAUDIN, 1802, 'Hist. Nat. Reptiles,' IV, p. 84, (type locality, the Antilles).

BRITISH GUIANA.—One specimen: No. 21293, collected at Kartabo by William Beebe.

Anolis sagrei Cocteau

Anolis sagrei COCTEAU, 1837, in Duméril and Bibron, 'Erp. Gen.,' IV, p. 149, (type locality, Cuba). COCTEAU, 1843, Reptiles, in Ramon de Sagra's 'Hist. de l'Isle de Cuba,' p. 131, (as "Anolis de la Sagra").

Boulenger (1885) listed this species from Cuba, Central America, and Venezuela. The comparison of the specimens from British Guiana,

listed below, with representatives from Cuba shows a very close relationship between the two populations. The general appearance of the body, in coloration, and the scutellation are in most respects identical. However, the British Guiana individuals show an average of more white spotting on the sides.

BRITISH GUIANA.—Five specimens: Nos. 21272 and 38675 from the Bartica District, secured by William Beebe; and Nos. 6790–92, taken at Kaieteur by H. E. Crampton.

Anolis scapularis Boulenger

Anolis scapularis BOULENGER, 1908, Ann. and Mag. Nat. Hist., (8) I, p. 113, (type locality, Province Sara, eastern Bolivia).

This is a small, inconspicuous form of *Anolis* with a brown or golden-brown ground color. The amount of dark spotting or reticulation on the back varies considerably, and, on some specimens, it is practically absent.

BOLIVIA.—Four specimens: No. 32988, collected at Mapiri by G. H. H. Tate; and Nos. 22533–35, found at Tumupasa by N. E. Pearson.

PERU.—Six specimens: Nos. 23185, 23194–95, 23224, 23198, and 38973, taken at Perené by Carlos Schunke.

Anolis scypheus Cope

Anolis scypheus COPE, 1864, Proc. Acad. Nat. Sci. Phila., p. 172, (type locality, not given).

ECUADOR.—Eighteen specimens: Nos. 14559, 23327, and 23329–30, collected at Riobamba by Enrique Feyer; Nos. 28866–67, 28878, and 28884–87, secured at San José de Sumaco by Carlos Ollala; and Nos. 38676–82, found at Tuvula by Enrique Feyer.

Anolis sulcifrons Cope

Anolis sulcifrons COPE, 1899, Sci. Bull. Phila. Mus., I, p. 6, (type locality, New Granada, Colombia).

The examination of the type of this species, No. 38750, which serves as a part of the Cope Collection, indicates that it is very closely allied to *Anolis æneus*. The occipital plate is very large and is in contact anteriorly with one of the plates of the supraorbital ridge. The ground color is dull grayish and there are lighter and darker markings.

Anolis transversalis Duméril

Anolis transversalis DUMÉRIL, 1851, 'Cat. Méth. Coll. Reptiles,' Paris, p. 57, (type locality, Sarayacu, Peru).

PERU.—Three specimens: No. 23150 from Chanchamayo; and Nos. 23136 and 23197 from Perené; all collected by Carlos Schunke.

Anolis ventrimaculatus Boulenger

Anolis ventrimaculatus BOULENGER, 1911, Ann. and Mag. Nat. Hist., (8) VII, p. 20, (type locality, the Rio San Juan, Choco, southwest Colombia).

In two Colombian specimens of this form much variation is shown. Although the general dorsal ground color of both is purplish, the ventral parts are light, suffused with light purple in the region of the abdomen. In one specimen there are no coarse dark markings, while in the other these markings are present. In the former specimen, a female without a gular appendage, there are four rows of interorbital granules, while in the other, a male with a large, purple, gular appendage, there are only two rows. In most other respects the two examples are similar. The former specimen, No. 18260, was taken at Boca de la Raspadura by E. W. Johnson, and the latter, No. 18235, near the Quesada River, a part of the Atrato River system, by R. D. O. Johnson.

BASILISCUS Laurenti

The only species originally included in this genus was *B. americanus*, which later writers, including Parker (1926, p. 550), have regarded as a synonym of *B. basiliscus* (Linnæus). Therefore the type species is now the latter form, *B. basiliscus*.

The lizards of this group need careful study when a reviser finds an opportunity to examine large series of all of the supposed forms. As it is now, the nomenclature depends almost entirely upon characteristics shown by large males, and since nearly all of the specimens seen by us are females and young, we are unable to present a usable key to the South American forms.

Basiliscus barbouri Ruthven

Basiliscus barbouri RUTHVEN, 1914, Proc. Biol. Soc. Wash., XXVII, p. 9, (type locality, Gaira River at Minca, San Lorenzo, Santa Marta Mountains, Colombia).

The specimens of *B. barbouri* in the collection of The American Museum of Natural History may be listed as follows:

Nos.	Locality	Collector
18276, 18287	Andagoya, Rio San Juan, Pacific Slope, Colombia	R. D. O. Johnson
18280–82, 18284, 18295	Atrato Region, Colombia	R. D. O. Johnson
18288–94	Boca de la Raspadura River, Upper Quito, Colombia	R. D. O. Johnson
32771	Envigado, Colombia	Nicéforo Maria
32700–704, 36355–57	Medellin, Colombia	Nicéforo Maria
18285–86	Twenty-one miles up Puné River, Colombia	R. D. O. Johnson
18275	Thirty miles up Puné River, Colombia	R. D. O. Johnson

Basiliscus galeritus Duméril

Basiliscus galeritus DUMÉRIL, 1851, 'Cat. Méth. Coll. Reptiles,' Paris, p. 61, (type locality, "N.-Grenade," Colombia).

ECUADOR.—Eleven specimens: Nos. 27635, 21909–13, 21933, 22086–87, and 22089, from Bucay; and No. 23040, from Ventura; all collected by G. H. H. Tate.

CONOLOPHUS Fitzinger

Conolophus subcristatus (Gray)

Amblyrhynchus subcristatus GRAY, 1831, Zool. Misc., p. 6, (type locality, Galápagos Islands).

Conolophus subcristatus VAN DENBURGH AND SLEVIN, 1913, Proc. Calif. Acad. Sci., (4) II, p. 188.

GALÁPAGOS ARCHIPELAGO.—Fourteen specimens: Nos. 24980, 24992, 24995, 25000, 25199, 27192, 27360, 27719, 27749, 28647, 28712, 31528, 31741, and 31754, collected by William Beebe and presented by the New York Zoölogical Park.

ALBEMARLE ISLAND, GALÁPAGOS ARCHIPELAGO.—One specimen: No. 12608, collected by Louis Agassiz.

CORYTHOPHANES Boie

Corythophanes cristatus (Merrem)

Agama cristata MERREM, 1820, 'Ver. eines Syst. Amphibien,' p. 51, (type locality, Ceylona, in error).

Merrem's original description of this species was based on an illustration in the historic work of Seba.

COLOMBIA.—One specimen: No. 18277, taken near Saveleta Creek, a branch of the Raspadura, Upper Quito, by E. W. Johnson. This

individual has smooth upper head scales and, therefore, it must be referred to *C. cristatus*, rather than to *C. pericarinatus*. The latter form, doubtfully reported from Ecuador by Boulenger (1885, p. 103), is said to have keeled upper head scales.

ENYALIOIDES Boulenger

In the original description of this genus, Boulenger (1885, p. 112) stated that it has "a transverse gular fold," but it is found that this fold is very indistinct in some of the species.

SYNOPSIS OF THE SPECIES

1. Caudal scales unequal, forming rings of larger and smaller scales.....3.
   Caudal scales nearly uniform in size, not forming rings of larger and smaller scales..... 2.
2. Ventral scales smooth or indistinctly keeled. (Upper Amazon and eastern Ecuador).....*E. laticeps laticeps* (Guichenot).
   Ventral scales usually strongly keeled (Ecuador and Colombia).
   E. laticeps festæ (Peracca).
3. Dorsal crest distinct.....4.
   Dorsal crest very indistinct or absent (Santarem, Upper Amazon).
   E. leechii Boulenger.
4. Spines of the nuchal crest not isolated from spines of dorsal crest.....5.
   Spines of nuchal crest prominent and completely isolated from spines of dorsal crest (eastern Peru).....*E. palpebralis* (Boulenger).
5. Lower femoral scales keeled.....6.
   Lower femoral scales smooth or very indistinctly keeled (Ecuador).
   E. præstabilis (O'Shaughnessy).
6. Only one isolated longitudinal series of larger scales on each side of the back..7.
   Two or three isolated longitudinal series of larger scales on each side of the back (Panama, Colombia, and Ecuador)....*E. heterolepis* (Bocourt).
7. Dorsal granules very fine, over 16 between lateral denticulation and dorsal crest (Ecuador).....*E. microlepis* (O'Shaughnessy).
   Dorsal granules larger, less than 16 between lateral denticulation and dorsal crest (Ecuador).....*E. oshaughnessyi* (Boulenger).

Enyalioides heterolepis (Bocourt)

Enyalius heterolepis BOCOURT, 1874, Ann. Sci. Nat., (5) XIX, Art. 4, p. 1, (type locality, Veragua, Panama).

Enyalioides heterolepis BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 114.

Enyalioides insulæ BARBOUR, 1905, Bull. Mus. Comp. Zoöl., XLVI, p. 100, (type locality, Gorgona Island, Colombia).

Enyalioides mocquardi DESPAX, 1911, 'Reptiles et Batr. de l'Equateur,' in 'Mission Arc de Méridian Équatorial en Amerique du Sud (1899–1906),' Paris, IX, Zool., fasc. 2, p. 22, (type locality, Ecuador).

This species was originally described as having from three to four femoral pores, but an examination of these organs in the six specimens of *heterolepis* in the collections of the American Museum and the United States National Museum indicates that the average is lower. There are two femoral pores on one side, and three on the other in one of these specimens; two on each side in two specimens; two on one side, and one on the other in one specimen; and one on each side in two specimens.

Since the recently collected Colombian examples of *heterolepis* in the collection of the American Museum exhibit the characters attributed to *Enyalioides insulæ* Barbour, the writers, agreeing with Parker (1926, p. 550), are unable to recognize the latter form as a distinct taxonomic unit.

Enyalioides mocquardi Despax (1911) was said to differ from the closely related *E. heterolepis* in having a lower dorsal crest and "par la presence de deux pores fémoraux seulement au lieu de trois ou quatre." It has already been indicated that the possession of two femoral pores is within the normal range of variation in *heterolepis*, and, therefore, it appears that it is useless as a diagnostic character. Since the dorsal crest is better developed in the males of the series examined, and since a significant amplitude of variation is evident in all of the species of *Enyalioides* in this regard, it is probable that *mocquardi* was established on a rather typical specimen of *heterolepis*.

COLOMBIA.—Three specimens: No. 18278, from the Boca de la Raspadura; No. 18279 from the valley of the Puné River, Las Cruces, Atrato region; and No. 18232 from the valley of the Quesada River, a tributary of the Atrato River; all collected by E. W. and R. D. O. Johnson.

ECUADOR.—One specimen: No. 5277.

Enyalioides laticeps festæ (Peracca)

Enyalioides festæ PERACCA, 1897, Boll. Mus. Zool. Univ. Torino, XII, No. 300, p. 3, (type locality, Valle del Rio Santiago, Ecuador). BOULENGER, 1898, Proc. Zool. Soc. London, p. 114.

In the series of specimens of this form listed below, the keeling of the ventral plates varies considerably, suggesting that perhaps *festæ* and *laticeps* are variations of the same form. However, since none of the specimens have the perfectly smooth ventrals attributed to *laticeps* from the basin of the Upper Amazon, it is probable that there are really two races, the populations being in subspecific relationship to each other.

As pointed out by Peracca, a higher dorsal crest (average) may be attributed to the more western examples.

COLOMBIA.—One specimen: No. 35277, taken at Villa Vicencio by Nicéforo Maria.

ECUADOR.—Nine specimens: Nos. 28872–73, 28888–89, 28892, and 28895–97, collected at San José by Carlos Ollala; and No. 37561, secured at Sarayacu by G. H. H. Tate.

Enyalioides microlepis (O'Shaughnessy)

Enyalius microlepis O'SHAUGHNESSY, 1881, Proc. Zool. Soc. London, p. 238, (type locality, Sarayacu, Ecuador).

Enyalioides microlepis BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 115.

ECUADOR.—One topotype: No. 37562, collected at Sarayacu by G. H. H. Tate.

Enyalioides oshaughnessyi (Boulenger)

Enyalius oshaughnessyi BOULENGER, 1881, Proc. Zool. Soc. London, p. 246, (type locality, Ecuador).

Enyalioides oshaughnessyi BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 115

ECUADOR.—Seven specimens: Nos. 28869–71, 28874–76, and 28894, taken at San José de Sumaco by Carlos Ollala.

Enyalioides præstabilis (O'Shaughnessy)

Enyalius præstabilis O'SHAUGHNESSY, 1881, Proc. Zool. Soc. London, p. 240, (type locality, Pallatanga and Canelos, Ecuador).

Enyalioides præstabilis BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 113.

ECUADOR.—Two specimens: Nos. 37554–55, collected at Palmera in the Pataza River Valley by G. H. H. Tate.

ENYALIUS Wagler

Enyalius catenatus (Wied)

Agama catenata WIED, 1821, 'Reise nach Brasilien (1815–1817),' II, p. 247, (type locality, State of Bahia, Brazil).

Enyalius catenatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 118.

BRAZIL.—One specimen, the type: No. 108, collected by Maximilian de Wied.

IGUANA Gronovius

Iguana iguana (Linnæus)

Lacerta igvana LINNÆUS, 1758, 'Syst. Nat.,' X, p. 206, (type locality, "Indiis").

Iguana tuberculata LAURENTI, 1768, 'Synops. Reptilium,' p. 49, (type locality, unknown). BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 189.

Iguana iguana ANDERSSON, 1900, Bihang till K. Sv. Vet.-Akad. Handl., XXVI, afd. 4, n:o 1, p. 10.

SOUTH AMERICA.—Fourteen specimens: Nos. 122, 1884, 5092, 8385, 8856, 22101, 31713, 32269, 32288, 32333–34, 32571, 32833, and 32998, from the New York Zoölogical Park.

The remaining specimens in the collection may be listed as follows:

Nos.	Locality	Collector
6965, 8078	Brazil	
6893	Bahia, Brazil	Louis Ruhe
37866	Bahia, Brazil	R. H. Beck
37447	Rio Cotinga, near Limao, Brazil	G. H. H. Tate and T. D. Carter
13629	British Guiana	William Beebe
17692	Georgetown, British Guiana	
9527	Georgetown, British Guiana	William Beebe
6785–86	Kaieteur region, British Guiana	H. E. Crampton
8990	Kalacoon, British Guiana	William Beebe
25044, 25058–61, 25093–99, 25044	Kamakusa, British Guiana	W. S. Lang and W. J. La Varre
14111–14, 21289, 21330	Kartabo, British Guiana	Tropical Research Exp.
5240–41	Colombia	
35314	Colombia	Nicéforo Maria
32699	Medellin, Colombia	Nicéforo Maria
37859	Sabanalarga, Cauca Valley, Colombia	Nicéforo Maria
1696	Paramaribo, Dutch Guiana	M. Molært
8150, 8612–15	Paramaribo, Dutch Guiana	J. A. Samuels
22106–107	Arenillas, Ecuador	G. H. H. Tate
22108	Rio Jubones, Passaje, Ecuador	G. H. H. Tate
22104–105	Santa Rosa, Ecuador	G. H. H. Tate
8740	Trinidad	
13537	Mérida, Venezuela	
1693	Venezuela	

LEIOCEPHALUS Gray

Leiocephalus GRAY, 1827, Philos. Mag., (2) II, p. 207, (type species. *L. carinatus* Gray).

Scartiscus COPE, 1862, Proc. Acad. Nat. Sci. Phila., p. 182, (type species, *S. caducus* Cope).

The lizards of this genus, which has often been incorrectly spelled "*Liocephalus*," are very common in South America. The available material is insufficient to allow a complete revision of the South American species, although it is sufficient to throw considerable light on the status of the various forms.

Boulenger (1894, p. 342) is followed in finding *Scartiscus* Cope a synonym of *Leiocephalus* Gray.

Leiocephalus caducus (Cope)

Scartiscus caducus COPE, 1862, Proc. Acad. Nat. Sci. Phila., p. 182, (type locality, Paraguay).

Liocephalus bolivianus BOULENGER, 1890, Proc. Zool. Soc. London, p. 82, (type locality, Bolivia).

Liocephalus caducus BOULENGER, 1894, Ann. and Mag. Nat. Hist., (6) XIII, p. 342.

The specimens listed below agree, in general, with the original description of *caducus*, as well as with the original description and figure of *bolivianus*. Following Boulenger (1894), the two forms are considered identical.

BOLIVIA.—Three specimens: Nos. 37813–14 and 37907, taken at Buenavista, Santa Cruz, by José Steinbach.

Leiocephalus iridescens aculeatus (O'Shaughnessy)

Leiocephalus aculeatus O'SHAUGHNESSY, 1879, Ann. and Mag. Nat. Hist., (5) IV, p. 303, (type locality, Moyobamba, Peru).

Liocephalus angulifer WERNER, 1901, Verhandl. d. Kaiserl. Zoöl.-Bot. Ges. Wien, LI, p. 595, (type locality, unknown, but presumably Ecuador).

This form is found to be but a western race of *iridescens*, since certain specimens from the intermediate region in Ecuador, which are here classified as *iridescens*, show a transition from one extreme (typical *iridescens*) toward the other (*aculeatus*), particularly in regard to the presence or absence of the lateral crests.

Liocephalus angulifer Werner (1901) has the characteristic large parietal plates and the diagnostic lateral crests of this subspecies. Since it apparently agrees in other respects as well, there seems to be no reason for its retention as a distinct entity.

ECUADOR.—One specimen: No. 5281, from the western Andes.

Leiocephalus iridescens iridescens (Günther)

Liocephalus iridescens GÜNTHER, 1859, Proc. Zool. Soc. London, p. 409, (type locality, Andes of western Ecuador).

This subspecies is distinguished from *Leiocephalus ornatus ornatus* and its allies by the possession of much larger dorsal scales, and by the lesser number of posterior head shields. Much variation in the latter character is evident in the series listed below. The parietals are large, and have few sutures in part of the series, but they are split by many sutures in others. Some of the latter individuals closely approach the

condition found in typical *ornatus*, but they are fortunately separable on other characters, including the emphasis of pinkish in the abdominal coloration of most adults, instead of bluish. The general ground color varies from a very light brown or tan, to deep brown and blackish, and the back may or may not be crossed by chevrons, flecks, or bars. Likewise, the height of the dorsal crest is very variable, being most pronounced in certain large males. The specimens in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
18319	Alamor, Ecuador	H. E. Anthony
22113–19, 22131–32, 22155, 22158–63, 22165–67, 22178–84, 22223–29	Alamor, Ecuador	G. H. H. Tate
13510–13	Guayaquil, Ecuador	
22220–21	Guayaquil, Ecuador	G. H. H. Tate
21815–21, 21859–68 21973–78, 21987–91	Pasaje, Ecuador	G. H. H. Tate
22214–15	Piñas, Ecuador	G. H. H. Tate
24337–41	Puente de Chimbo, near Bucay, Ecuador	G. H. H. Tate
21943–47	Rio Jubones, Ecuador	G. H. H. Tate
22186	Rio Lunoma, Ecuador	G. H. H. Tate
21934–36	Rio Puyango, Ecuador	G. H. H. Tate
18311	Salvias, Province del Oro, Ecuador	H. E. Anthony
22213	San Bartolo, Ecuador	G. H. H. Tate
21814, 21939, 21993, 22069–70, 22121–24	Santa Rosa, Ecuador	G. H. H. Tate
28529–30	Bellavista, Peru	G. K. Noble
28636–46	Perico, Peru	G. K. Noble

Leiocephalus lineogularis Werner

Liocephalus lineogularis Werner, 1901, Abhandl. u. Ber. d. K. Zool. u. Anthr.-Ethn. Mus. Dresden, IX, No. 2, p. 3, (type locality, "Chanchamayo," Peru).

Leiocephalus lineigularis Barbour and Noble, 1921, Proc. U. S. Nat. Mus., LVIII, p. 613.

A topotype of this species shows it to be very distinct from *Leiocephalus arenarius* of the same general range. The form is readily recognized by the prominent latero-anterior brown patches which are most pronounced in the region of the shoulders. These do not extend dorsally, but along the mid-dorsal line there are several pairs of small

brown spots. These spots, although usually separated, are sometimes united across the vertebral line. The ground color of the back and that of the latero-posterior region is light brown, shaded usually with a little bronze or pinkish. In many specimens a vertical light line rises just behind the insertion of the forearms, instead of before it, as stated in the original description, and the throat may be either black, white, or deep pink. In some young specimens, however, a vertical light line is present before the insertion of the forearms as well as behind it, as in the adults. The tail of Werner's type was broken, but in perfect specimens it is long and tapering.

This form resembles the lizard described as *L. bolivianus* by Boulenger (1890), and later synonymized (1894) with *L. caducus*. It is not closely related to *L. arenarius* or *L. scapularis*.

PERU.—Eight specimens: No. 23154, collected at Chanchamayo by Carlos Schunke (topotype); No. 1701, taken near Lake Aracona, Juliaca, at an altitude of 16,600 feet by H. H. Keays; and Nos. 23121, 23123, 23134–35, 23147, 23192, and 23200, secured at Perené by Carlos Schunke.

Leiocephalus ornatus ornatus (Gray)

Leiocephalus ornatus GRAY, 1845, 'Cat. Liz. British Mus.,' p. 219, (type locality, Guayaquil, Tropical America).

Liocephalus guentheri BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 169, (type locality, Ecuador).

Liocephalus festæ PERACCA, 1897, Boll. Mus. Zool. Univ. Torino, XII, No. 300, p. 6, (type locality, "Cuenca," Ecuador).

Leiocephalus ornatus ornatus (Gray, 1845), described from Guayaquil, Ecuador, is very closely related to *L. ornatus trachycephalus* of Colombia. It is distinguished from the latter form by having larger gular scales. *L. guentheri* Boulenger (1885), also listed from Guayaquil, was distinguished by having 43 scale-rows around the body, the number in the northern *trachycephalus* being 47, and those of *ornatus* varying from 61 to 75 rows. The series from Ecuador, listed below, not only show this general range of variation in the number of scale-rows, but often bridge the gaps between the supposedly distinct forms. Thus it is found that *trachycephalus* cannot be identified on the highly variable character of the scale-rows, its counts falling within the range set by *ornatus* (including *guentheri*).

L. festæ Peracca (1897), described from Cuenca (a short distance from Guayaquil), is apparently synonymous with *ornatus*, since the parietal scales were said to be indistinct (or small) and the dorsal scales

were found to be only moderately large. Moreover, the pronounced denticulation in front of the ear, emphasized as a diagnostic character in separating *festæ* from the Colombian *trachycephalus*, does not offer separation from *ornatus* of the same general range in Ecuador.

The specimens of *L. ornatus ornatus* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
18315	Bestion, Ecuador	H. E. Anthony
13490–93	Cachavi, Ecuador	
18318	Celica, Ecuador	H. E. Anthony
23416–21, 23436, 23447–54	Cinincay, near Cuenca, Ecuador	G. H. H. Tate
23439–44	Contrayerbas, Ecuador	G. H. H. Tate
23422–24	Llapin, Ecuador	G. H. H. Tate
28737–41, 28743–70	Quito, Ecuador	H. E. Anthony
18313–14	Salvias, Province del Oro, Ecuador	H. E. Anthony
28528	Huambos, Peru	G. K. Noble

Leiocephalus ornatus trachycephalus (Duméril)

Holotropis trachycephalus A. Duméril, 1851, in Duméril et Duméril, 'Cat. Méth. Coll. Reptiles,' Paris, p. 70, (type locality, Nouvelle Grenade, et en particulier Santa-Fé de Bogotá).

Liocephalus trachycephalus Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 169.

Bluish, rather than pinkish, is emphasized in the ventral coloration of this subspecies.

The specimens in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
7643–46	Bogotá, Colombia (topotypes)	Apolinar Maria
18108, 24208–10, 24216, 24224–25, 24260, 24278–83, 32682–97	Bogotá, Colombia (topotypes)	Nicéforo Maria
27525	Facativá, Colombia	Nicéforo Maria
32678–79, 32760–61	Gutierrez, southeast of Bogotá, Colombia	Nicéforo Maria
27611, 27613	La Dorada, Colombia	Nicéforo Maria
27528, 27532, 27534, 27539, 27559, 27946–47, 27952–53, 27956–57, 27966	Mountains near Muso, Colombia	Nicéforo Maria

Leiocephalus scapularis Boulenger

Liocephalus scapularis BOULENGER, 1901, Ann. and Mag. Nat. Hist., (7) VII, p. 548, (type locality, "Perené," Peru).

This species was said to differ from *L. iridescens aculeatus* in the smaller head shields, in the smaller dorsal scales, and in the interrupted lateral crest. The last characteristic seems of lessened importance since it is found in intergrades between *iridescens* and *aculeatus* from Ecuador.

BOLIVIA.—Two specimens: Nos. 22450 and 22532, secured at Rurrenabaque by N. E. Pearson of the Mulford Biological Expedition.

PERU.—One small topotype: No. 23196, collected at Perené by Carlos Schunke.

LEIOSAURUS Duméril and Bibron

Leiosaurus bellii Duméril and Bibron

Leiosaurus bellii DUMÉRIL AND BIBRON, 1837, 'Erp. Gen.,' IV, p. 242, (type locality, "Mexique," no doubt in error).

ARGENTINA. One specimen: No. 17004, from Chubut.

Leiosaurus darwinii (Bell)

Diplolæmus darwinii BELL, 1843, 'Zool. "Beagle," Reptiles,' p. 20, (type locality, Port Desire, Patagonia).

Liosaurus darwini KOSLOWSKI, 1898, Revista Mus. La Plata, VIII, p. 169.

ARGENTINA.—One specimen: No. 17005, from Chubut. The coloration of this individual agrees well with that of the type which served as the basis of Bell's original illustration of the species.

LIOLÆMUS Wiegmann

The lizards of this highly variable genus are in a state of great systematic confusion. Therefore, the writer finds it impractical to present a synopsis of the species here.

Liolæmus alticolor Barbour

Liolæmus alticolor BARBOUR, 1909, Proc. N. Eng. Zool. Club, IV, p. 51, (type locality, Tiaguanaco, Bolivia).

There are three specimens (Nos. 38068–70, secured by R. H. Beck at Sicuani, Peru) in the collection of the American Museum which agree perfectly with the protograph of *alticolor*, except that the reddish suffusion is absent from the flanks. This species is apparently allied to *L. lemniscatus* from which it differs chiefly in the constant suppression of the dorsal spotting, and in the posterior widening of the dorso-lateral stripes.

Liolæmus chiliensis (Lesson)

Calotes chiliensis Lesson, 1831, in Duperry, 'Voy. "Coquille," Zool.,' II, part 1, p. 36, (type locality, Talcahuano, Province de la Concepcion, Chili).

Liolæmus chilensis Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 141.

Chile.—Four specimens: No. 21144, from Concepcion; and Nos. 21140–43, topotypes from Talcahuano.

Liolæmus cyanogaster (Duméril and Bibron)

Proctotretus cyanogaster Duméril and Bibron, 1837, 'Erp. Gen.,' IV, p. 273, (type locality, Chile).

Liolæmus cyanogaster Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 145.

Bolivia.—Three specimens: Nos. 13499–500, collected at Challapata by P. O. Simons; and No. 13501, taken at Potosi by P. O. Simons.

Chile.—Three specimens: Nos. 38065–67, obtained at Corral by R. H. Beck.

Liolæmus darwinii (Bell)

Proctotretus darwinii Bell, 1843, 'Zool. "Beagle," Reptiles,' p. 14, (type locality, Bahia Blanca, northern Patagonia).

Liolæmus darwinii Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 155.

Argentina.—Six specimens: Nos. 21087–92, from Cruz del Eje.

Liolæmus fitzingerii (Duméril and Bibron)

Proctotretus fitzingerii Duméril and Bibron, 1837, 'Erp. Gen.,' IV, p. 286, (type locality, Chili).

Liolæmus fitzingeri Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 150.

Argentina.—One specimen: No. 17007, from Chubut.

Liolæmus kingii (Bell)

Proctotretus kingii Bell, 1843, 'Zool. "Beagle," Reptiles,' p. 13, (type locality Port Desire in Patagonia).

Liolæmus kingii Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 149.

Argentina.—One specimen: No. 17008, from Patagonia.

Liolæmus lemniscatus Gravenhorst

Liolæmus lemniscatus Gravenhorst, 1838, Nova Acta Acad. Caes. Leop.-Carol., XVIII, part 2, p. 731, (type locality, Valparaiso). Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 143.

Liolæmus fuscus Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 144, (type locality, Valparaiso).

There is apparently nothing to separate *L. fuscus*, as defined by Boulenger (1885), from specimens of *L. lemniscatus*, a belief substantiated by an examination of the lizards listed below. The size of the

interparietal is highly variable. The number of scale-rows is not constant. The coloration is not distinctive.

The dorsal pattern of *lemniscatus* strongly resembles that of the North American *Sceloporus undulatus thayerii*. In both of these forms the dark dorsal spots may be present or absent, and if present, as they often are, they may tend to form wavy cross-bars across the back. Also, there are, typically, two longitudinal light lines on each side of these lizards.

CHILE.—Four specimens: Nos. 21145 and 18335, collected at Concepcion by C. E. Schneider; No. 37556 from Santiago; and No. 38072 from Valparaiso; the last two collected by R. H. Beck.

Peru.—One specimen: No. 36371, collected at Puaya by R. H. Beck.

Liolæmus lineomaculatus Boulenger

Liolæmus lineomaculatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 149, (type locality, Patagonia).

ARGENTINA.—One specimen: No. 17010, from Santa Cruz.

Liolæmus magellanicus (Hombron and Jacquinot)

Proctotretus magellanicus HOMBRON AND JACQUINOT, 1851, 'Rept. Saur.,' Pl. II, fig. 2, et B, b et b', (without text). DUMÉRIL AND DUMÉRIL, 1851, 'Cat. Méth. Coll. Reptiles,' (Paris), p. 75, (type locality, Havre Pecket, détroit de Magellan). JACQUINOT ET GUICHENOT, 1850, 'Voy. au Pole Sud, Zool.,' III, Reptiles et Poissons, p. 6.

Liolæmus magellanicus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 148.

The series of plates prepared by Hombron and Jacquinot in connection with a report on the "Voyage au Pole Sud. . . . " were published from 1842 to 1855, but, unfortunately, the date at which each plate appeared is not indicated. The plate which serves as the protograph of *magellanicus* is presumed to have appeared early in 1851, since it was mentioned by Duméril and Duméril in that year, and since it was not listed by Sherborn in his 'Index Animalium' which covers the period prior to 1851.

A specimen (A. M. N. H. No. 38071) collected by R. H. Beck at Punta Arenas, Chile, near the Strait of Magellan, excellently fits the descriptions given for this species.

Liolæmus multiformis multiformis (Cope)

Proctotretus multiformis COPE, 1876, Journ. Acad. Nat. Sci. Phila., VIII, p. 173, (type locality, Lake of Titicaca, Peru).

Liolæmus multiformis BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 153.

Liolæmus lenzi BŒTTGER, 1891, Zool. Anz., XIV, p. 344, (type locality, Bolivia in the vicinity of Lake Titicaca).

Liolæmus annectens BOULENGER, 1901, Ann. and Mag. Nat. Hist., (7) VII, p. 546, (type locality, "Caylloma and Sumbay," Andes of Peru). STEJNEGER, 1913, Proc. U. S. Nat. Mus., XLV, p. 546.

Liolæmus tropidonotus BOULENGER, 1902, Ann. and Mag. Nat. Hist., (7) X, p. 397, (type locality, "Tirapata, Peru," north of Lake Titicaca).

The variability of this form is remarkable, and it is not surprising that the seemingly diagnostic characters exhibited by its representatives have given rise to a number of taxonomic designations. A careful review of the literature, and an examination of the available specimens indicates that *multiformis* occupies a continuous range in the Andes of Peru and Bolivia and that it is separable into two subspecies, which are, however, but doubtfully distinct from each other. The differences between these two may best be presented in the form of a key as follows:

Dorsal scales smooth or tuberculate, rarely strongly keeled; keels rarely forming continuous longitudinal lines; dorsal scales often much smaller than ventrals; general ground color darker. (Andes of southern Peru and adjacent Bolivia)
L. multiformis multiformis (Cope).

Dorsal scales more or less strongly keeled; keels often forming continuous longitudinal lines; dorsal scales usually only a little smaller than ventrals; general ground color lighter. (Andes of southwestern Bolivia).
L. multiformis simonsii (Boulenger).

The variations of *L. multiformis simonsii* will be discussed below, but those of *L. multiformis multiformis* will be presented here.

Proctotretus multiformis was described by Cope in 1876 from specimens taken in the vicinity of the elevated Lake Titicaca, which lies in the Andes on the boundary between Peru and Bolivia. This author recognized its colorational variability by dividing it into three varieties as follows:

I. Bright green, paler posteriorly, with two rows of large transverse black bars with irregular edges. Head brown above, pale-speckled, lower surfaces olive.

II. Olive-brown above, with faint darker cross-bands, pale-bordered behind; sides and below blue to whitish.

III. Light brown with a row of black spots on each side, divided by a longitudinal pale band. Below yellowish, marbled with bluish.

To these might be added a fourth variety which appears in both of the subspecies of *multiformis*.

IV. Olive-brown above, with no cross-bands or spots. Below yellowish or bluish. Size large. (A. M. N. H. Nos. 5251 and 21146).

Liolæmus annectens Boulenger (1901) from Caylloma and Sumbay, a short distance northwest of Lake Titicaca, the type locality of *multi-*

formis, was said to be "distinguished by the larger dorsal scales." As already indicated, this variation is usually found in *simonsii*, the southern form. This alone indicates that the character is subjected to confusing geographical repetition, but it is rendered of even less value by the appearance of both large and small dorsal scales in a number of this species from the area between Cotuhuasi and Chuquibamba (U. S. N. M. Nos. 49544–48), near the type locality of *annectens*. These specimens were considered as typical of *annectens* by Stejneger (1913).

The dorsal scutes of *multiformis* may be either smooth or keeled, imbricate or juxtaposed, even on the same individual, as the examination of the series listed below has shown. Therefore, it appears that *Liolæmus tropidonotus* Boulenger (1902), distinguished by its "strongly keeled scales," is synonymous with the present form. This seems reasonable since the type locality of *tropidonotus* is Tirapata, Peru, but a short distance north of the type locality of *multiformis*.

All of the specimens of *multiformis* listed below, with the exception of No. 21086, were taken in the vicinity of Lake Titicaca.

Bolivia.—Seven specimens, Nos. 32990–94, secured by G. H. H. Tate at Cumbre, and Nos. 22146–47, collected at Potone by P. O. Simons.

Peru.—Twenty-seven specimens: Nos. 21134–39, 17695–98, from Aracona; Nos. 1707–22, topotypes found by H. H. Keays at Juliaca; Nos. 38039–47 and 38052, taken at Puno by R. H. Beck; and No. 21086, from Rio Inambari, a considerable distance north of Lake Titicaca.

Liolæmus multiformis simonsii (Boulenger)

Liolæmus simonsii Boulenger, 1902, Ann. and Mag. Nat. Hist., (7) X, p. 398, (type locality, Potosi, Challapata, and Uyuni, in Bolivia).

Liolæmus annectens orientalis Müller, 1924, Mitteilungen Zool. Mus. Berlin, XI, p. 81, (type locality, "Oberer Pilcomayo, zwischen Tarija und S. Francisco, Bolivien").

The relationship of this subspecies to *L. multiformis multiformis* has been presented above under the discussion of that form.

Liolæmus annectens orientalis Müller, 1924, was described from a large adult which had attained the maximum amount of color evolution (see variety IV above under *multiformis*), the back being "gelblich olivbraun, ohne jede Zeichnung." Such a specimen is A. M. N. H. No. 5251 from Sucre, a village located between the type localities of *simonsii* and that of *orientalis*. Since the two lizards are not separable on scutellational or proportional features, it seems impractical to maintain them as distinct entities.

All of the specimens listed below were secured in the area south and east of Lake Poopo, in southwestern Bolivia.

BOLIVIA.—Six specimens collected by P. O. Simons; Nos. 13495–98, topotypes from Potosi; No. 5251, from Sucre; and No. 13494, a topotype from Uyuni. These examples were secured from W. F. H. Rosenberg.

Liolæmus nitidus (Wiegmann)

Tropidurus nitidus WIEGMANN, 1834, in F. J. F. Meyen, 'Reise um die Erde (1830–1832),' I, p. 206, (n.n.); 1835, Nova Acta Acad. Cæs. Leop.-Carol., XVII, part 1, p. 234, (type locality, Chili).

Liolæmus nitidus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 140.

CHILE.—Twenty-two specimens; Nos. 37571–73 and 37808–11, taken at Tofo by T. Hallinan; and Nos. 37518–32, collected at Valparaiso by R. H. Beck.

Liolæmus pictus major Boulenger

Liolæmus pictus major BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 152, (type locality, Chili).

A specimen of *Liolæmus* taken on a small island ten miles from Aucud, Chile (A. M. N. H. No. 38074, R. H. Beck, collector), is apparently assignable to this subspecies. The ground color of the back is black, but this is broken by a number of irregular light markings. Traces of dorso-lateral stripes are present only anteriorly; the head is covered by small white spots; and the under surfaces are blue-gray in color. There are "two small azygous frontals," and the general scutellation is fine as in typical *pictus*.

Liolæmus pictus pictus (Duméril and Bibron)

Proctotretus pictus DUMÉRIL AND BIBRON, 1837, 'Erp. Gen.,' IV, p. 276, (type locality, Chili).

Liolæmus pictus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 151.

The dorsal markings of *pictus* show much more regularity than those of *major* described above. The dorsal pattern is one of alternate grayish or brownish patches and black spots or cross-bars, the general or predominant ground color of the back being much lighter than in *major*. The dorso-lateral stripe may be prominent or suppressed, and the upper head scales and the back may or may not be covered by small white spots. Thus, a surprising amount of colorational variation is shown in the few available specimens.

CHILE.—Four specimens: No. 38051, from Chiloe Island; and Nos. 38048–50, from Corral; both series collected by R. H. Beck.

Liolæmus platei Werner

Liolæmus platei Werner, 1898, Zool. Jahrb., Supplement, IV, Fauna Chilensis, p. 255, (type locality, Coquimbo).

Chile.—Three hundred and forty-four specimens: Nos. 36282–87, 36290–93, 36336–68, 37483–517, 37574–663, 37664–807, 37816–29, 37834–49, and 38030–32; collected at Tofo by T. Hallinan.

Liolæmus signifer (Duméril and Bibron)

Proctotretus signifer Duméril and Bibron, 1837, 'Erp. Gen.,' IV, p. 288, (type locality, Chili).

Liolæmus signifer Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 154.

Argentina.—One specimen: No. 17011, from Chubut.

Liolæmus tenuis (Duméril and Bibron)

Proctotretus tenuis Duméril and Bibron, 1837, 'Erp. Gen.,' IV, p. 279, (type locality, Chili).

Liolæmus tenuis Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 152.

Chile.—One specimen: No. 21151, from Concepcion.

Liolæmus wiegmannii (Duméril and Bibron)

Proctotretus wiegmannii Duméril and Bibron, 1837, 'Erp. Gen.,' IV, p. 284, (type locality, Chili).

Liolæmus wiegmanni Boulenger, 1885. 'Cat. Liz. British Mus.,' II, p. 156.

Argentina.—One specimen: No. 17009, from Patagonia.

Norops Wagler

Norops auratus (Daudin)

Anolis auratus Daudin, 1802, 'Hist. Nat. des Reptiles,' IV, p. 89, (type locality, not indicated).

Norops auratus Gray, 1845, 'Cat. Liz. British Mus.,' p. 207.

This species has a rather variable coloration, although it is always brownish. Dark spots may be present or absent dorsally, and the ventral parts may be either white or more or less suffused with bluish. Moreover, the lateral stripe may be present or absent, and, if present, distinct or indistinct.

The specimens of this lizard in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
37466–75	Georgetown, British Guiana	William Beebe
38597	Mahaica, British Guiana	
38544	Akyma, Demerara River, British Guiana	
35294–95	Honda, Colombia	Nicéforo Maria
38603–13, 38723–24	Medellin, Colombia	Nicéforo Maria
37860–61, 38699–703, 38614–72	Sabanalarga, Cauca Valley, Colombia	Nicéforo Maria
38695–98	Santa Rosa de Osa, Colombia	Nicéforo Maria
8638–40, 8642–48	Paramaribo, Dutch Guiana	J. A. Samuels

PHENACOSAURUS Barbour

This genus was established by Barbour (1920) upon *Xiphocercus heterodermus*, after the examination of one of the specimens sent from Bogotá, Colombia, by Nicéforo Maria. It is very closely related to *Anolis*, from which it differs chiefly in having an "apparently prehensile tail."

Phenacosaurus heterodermus (Duméril)

Anolis heterodermus DUMÉRIL, 1851, 'Cat. Méth. Coll. Reptiles,' Paris, p. 59, (type locality, "Nouvelle-Grenade," Colombia).

Xiphocercus heterodermus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 10.

Phenacosaurus heterodermus BARBOUR, 1922, 'Handbk. of Jamaica for 1922, Reptiles,' p. 3.

The coloration of this species is highly variable. The ground color is most often some shade of brown or olive, and the general color of the under parts may be brown, pinkish, yellowish, blue-green, greenish, or slate. Also, the dorsal crest may be light and in distinct contrast with the ground color of the back, or it may be the same color as the back, which in turn may, or may not have contrasting dark and light spots and reticulations.

The specimens of this form in the collection of the American Musem may be listed as follows:

Nos.	Locality	Collector
14023–24, 7641, 18105, 24206–207, 24215	Bogotá, Colombia	Nicéforo Maria
32680–81	Gutierrez, southeast of Bogotá, Colombia	Nicéforo Maria
32673	Medellin, Colombia	Nicéforo Maria
27567	Mountains near Muso, Colombia	Nicéforo Maria
35303–306	Sonson, Colombia	Nicéforo Maria

PHYMATURUS Gravenhorst

Phymaturus palluma palluma (Molina)

Lucerta palluma MOLINA, 1782, 'Saggio sulla Storia Naturale del Chili, Bologna,' IV, p. 217, (type locality, Chili).

Lacerta palluma MOLINA, 1782, 'Saggio sulla Storia Naturale del Chili, Bologna,' IV, p. 345.

Lacerta pelluma GMELIN, 1788, in Linnæus, 'Syst. Nat.,' XIII, part 1, p. 1060.

Cordylus pelluma MEYER, 1795, 'Syn. Reptil.,' p. 17.

Stellio pelluma LATREILLE, 1801, 'Hist. Nat. des Reptiles,' II, p. 38.

Phymaturus palluma GRAVENHORST, 1838, Nova Acta Acad. Caes. Leop.-Carol., XVIII, Heft 2, p. 750.

This form is not readily separable from *patagonicus*, but it appears that the median dorsal granules in *palluma* are much larger than the lateral granules, whereas in *patagonicus* the median dorsal granules are only slightly larger than the lateral granules. If the two forms can be maintained as distinct entities it is evident that *palluma* is the northern race, and that *patagonicus* is the southern one.

ARGENTINA.—Two specimens: No. 17017, from Patagonia; and No. 27660 from Puente del Inca near the Chilean border, west of Mendoza, taken at an altitude of about 10,500 feet by F. C. Walcott.

Phymaturus palluma patagonicus (Koslowsky)

Phymaturus patagonicus KOSLOWSKY, 1896, Revista Mus. La Plata, VIII, p. 184, (type locality, Territory of Chubut, Argentina).

Phymaturus spurcus BARBOUR, 1921, Proc. Biol. Soc. Wash., XXXIV, p. 139, (type locality, Huanuluan, Rio Negro, Argentina).

Phymaturus spurcus, described as somewhat intermediate between *palluma* and *patagonicus*, appears to be rather typical of the latter form. The small dorsal granules are present in both *spurcus* and *patagonicus* and constant differences in the caudal scutellation are not evident. While the young of *patagonicus* are striped, showing a moderately distinct dorso-lateral line on each side (A. M. N. H. No. 17016), the examples figured in the original description, and other adults (such as A. M. N. H. No. 38970), lose this distinction and become more or less unicolor above. It is evident that with increasing age the dorso-lateral stripes become more and more obsolete, until finally they disappear altogether. It is probable that this same type of color evolution is also found in *P. palluma palluma*.

ARGENTINA.—Two topotypes: No. 17016 from Chubut; and No. 38970, collected at Huanuluan by James L. Peters. The latter individual is a paratype of *Phymaturus spurcus*.

PLICA Gray

Plica GRAY, 1831, in Griffith's 'Cuvier's Animal Kingdom,' IX, 'Synops. Reptilia,' p. 40.

Uraniscodon GRAY, 1845, 'Cat. Liz. British Mus.,' p. 222. BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 178.

Stejneger (1901, p. 182) has shown that Gray (1845) and Boulenger (1885) were in error in assigning the species of the present genus to *Uraniscodon*.

Plica plica (Linnæus)

Lacerta plica LINNÆUS, 1758, 'Syst. Nat.,' X, p. 208, (type locality, "*Indüs*").
Uraniscodon plica BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 180.
Plica plica STEJNEGER, 1901, Proc. U. S. Nat. Mus., XXIV, p. 182.

The dorsal ground color of this lizard is usually gray or blackish and the dorsal scales are more or less granular. The throat of adults is black, but in the young it is lighter, usually slate or gray.

The specimens in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
36530–31	Serro do Cucuhy, Brazil	W. J. La Varre
36626	Caiari Vaupes, Tatu, near the Rio Negro, Brazil	Tyler-Duida Exp.
2317	British Guiana	William Beebe
8090	Camaria Landing, Coyuhi River, British Guiana	William Beebe
8091	Groets Creek, Essequibo River, British Guiana	William Beebe
25071, 25089, 25113–15	Kamakusa, British Guiana	W. S. Lang and W. J. La Varre
14117, 21290, 21331	Kartabo, British Guiana	William Beebe
102	Trinidad	W. W. Holmes
36629	Esmeralda, Venezuela	Tyler-Duida Exp.
36550–51, 36661–62	Six miles north of Esmeralda, Venezuela	Tyler-Duida Exp.
36658–59	Ten miles north of Esmeralda, Venezuela	Tyler-Duida Exp.
36638, 36640	Rio Pescada, Mt. Duida, Venezuela	Tyler-Duida Exp.

Plica umbra (Linnæus)

Lacerta umbra LINNÆUS, 1758, 'Syst. Nat.,' X, p. 207, (type locality, South America).

Iguana umbra MEYER, 1795, 'Synops. Reptil.,' p. 17.

Uraniscodon umbra GRAY, 1885, 'Cat. Liz. British Mus.,' p. 222. BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 179.

The throat of this form is not black as in the first species, but gray or yellowish. Also, the sides of the neck are less folded in *umbra* than in *plica*.

The specimens in the American Museum may be listed as follows:

Nos.	Locality	Collector
18200	Demerara River, British Guiana	Mr. Rodway
17690–91	Georgetown, British Guiana	
8097	Kalacoon, British Guiana	William Beebe
25118	Kamakusa, British Guiana	W. S. Lang and W. J. La Varre
14115–16	Kartabo, British Guiana	Tropical Research Expedition
21316	Kartabo, British Guiana	William Beebe

POLYCHROIDES Noble

Polychroides peruvianus Noble

Polychroides peruvianus NOBLE, 1924, Occas. Pap. Boston Soc. Nat. Hist., V, p. 109, (type locality, Cajamarca, Peru).

PERU.—Three paratypes: Nos. 28633–35; collected at Querocotilla by G. K. Noble.

POLYCHRUS Cuvier

SYNOPSIS OF THE SPECIES

1. Scales of chest distinctly keeled.....2.
   Scales of chest smooth or nearly so (Bolivia and Peru)..*P. liogaster* Boulenger.
2. Scales of chest unicarinate.....3.
   Scales of chest multicarinate (Ecuador northward to Nicaragua). *P. gutturosus* Berthold.
3. Lateral scales not larger than the median dorsals.....4.
   Lateral scales larger than the median dorsals (southern Brazil, Uruguay, and Argentina).....*P. acutirostris* (Spix).
4. A gular denticulation or crest; ventral scales often strongly unicarinate.....5.
   An incomplete gular denticulation or crest or none at all; ventral scutes more feebly unicarinate (Colombia and northwestern Brazil). *P. spurrelli* (Boulenger).
5. Femoral pores less than thirteen (northeastern South America). *P. marmoratus* (Linnæus).
   Femoral pores more than thirteen (southern Ecuador).... *P. femoralis* Werner.

Polychrus acutirostris Spix

Polychrus acutirostris SPIX, 1825, 'Species Novæ Lacert. Brasil.,' p. 15, (type locality, Bahia, Brazil).

Polychrus angustirostris COPE, 1899, Sci. Bull. Phila. Mus., No. 1, p. 20, (emend.)

This lizard has much larger lateral scales than typical *marmoratus*. A specimen from the intermediate region of São Paulo, Brazil (A. M. N. H. No. 7697), has the lateral scales larger than the dorsals on one side and smaller than the dorsals on the other. Also the lateral scales are occasionally enlarged (approaching the condition of *acutirostris*) in more northern specimens of *marmoratus*, so its seems that the two forms must ultimately be ranked as subspecies.

ARGENTINA.—One specimen: No. 17006, from Misiones.

Polychrus gutturosus Berthold

Polychrus gutturosus BERTHOLD, 1847, Abhandl. Ges. Göttingen, III, p. 5, Pl. I, fig. 1. BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 100.

This lizard was listed from Colombia and Costa Rica by Boulenger (1885), and examples from both Colombia and Ecuador in the collection of the American Museum show multicarinate ventral scales.

COLOMBIA.—Five specimens: Nos. 32674–77 and 32698; collected at Medellin by Nicéforo Maria.

ECUADOR.—Five specimens: Nos. 13424–26, from Paramba; and Nos. 13518 and 13536, from San Javier.

Polychrus liogaster Boulenger

Polychrus liogaster BOULENGER, 1908, Ann. and Mag. Nat. Hist., (8) I, p. 113, (type locality, Province Sara, eastern Bolivia).

BOLIVIA.—Four specimens: No. 37812, collected at Buenavista by José Steinbach; No. 38806, taken at Concepcion, Chiguitos, by José Steinbach; No. 22509, secured at Rurrenabaque by N. E. Pearson of the Mulford Biological Expedition; and No. 1679, taken at Valparaiso, Province Beni, by Edgar T. Young.

PERU.—One specimen: No. 23141; taken at Perené by Carlos Schunke.

Polychrus marmoratus (Linnæus)

Lacerta marmorata LINNÆUS, 1758, 'Syst. Nat.,' X, p. 208, (type locality, "Hispania").

Polychrus marmoratus MERREM, 1820, 'Ver. eines Syst. Amphibien,' p. 48.

The specimens of this form in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
7697	São Paulo, Brazil	
37452	Akyma, Demerara River, British Guiana	
18181	Bonasica, Essequibo River, British Guiana	William Beebe
18187, 21288, 21315, 37872	Kartabo, British Guiana	William Beebe
32279–81	Kartabo, British Guiana	George Morgan
18182	Maripa, Essequibo River, British Guiana	William Beebe
8141, 8652	Paramaribo, Dutch Guiana	J. A. Samuels
8617–18, 8654–55, 8673	Port Gröningen, Dutch Guiana	J. A. Samuels
2553	Frontier, Rio Oppronsque, French Guiana	
106–107, 8744–46	Trinidad	
13514–17	Chama, Venezuela	
13420–23	Rios Albarregas y Milla, near Mérida, Venezuela	
29326, 29336	San Antonio, Venezuela	G. H. H. Tate

Polychrus spurrelli Boulenger

Polychrus spurrelli Boulenger, 1914, Proc. Zool. Soc. London, p. 814, (type locality, Peña Lisa, Condoto, in the Choco of Colombia). Ruthven, 1922, Misc. Publ. Mus. Zoöl. Univ. Mich. Mus., VIII, p. 59.

The separation between *spurrelli* and *marmoratus* is not easy, as indicated by Ruthven (1922, p. 59) while dealing with a specimen from the Santa Marta region. In fact, it appears that a complete intergradation between the two populations occurs. The gular denticulation varies in typical *marmoratus*, and it is evidently present, in an incomplete state at least, in most Colombian specimens of *spurellii*. Thus, it is evident that *spurrelli* will be ultimately recognized as no more than a subspecies of *marmoratus*.

Brazil.—One specimen: No. 32584, from Manáos, collected by W. J. La Varre.

Colombia.—Four specimens collected by Nicéforo Maria: No. 27497 from Honda; No. 27524 from Medina; No. 27494 from Villa Vicencio; and No. 35307.

Proctotretus Duméril and Bibron

Proctotretus Duméril and Bibron, 1837, 'Erp. Gen.,' IV, p. 266, (type species, *P. pectinatus* Duméril et Bibron).

Saccodeira GIRARD, 1857, Proc. Acad. Nat. Sci. Phila., p. 197, (type species, *S. ornatissima* Girard).

The genus *Proctotretus* was described by Duméril and Bibron in 1837, but at that time a type species was not designated. Subsequently, in 1843, Fitzinger (p. 17) made *P. pectinatus*, a form originally included in the genus *Proctotretus*, the type species. Another genus, *Saccodeira*, was described by Girard in 1857, who made his *S. ornatissima* the type species through the applicability of section I, case c, of Article 30 of the 'International Rules of Zoölogical Nomenclature.' Still later, Boulenger (1885) included both *pectinata* and *ornatissima* in the genus *Saccodeira*, at the same time reducing the genus *Proctotretus* to the synonymy, part to *Liolæmus* and part to *Saccodeira*. Since the type species of *Proctotretus* (1837) is now included in *Saccodeira* (1857), it is clear that the name of the earlier described genus should be applied to all of the species of the group and that *Saccodeira* should no longer be recognized as a valid entity. This is in conformity with Article No. 29 and Opinion No. 10 of the 'International Rules of Zoölogical Nomenclature.'

This genus is very closely allied to *Stenocercus*, which in turn shows a marked affinity to *Liolæmus*.

SYNOPSIS OF THE SPECIES

1. Ventral plates smooth.....2.
   Ventral plates keeled (Brazil, Uruguay, and Argentina)....*P. azureus* (Müller).
2. Upper head scales multicarinate or smooth; dorso-lateral light stripe usually more or less incomplete or absent; under surfaces, including throat, often bluish or grayish (Ecuador, and Peru)....*P. ornatissimus* (Girard).
   Upper head scales usually unicarinate; dorso-lateral light stripe usually distinct and continuous; under surfaces light, usually immaculate (Brazil, Chile, and Argentina).....*P. pectinatus* Duméril et Bibron.

Saccodeira arenaria Werner (1910, p. 26), a species with smooth head plates, described from Punta Arenas, Straits of Magellan, in southern Argentina, appears to be a *Liolæmus*, and, as suggested by Werner's statement that it is allied to (*Proctotretus*) *pectinatus*, it may show a transition from one group of species (genus) to the other. Without giving the matter further study, the writer hesitates to include *arenaria* in either *Proctotretus* or *Liolæmus*.

Proctotretus azureus (Müller)

Tropidocephalus azureus MÜLLER, 1880, Verh. Nat. Ges. Basel, VII, pp. 160–1, (type locality, Uruguay); 1885, Verh. Nat. Ges. Basel, VII, p. 107.

Liolæmus azureus BOULENGER, 1885, Ann. and Mag. Nat. Hist., (5) XV, p. 192.

Saccodeira azurea BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 160.

ARGENTINA.—Three specimens: Nos. 37557–9, collected at Mar del Plata by R. H. Beck.

URUGUAY.—One topotype: No. 17013.

Proctotretus ornatissimus (Girard)

Saccodeira ornatissima GIRARD, 1857, Proc. Acad. Nat. Sci. Phila., p. 198, (type locality, Lower Cordilleras, just below Obrajillo, and Yanga, Peru).

ECUADOR.—Four specimens: No. 23445, secured at Contrayerbas by G. H. H. Tate; Nos. 27136–37, found at Molinourcu, by H. E. Anthony; and No. 28783, taken at Pongo by H. E. Anthony.

Proctotretus pectinatus Duméril and Bibron

Proctotretus pectinatus DUMÉRIL AND BIBRON, 1837, 'Erp. Gen.,' IV, p. 292, (type locality, Chili).

Saccodeira pectinata BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 159.

ARGENTINA.—One specimen: No. 18012, from Cordoba.

STENOCERCUS Duméril and Bibron

A key to most of the species of this genus has been presented by Werner (1912, pp. 12–13.)

Stenocercus bœttgeri Boulenger

Stenocercus bœttgeri BOULENGER, 1911, Ann. and Mag. Nat. Hist., (8) VII, p. 22, (type locality, Huancabamba, Peru).

PERU.—Thirteen specimens: Nos. 13502–509 and 5279, topotypes from Huancabamba; and Nos. 13625–28, examples from Oxapampa.

Stenocercus crassicaudatus (Tschudi)

Scelotrema crassicaudatum TSCHUDI, 1845, 'Fauna Peruana, Herpetologie,' p. 28, (type locality, Urubamba, Peru).

Stenocercus torquatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 133, (type locality, Peru).

Stenocercus ervingi STEJNEGER, 1913, Proc. U. S. Nat. Mus., XLV, p. 545, (type locality, Huadquinia, Peru).

This form, originally described by Tschudi (1845), was overlooked by Boulenger (1885), who considered it as a new species, *S. torquatus*. An examination of the type of *S. ervingi* Stejneger (1913), described without reference to *crassicaudatus* and *torquatus*, indicates that it, too, should be placed in the synonymy of the present form. The dorsal scales of the type of *ervingi* are apparently not diagnostic, being small in front and larger behind, as in other examples of *crassicaudatus*.

Much variation is noted in the coloration and scutellation of the specimens examined. The dorsal crest may be present as a very low

denticulation, or absent. Also, the shoulders may be crossed by from one to three deep black bars, these usually uniting superiorly, or they may be unicolor, even in the same locality.

PERU.—Twenty specimens: Nos. 23152–53, taken at Chanchamayo; Nos. 2315, 23124–33, 23137–39, 23143–44, 23146, 23148, and 23188, found at Perené; all collected by Carlos Schunke.

Stenocercus humeralis (Günther)

Microphractus humeralis GÜNTHER, 1859, Proc. Zool. Soc. London, p. 90, (type locality, Andes of western Ecuador).

Stenocercus humeralis BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 134.

One of the outstanding characteristics of this form seems to be the presence of a prominent, rather wide, deep black bar on each side of the neck in the region of the antehumeral fold, as shown in the illustration presented by Boulenger (1885, Pl. VIII, fig. 2).

ECUADOR.—Two specimens: No. 18307, collected by H. E. Anthony; and No. 27135, from Las Maquinas, also collected by H. E. Anthony.

Stenocercus nigromaculatus Noble

Stenocercus nigromaculatus NOBLE, 1924, Occas. Pap. Boston Soc. Nat. Hist., V, p. 112, (type locality, Huancabamba, Province of Piura, Peru).

ECUADOR.—Three specimens: Nos. 27140–42, taken at Wavepungo by H. E. Anthony.

PERU.—Twenty paratypes: Nos. 28531–32 from Chumayo; and Nos. 28553–59, and 28588–98; all collected by G. K. Noble.

Stenocercus roseiventris (D'Orbigny)

Stenocercus rosei-ventris D'ORBIGNY, 1837, in Duméril and Bibron, 'Erp. Gen.,' IV, p. 350, (type locality, Bolivia).

Stenocercus roseiventris BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 133.

The sides of the young of this species are dull brown, with small and more or less indistinct white spots.

BOLIVIA.—Two specimens: Nos. 37906, collected at Buenavista, Santa Cruz, by José Steinbach; and No. 9037, taken along the Todos Santos Trail by Leo E. Miller and Howarth Boyle.

Stenocercus varius Boulenger

Stenocercus varius BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 134, (type locality, unknown).

The series of specimens reported below agree well with the original description and protograph of *S. varius*, as presented by Boulenger

(1885). Therefore, it appears, that the species, described from an unknown locality, inhabits southern Ecuador.

ECUADOR.—Sixty-three specimens: Nos. 21847, 22133, 22136–54, 22156–57, 22164, 22168–77, 22187, and 22189–22212, collected at Alamor by G. H. H. Tate; No. 18308, secured at Cordillers de Chilla, Llano de Guavos, by H. E. Anthony; No. 22120, found at Guainche by G. H. H. Tate; No. 22185, obtained at Rio Lunoma by G. H. H. Tate; and Nos. 21848–58, collected at Seboyal by G. H. H. Tate.

TROPIDURUS Wied

The forms of this genus which occur on the South American mainland have long been in systematic confusion. The large series from Peru and Ecuador, now in the American Museum, allow a more adequate understanding of these lizards in that region, but because of lack of material from Bolivia, we are unable to offer an opinion as to the validity of *T. melanopleurus* Boulenger (1902), *T. præornatus* Müller (1924), and *T. pictus* Müller (1924).

The nomenclature of Van Denburgh and Slevin (1913) is followed in dealing with the Tropiduri of the Galápagos Islands.

Tropidurus albemarlensis albemarlensis (Baur)

Tropidurus albemarlensis BAUR, 1890, Biol. Centralbl., X, p. 478, (n.n.); 1892, 'Festschrift für Leuckart,' pp. 265, 269, (type locality, Tagus Cove, Albemarle Island, Galápagos Archipelago). VAN DENBURGH AND SLEVIN, 1913, Proc. Calif. Acad. Sci., (4) II, p. 172.

Tropidurus jacobii BAUR, 1892, 'Festschrift für Leuckart,' p. 269, (type locality, James Island, Galápagos Archipelago).

INDEFATIGABLE ISLAND, GALÁPAGOS ARCHIPELAGO.—Thirty-four specimens: Nos. 42853–86, secured at Academy Bay by James P. Chapin.

JAMES ISLAND, GALÁPAGOS ARCHIPELAGO.—Three specimens: Nos. 20492–94, collected by J. R. Slevin.

SAN SALVADOR ISLAND, GALÁPAGOS ARCHIPELAGO.—One specimen: No. 36479.

Tropidurus albemarlensis barringtonensis (Baur)

Tropidurus barringtonensis BAUR, 1892, 'Festschrift für Leuckart,' p. 268, (type locality, Barrington Island, Galápagos Archipelago).

Tropidurus albemarlensis barringtonensis VAN DENBURGH AND SLEVIN, 1913, Proc. Calif. Acad. Sci., (4) II, p. 168.

BARRINGTON ISLAND, GALÁPAGOS ARCHIPELAGO.—Two topotypes: Nos. 20503–504, collected by J. R. Slevin.

Tropidurus bivittatus (Peters)

Craniopeltis bivittata PETERS, 1871, Monatsbr. Berlin Acad. Wiss., p. 645, (type locality, Chatham Island, Galápagos Archipelago).

Tropidurus bivittatus VAN DENBURGH AND SLEVIN, 1913, Proc. Calif. Acad. Sci., (4) II, p. 155.

CHATHAM ISLAND, GALÁPAGOS ARCHIPELAGO.—Two topotypes: Nos. 20499–500, collected by J. R. Slevin.

Tropidurus delanonis Baur

Tropidurus delanonis BAUR, 1890, Biol. Centralbl., X, pp. 478–479, (type locality, Hood Island, Galápagos. Archipelago). VAN DENBURGH AND SLEVIN, 1913, Proc. Calif. Acad. Sci., (4) II, p. 159.

HOOD ISLAND, GALÁPAGOS ARCHIPELAGO.—Two topotypes: Nos. 20501–502, collected by J. R. Slevin.

Tropidurus duncanensis Baur

Tropidurus duncanensis BAUR, 1890, Biol. Centrabl., X, p. 479, (type locality, Duncan Island, Galápagos Archipelago). VAN DENBURGH AND SLEVIN, 1913, Proc. Calif. Acad. Sci., (4) II, p. 147.

DUNCAN ISLAND, GALÁPAGOS ARCHIPELAGO.—Three topotypes: Nos. 24095–7, collected by J. R. Slevin.

Tropidurus habelii (Steindachner)

Tropidurus pacificus habelii STEINDACHNER, 1876, 'Festschrift Zool.-Bot. Ges. Wien,' p. 314, Pl. II, fig. 2, (type locality, Indefatigable [?] and Bindloe Islands, Galápagos Archipelago).

Tropidurus habelii VAN DENBURGH AND SLEVIN, 1913, Proc. Calif. Acad. Sci., (4) II, p. 150.

BINDLOE ISLAND, GALÁPAGOS ARCHIPELAGO.—Two specimens: Nos. 20511–2, collected by J. R. Slevin.

Tropidurus holotropis Boulenger

Tropidurus holotropis BOULENGER, 1912, Ann. and Mag. Nat. Hist., (8) X, p. 420, (type locality, Alpayacu, Rio Pastaza, eastern Ecuador, 3600 feet).

The specimens of this little-known species listed below agree with Boulenger's description in coloration and general features of scutellation, although some variation is evident.

In No. 14573, a young specimen, the head is proportionately much wider and consequently more prominent than in the adults. By measurement, the young specimen has a ratio of 17.9 when its head-width is compared with its body-length (snout to anus), whereas a similar computation for an adult, No. 28877, results in a ratio of 22.4. The young

specimen is black below, being darker than the adults, but this appearance may be due to staining.

The white patch on the side of the neck is restricted in some of the specimens, but in one, No. 23331, it is much extended, going forward to the tympanum, upward to the base of the nuchal crest, obliquely backward to the black antehumeral fold, and uniting inferiorly as a broad band across the gular region. In this same example, the forelegs are grayish, banded with blackish (like Boulenger's specimen), instead of brownish, banded with darker, as in the other specimens.

All of these examples show conical head scales, instead of keeled ones as described by Boulenger, and there are more or less prominent occipital and temporal tubercules or spines present. These elements, although not mentioned in the original description, are really quite prominent.

ECUADOR.—Five specimens: Nos. 28877 and 28893, taken at San José de Sumaco by Carlos Ollala and Sons; and Nos. 14558, 14573, and 23331, secured at Riobamba by Enrique Feyer.

Tropidurus occipitalis bocourtii (Boulenger)

Aneuporus occipitalis BOCOURT, 1874, 'Miss. Sci. Mex. et Amer. Cent.,' p. 215, Pl. XVIII, fig. 1, (type locality, Peru).

Tropidurus bocourtii BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 173, [new name for *Tropidurus occipitalis* (Bocourt), 1874, preoccupied by *Tropidurus occipitalis* (Peters), 1871.]

After the examination of the available material it appears that there are only four recognizable forms of *Tropidurus* in Ecuador and Peru. These may be readily distinguished by the following key.

1. Dorsal scales keeled.....2.
   Dorsal scales smooth (southern Ecuador, Peru, and northern Chile). *T. peruvianus* (Lesson).
2. Ventral scales smooth.....3.
   Ventral scales keeled (Ecuador).....*T. holotropis* Boulenger.
3. A series of from three to five prominent blackish cross-bars in the scapular region; throat white; size smaller (western Ecuador and northwestern Peru).....*T. occipitalis occipitalis* (Peters).
   No series of prominent, thick, blackish cross-bars in the scapular region; throat with black markings; size larger (interior of Ecuador and northern Peru). *T. occipitalis bocourtii* (Boulenger).

Tropidurus occipitalis bocourtii is structurally somewhat intermediate between *T. peruvianus* and *T. occipitalis occipitalis*, since it possesses the black throat markings of the former and the keeled dorsal scales of the latter.

Aneuporus occipitalis was described by Bocourt (1874) from a medium-sized female. The fact that there was no reference to the black cross-bars on the back or black markings on the throat leads one to assume that the type was not a specimen of *Tropidurus occipitalis* (Peters, 1871). The keeled dorsal scales prevent its being considered as *Tropidurus peruvianus* (Lesson), so Boulenger (1885) is followed in regarding it as distinct in itself. Boulenger found that on account of the preoccupation indicated above, it was necessary to designate this form as *Tropidurus bocourtii*, the genus *Aneuporus* Bocourt being synonymous with *Tropidurus* Wied.

PERU.—Seventeen specimens collected by G. K. Noble: Nos. 28534–7 from Bellavista; Nos. 28619–25 from Querocotilla; and Nos. 28626–31 from Perico.

Tropidurus occipitalis occipitalis (Peters)

Tropidurus (*Læmopristus*) *occipitalis* PETERS, 1872, Monatsbr. Berlin Akad. Wiss. (1871), p. 645, (type locality, Peru).

Tropidurus stolzmanni STEINDACHNER, 1891, Ann. K.K. Naturhist. Hofmuseums, Wien, VI, p. 376, (type locality, Chota).

?Tropidurus tschudii ROUX, 1907, Rev. Suisse de Zool., XV, p. 296, (type locality, Pérou).

Tropidurus continentalis MÜLLER, 1924, Mitteilungen. Zool. Mus. Berlin, XI, p. 82, (type locality, Machalilla, Ecuador).

This species was described and made the type of a new subgenus, *Læmopristus*, by Peters (1872). Since it is usually not customary to recognize poorly defined subgenera, *Læmopristus*, as such, has been made a synonym of *Tropidurus*.

It is significant that Peters referred to the "gekielten Rückenshuppen" and the "vier schwarze unregelmässig rhomboidale Querflecke, der erste auf der Mitte des Nackens, der zweite den Shultern, die beiden letzten auf dem Vorderrücken, auf graubraunem Grunde," for these points separate the species from all of its Andean relatives.

Tropidurus stolzmanni Steindachner (1891) is here considered a synonym of *T. occipitalis* (Peters), because of its strongly keeled dorsal scales, its possession of cross-markings on the back, and its well-developed dorsal crest. Although the original description shows the describer's familiarity with *T. grayi* and *T. spinulosus*, no mention whatever is given the present species.

Garman (1892, p. 94), with a collection of these lizards from the vicinity of Guayaquil, Ecuador, assumed that Boulenger was "led to found his *T. bocourtii*" from the descriptions of others, and that on the

basis of these particular specimens it should be considered as a synonym of *occipitalis*. Typical representatives of each variant are easily recognized when compared, however.

We have plotted the known locality records for *Tropidurus occipitalis occipitalis* and *T. occipitalis bocourtii* on a map and find that the former is a coastal race, extending northward on the western side of the Andes from Pacasmayo, in Peru, to Machalilla, Ecuador, whereas the latter is an inland race, occupying the basin on the eastern side of the Andes, at least in northern Peru. A series of eleven specimens, A. M. N. H. Nos. 28599–609, collected at Chongolappi, Peru, by G. K. Noble, are clearly intergrades between *occipitalis* and *bocourtii*. Some of these have the black throat markings of *bocourtii* and the black dorsal cross-bars of *occipitalis*, some have the white throat of *occpitalis* and the lack of black dorsal cross-bars found in *bocourtii*, and in still others a different combination is found. Although in a certain specimen the dorsal cross-bars are as deep as in typical *occipitalis*, they are much weaker in others. In fact, there is a decided tendency toward the multiplication of these spots as well as toward their compression, and in some specimens the narrowed cross-bars cover the entire dorsal region of the body instead of being confined to the region of the shoulders. Because of this decided intergradation, and since the two populations concerned occupy distinctive and adjacent habitats, each is here reduced to subspecific rank.

T. stolzmanni, mentioned above, was taken at Chota, Peru, in the region where intermediate specimens, such as those from Chongolappi, are to be expected. It is very probable that the type is an intergrade, rather than a complete synonym of the present subspecies. This is suggested by Steindachner's failure to specify a definite area in which the "tiefbraunen Querstreifen" were to be found. Also the use of the descriptive term "deep brown" instead of "deep black" leads one to infer that these cross-bars were narrowed, and consequently, not so intense in *stolzmanni*.

Tropidurus tschudii (Roux, 1907), described from an unknown locality in Peru, is apparently synonymous with *occipitalis*, rather than with *bocourtii*, although its possession of keeled dorsal scales and of "taches transversales plus foncées, en bandes étroites, sur le dos et les membres" again suggests intergradation. The description of the ventral surface as "plus claire" would indicate *occipitalis* rather than *bocourtii*, if the throat were included. The separation from *stolzmanni* on the relative size of the dorsals (constamment plus petites que les ventrales)

is of no aid here, since in the intergrades from Chongolappi mentioned above, individuals with each condition of the dorsal scales are found. Typically, however, the dorsal scales are larger than the ventral scales in *occipitalis* and about the same size as those scales in *bocourtii*. *Tropidurus continentalis* Müller (1924), from Machalilla, Ecuador, at the northern part of the range, is apparently nothing but a synonym of *occipitalis*. Its possession of keeled dorsal scales, deep black cross-bars in the shoulder region, and yellowish-white under parts, all distinguishing characteristics of the latter form, supports this point of view. Moreover, it seems significant that neither *occipitalis* nor *bocourtii* were mentioned in the original description.

ECUADOR.—Ninety-seven specimens: Nos. 28970–5, collected by R. C. Murphy at El Muerto; Nos. 21996–22045 and 22051–67, secured on the Isla de Jambeli in the Gulf of Guayaquil by G. H. H. Tate; Nos. 21833–9, 21878–92 and 21965, found at Santa Elena by G. H. H. Tate; and No. 28976, taken at Santa Elena by R. C. Murphy.

PERU.—Eleven specimens: Nos. 20749–50, collected at Pacasmayo by R. C. Murphy; and Nos. 28610–18, secured at Sullana by G. K. Noble.

Tropidurus pacificus Steindachner

Tropidurus (*Craniopeltis*) *pacificus* STEINDACHNER, 1876, 'Festschrift Zool.-Bot. Ges. Wien,' p. 313, Pl. II, fig. 3, (type locality, Indefatigable [?] and Bindloe Islands, Galápagos Archipelago).

Tropidurus abingdonii BAUR, 1890, Biol. Centralbl., X, p. 479, (type locality, Abingdon Island, Galápagos).

ABINGDON ISLAND, GALÁPAGOS ARCHIPELAGO.—Three specimens: Nos. 20480–2, collected by J. R. Slevin.

Tropidurus peruvianus (Lesson)

Stellio peruvianus LESSON, 1826, in L. I. Duperry, 'Voy. "Coquille," Zool.,' Atlas, Reptiles, Pl. II, fig. 2, (protograph); 1831, 'Voy. "Coquille," Zool.,' Text, II, part 1, p. 40, (type locality, "Par la mer au pied de Callao, et sur la côte nue et desséchée de Payta," western coast of Peru).

Tropidurus peruvianus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 174.

Tropidurus thomasi BOULENGER, 1900, Ann. and Mag. Nat. Hist., (7) VI, p. 184, (type locality, Eten, coast of Peru). WERNER, 1910, Mitt. Naturhist. Mus. Hamburg, XXVII, p. 24.

Tropidurus theresiæ STEINDACHNER, 1901, Anz. d. k. Akad. Wiss. Wien, XXXVIII, p. 195, (type locality, Ancon, near Lima, Peru).

Werner (1910, p. 24) raised the question as to the validity of *Tropidurus thomasi*, but gave it practical recognition in his work. An examina-

tion of the literature shows that the type locality of *thomasi* (Eten) is in an intermediate position between the two type localities of *T. peruvianus* (Paita and Callao), and that Boulenger failed to take this into account in describing the new form. *T. thomasi* was presumed to be "well distinguished by the shorter hind limbs and the stronger aricular fringe," but an examination of topotypes from Eten and Paita, and an excellent series of specimens from Chincha Island, even farther south than Callao, the other type locality, shows no average differences in these respects or in others. Therefore, the description of *thomasi* may be attributed to a misinterpretation of the normal variation within *peruvianus*, rather than to a consideration of geographical variation of the type that would warrant its recognition as a distinct species or subspecies. Likewise, there is nothing distinctive in *T. theresiæ* Steindachner (1901), described from Ancon, Peru, near Lima.

The amount of colorational variation in the gular region of *peruvianus* is seemingly endless. The throat is usually marked with black, much more so in adults than in the young, and in individuals of the same size, more in males than in females. Typically, the throat is covered by a series of from four to six conspicuous chevrons which converge posteriorly, but these may be broken into spots, or even absent. In other instances, the ground color of the throat may be melanistic, rather than white, so that the chevrons are not strongly contrasted. Such is, perhaps, *Tropidurus melanopleurus* Boulenger (1902, p. 400), described from Bolivian specimens which had the "throat and antehumeral fold black" and which was stated to be "closely allied to *T. peruvianus*." In certain specimens, such as A. M. N. H. No. 20825, this black ventral suffusion may be carried backward along the chest and abdomen to the groins.

CHILE.—Six specimens: Nos. 27433–38, taken at Corral by R. H. Beck. (Young with white throats and black chevrons, adults with black suffusion on gular region and more or less indistinct chevrons.)

ECUADOR.—Thirty specimens from Santa Elena: Nos. 21893–900, 21852–54, 21811–13, 21832, 21966–70, and 22046–50, collected by G. H. H. Tate; and Nos. 28964–68, collected by R. C. Murphy.

PERU.—One hundred and seventy-one specimens as follows:

Nos.	Locality	Collector
20765–71	Peru	R. C. Murphy
37420	Arequipa	R. H. Beck
28497–500	Bellavista	G. K. Noble
20825–51	Chincha Island	R. C. Murphy
20746–48	Chovillos	R. C. Murphy
37421–32, 37886–91	Chovillos	R. H. Beck
28541	Chumaya	G. K. Noble
28412–20	Eten (topotypes of *T. thomasi*)	G. K. Noble
20745	Huarmey	R. C. Murphy
20786–97	Independencia Bay	R. C. Murphy
20757–59, 20761–64	Lobos de Tierra	R. C. Murphy
38034–35	Mollendo	R. H. Beck
28519–24, 28582–84	Paita (topotypes)	G. K. Noble
20772–85	Paracas Bay	R. C. Murphy
38023–31	Paragas	R. H. Beck
37883–85	Paragas Pen	R. H. Beck
20751–56	Pacasmayo	R. C. Murphy
28542–51	Perico	G. K. Noble
20814–24	San Gallan Island	R. C. Murphy
31533–34	Talara	R. C. Murphy
20798–805, 20807–13	Vieja Island	R. C. Murphy

Tropidurus spinulosus (Cope)

Microlophus spinulosus COPE, 1862, Proc. Acad. Nat. Sci. Phila., p. 351, (type locality, Paraguay).

Tropidurus spinulosus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 175.

ARGENTINA.—One specimen: No. 17015, from the Chaco.

Tropidurus torquatus hispidus (Spix)

Agama hispida SPIX, 1825, 'Spec. Novæ. Lacert. Brasil.,' p. 12, Pl. XV, fig. 2, (type locality, Bahia).

Agama nigrocollaris SPIX, 1825, 'Spec. Novæ. Lacert. Brasil.,' p. 13, Pl. XVI, fig. 2, (type locality, Bahia).

Agama cyclurus SPIX, 1825, 'Spec. Novæ. Lacert. Brasil.,' p. 14, Pl. XVII, fig. 1, (type locality, Bahia).

Tropidurus hygomi REINHARDT AND LÜTKEN, 1861, Vidensk. Meddel., p. 228, (type locality, Brasil).

Tropidurus hispidus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 177.

The forms of *Tropidurus* from the Adean region of South America are discussed, in a general way, under *Tropidurus occipitalis bocourtii*

(see p. 291). The remaining South American series may be diagnosed as follows:

1. No dorsal denticulation.....2.
   A dorsal denticulation (southeastern Brazil, Paraguay, and Argentina). *T. spinulosus* (Cope).
2. Dorsal scales keeled.....3.
   Dorsal scales smooth (Bahia, Brazil).....*T. semitæniatus* (Spix).
3. Dorsal scales large, keels prominent, conspicuous to the naked eye; dorsal scales usually larger than ventrals (northern South America). *T. torquatus hispidus* (Spix).
   Dorsal scales small, usually appearing as granules to the naked eye; ventral scales small (Brazil, Bolivia, Uruguay and Argentina). *T. torquatus torquatus* (Wied).

Tropidurus semitæniatus (Spix) is probably nothing but a synonym of *T. hispidus*, since it came from Bahia, the type locality of that species, and since the only separation is based on the keeling of the dorsal scales. We have noticed that certain preserved specimens of the lizards and snakes that ordinarily have strongly keeled scales may present smooth scales only. (For evidence of this one may examine a specimen of *hipsidus* itself, U. S. N. M. No. 22742.)

Tropidurus hygomi Reinhardt and Lütken, separated from the present form only by a supposedly greater width of the supraoculars, is here regarded as unworthy of recognition. Venezuelan specimens, particularly, show much variation in this respect.

Tropidurus unicarinatus Werner, described from Surinam in 1899, was said to have a nuchal crest, but no dorsal crest along the back. If there is a prominent nuchal crest on the type specimen, the form is scarcely to be united with the present species. A crested *Tropidurus* is hardly to be expected in Surinam from a phylogenetic standpoint, however. Perhaps the species is based on a *Plica*.

Bolivia.—Two specimens: Nos. 38036–7, taken at Sounaiparta, Department of Santa Cruz, by José Steinbach.

Brazil.—Nineteen specimens: Nos. 27538–43, topotypes collected by R. H. Beck at Bahia; Nos. 36302–5, 36307–11 and 36317, collected at Frechal by G. H. H. Tate and T. D. Carter; and Nos. 27448–9, and 37548–9, collected near the Rio Cotinga, at Limão, by G. H. H. Tate and T. D. Carter.

Venezuela.—Twenty-eight specimens: Nos. 38128–30, collected at Caicara by G. K. Cherrie; No. 36631, collected at Esmeralda by the Tyler-Duida Expedition; No. 37881, taken at Paulo, Mt. Roraima, by G. H. H. Tate; Nos. 36318–24, 36327, and 26390–403, secured at Mt.

Roraima by G. H. H. Tate and T. D. Carter; and No. 29328, taken at San Antonio by G. H. H. Tate.

Tropidurus torquatus torquatus (Wied)

Stellio torquatus WIED, 1820, 'Reise nach Brasilien (1815–1817),' I, p. 106, (type locality, Brazil).

Tropidurus torquatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 176.

The intermediate character of the specimens of *torquatus* and *hispidus* from Bolivia and, thus, the geographic nature of their approach to each other, make it necessary to regard them as geographic races or subspecies.

ARGENTINA.—Eight specimens: Nos. 5276 and 21099–21104 from Cruz del Eje; and No. 17014 from Chaco.

BOLIVIA.—Three specimens: No. 21148 from Paratani; and Nos. 21149–50 from Cochalani, all collected by P. O. Simons.

BRAZIL.—One specimen: No. 17028, taken at Rio de Janeiro by E. G. Holt.

URANOSCODON Kaup

Uranoscodon KAUP, 1825, in Oken, 'Isis,' p. 590, (type species, *Lacerta superciliosa* Linnæus).

Uraniscodon KAUP, 1826, in Oken, 'Isis,' p. 89, (emend.).

Ophryessa BOIE, 1826, in Oken, 'Isis,' p. 119, (type species, *Lacerta superciliosa* Linnæus).

Ophryepa BOIE, 1826, Bull. Sci. Nat. et Geol. (Ferussac), IX, p. 235.

Ophryoessa WAGLER, 1830, 'Nat. Syst. Amph.,' p. 149, (emend.). BOULENGER 1885, 'Cat. Liz. British Mus.,' II, p. 111.

Ophyessa GRAY, 1831, in Griffith's 'Cuvier's Animal Kingdom,' 'Synops. Reptilia,' p. 39, (emend.).

Stejneger (1901, p. 182) has given an excellent account of the nomenclature pertaining to the name of the present genus.

Uranoscodon superciliosa (Linnæus)

Lacerta superciliosa LINNÆUS, 1758, 'Syst. Nat.,' X, p. 200, (type locality, "*Indiis*").

Iguana superciliosa MEYER, 1795, 'Synop. Rept.,' p. 16.

Ophryessa superciliosa FITZINGER, 1826, 'Neue Classif. der Reptilien,' p. 48.

Ophryœssa superciliosa GRAY, 1845, 'Cat. Liz. British Mus.,' p. 196. BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 111.

One of the best distinguishing characters for this form, which is the only representative of its genus, seems to be the unusually deep interorbital concavity. The supraocular areas are conspicuously elevated.

BRAZIL.—One specimen: No. 32583, collected at Manáos by G. H. H. Tate.

BRITISH GUIANA.—Eight specimens: Nos. 25043, 25117, and 25146, secured at Kamakusa by W. S. Lang and W. J. La Varre; Nos. 15133–35 and 21317, taken at Kartabo by William Beebe; and No. 25116, obtained at R. Kurupung by W. S. Lang and W. J. La Varre.

FRENCH GUIANA.—One specimen: No. 2554, collected at Frontier, near the Rio Oppronsque.

VENEZUELA.—Two specimens: Nos. 36628 and 36630, taken at Esmeralda, near Mt. Duida, by members of the Tyler-Duida Expedition.

UROCENTRON Kaup

Urocentron azureum (Linnæus)

Lacerta azurea LINNÆUS, 1758, 'Syst. Nat.,' X, p. 202, (type locality, "Africa").

Stellio azureus LATREILLE, 1801, 'Hist. Nat. des Reptiles,' II, p. 34.

Urocentron azureum KAUP, 1827, in Oken, 'Isis,' p. 612.

Ophyessa azureus GRAY, 1830, in Griffith's 'Cuvier's Animal Kingdom,' 'Synops. Reptilia,' p. 42.

Uranocentrum azureum GRAY, 1845, 'Cat. Liz. British Mus.,' p. 226.

BRAZIL.—One specimen: No. 36316, secured by G. H. H. Tate and T. D. Carter at Manáos on April 17, 1927.

UNKNOWN LOCALITY.—One specimen: No. 116, from the Maximilian Collection.

SCINCIDÆ

MABUYA Fitzinger

SYNOPSIS OF THE SPECIES

1. Two frontoparietal plates.....3.
   One frontoparietal plate.....2.
2. A mid-dorsal light stripe; 26 to 30 scale-rows around the middle of the body (Venezuela, Brazil, Bolivia, and Peru).....*M. nigropalmata* (Andersson).
   No mid-dorsal light stripe, 30 or 32 scale-rows around the middle of the body (Brazil, Paraguay, Uruguay, and Argentina).....*M. frenata* (Cope).
3. Most of the dorsal scales tricarinate.....4.
   Dorsal scales smooth.....5.
4. Less than 33 rows of scales around the middle of the body (northern South America).....*M. agilis* (Raddi).
   More than 33 rows of scales around the middle of the body (northeastern South America).....*M. punctata* (Gray).
5. Four or five supraoculars (northern and central South America).
   M. agilis (Raddi).
   Three supraoculars (Brazil, Paraguay, Uruguay, and Argentina).
   M. dorsovittata (Cope).

Mabuya agilis (Raddi)

Scincus agilis RADDI, 1823, Mem. matem. e fisic. Soc. Ital. Modena, XIX, 18, p. 62, (type locality, Brazil).

Scincus bistriatus SPIX, 1825, 'Spec. Novæ. Lacert. Brasil.,' p. 23, (type locality, Brazil).

Mabuia aurata BOULENGER and others (not of Linnæus), 1887, 'Cat. Liz. British Mus.,' III, p. 189.

Mabuia agilis BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 190.

The commonly recognized *Mabuya aurata* has been generally distinguished from the present *Mabuya agilis* by the presence of a tricarinate condition of the dorsal scales as opposed to a smooth condition, but an examination of the large series of lizards listed below, as well as representatives from Central America, shows that there is a complete transition from one extreme to the other. Since this morphological intergradation is not confined to a point or line of contact between the two populations concerned, but occurs, apparently, throughout most of the range, neither element seems worthy of subspecific recognition. Therefore, the two forms are considered as identical.

Andersson (1900, p. 14) has shown, after an examination of the type specimens, that the name, *Mabuya aurata* (Linnæus), should be applied to the form commonly designated as *Mabuya septemtæniata* (Reuss) which is an inhabitant of the Old World. The *Mabuya aurata* of Schneider is thus preoccupied, and with the synonymizing of *agilis* with this form, the species must be known by the latter name, since *agilis* was described prior to *M. bistriata* (Spix). The latter designation was thought to be the correct one by Andersson, and would, in fact, be applicable, if *agilis* were distinct from it.

The specimens of *M. agilis* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
1680	Bolivia	Quincey Tucker
22460	Tumupasa, Bolivia	N. E. Pearson
36553–54, 37851–54	Cucuhy, northwestern Brazil	W. J. La Varre
7698	São Paulo, Brazil	
5750	São Paulo, Brazil	Kermit Roosevelt
1683	Rio Vaupes, near the Caruru Waterfall, Colombia–Brazil boundary	H. Schmidt
37829–32	British Guiana	
37550–52	Georgetown, British Guiana	
8543	Georgetown, British Guiana	P. G. Howes and Hartley
25070, 25128	Kamakusa, British Guiana	W. S. Lang and W. J. La Varre
15120–22, 18183,		

Nos.	Locality	Collector
21326	Kartabo, British Guiana	William Beebe
38318	Colombia	Nicéforo Maria
13524	Jiminez, Colombia	Nicéforo Maria
32601–31, 32633–35	Medellin, Colombia	Nicéforo Maria
18262–64	Quibdo, Colombia	E. W. Johnson
19958–59	Sabanalarga, Cauca Valley, Colombia	Nicéforo Maria
27593	Villa Vicencio, Colombia	Nicéforo Maria
37863	Between Baños and Canelos, Ecuador	Enrique Feyer
1610	Princetown, Trinidad	F. M. Chapman
29323	Cuchivano, Venezuela	G. H. H. Tate
36636	Six miles north of Esmeralda, Venezuela	Tyler-Duida Exp.
13525–26, 13528	Mérida, Venezuela	
13405–408	Rios Albarregas y Milla, near Mérida, Venezuela	
29319	Mt. Turumiquire, Venezuela	G. H. H. Tate

Mabuya dorsovittata (Cope)

Mabuia dorsovittata Cope, 1862, Proc. Acad. Nat. Sci. Phila., p. 350, (type locality, Paraguay).

?Scincus nigropunctatus Spix, 1825, 'Spec. Novæ. Lacert. Brasil.,' p. 24, (type locality, Ecgá).

?Mabuia agilis nigropunctata Boulenger, 1887, 'Cat. Liz. British Mus.,' III, p. 192.

This form is very close to *agilis*, as indicated by Boulenger (1887). It is distinguished chiefly by a shorter snout and three supraoculars instead of four. Although no specimens are available for examination, it seems probable that *nigropunctata*, also distinguished from *agilis* only in the presence of three supraoculars, is synonymous with the present species. In case this is found to be true, the form must bear the name "*Mabuya nigropunctata* (Spix)," since *M. dorsovittata* Cope was described at a much later date.

Argentina.—Two specimens: No. 17665 from the Cope Collection; and No. 17025, taken at Buenos Aires.

Brazil.—Three specimens: Nos. 23046–48, collected at Ito Itatyia, Serro do Itatyia, by E. G. Holt.

Mabuya frenata (Cope)

Emœa frenata Cope, 1862, Proc. Acad. Nat. Sci. Phila., p. 187, (type locality, Paraguay River Valley, Paraguay).

Mabuia frenata Boulenger, 1887, 'Cat. Liz. British Mus.,' III, p. 194.

Argentina.—One specimen: No. 17026, from Patagonia.

BOLIVIA.—Two specimens: No. 37815, collected at Buenavista, Santa Cruz, by José Steinbach; and No. 22454, secured at Ixiamus by N. E. Pearson.

Mabuya nigropalmata (Andersson)

Mabuia nigropalmata ANDERSSON, 1918, Arkiv. f. Zool., XI, n:o 16, p. 8, (type locality, "Brazil, Amazonas, Rio Curuca, tributary to R. Javary," and "San Fermin, N. W. Bolivia").

This species is very close to *M. frenata* with which it agrees in the possession of a single frontoparietal plate, a unique characteristic, but it is amply distinct, as shown in the above key.

The specimens listed below have twenty-eight rows of scales around the middle of the body, distinct median light stripes, and numerous small black spots on the under surfaces.

VENEZUELA.—Four specimens: Nos. 29314–15, 29318, and 37882, all secured at Mt. Turumiquire by G. H. H. Tate.

Mabuya punctata (Gray)

Tiliqua punctata GRAY, 1838, Ann. Nat. Hist., II, p. 289, (type locality, Fernando de Noronha, Brazil).

Mabuia punctata BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 160.

This is apparently a very distinct species.

BRAZIL.—Three topotypes: Nos. 5227–29, Fernando do Moronha, collected by R. C. Murphy.

TEIIDÆ

The senior author is preparing a comprehensive systematic treatment of the genera of the family Teiidæ, but is unable to present it here because of lack of material.

Special attention may be called here to the fact that the genus *Perodactylus* Reinhardt and Lütken (1861) is preoccupied and that a new name, *Colobosaura*, was proposed for it by Boulenger in 1887 ('Cat. Liz. British Mus.,' III, p. 508). The type species of *Perodactylus* was designated as the type species of *Colobosaura*. Hence, *P. modestus* Reinhardt and Lütken = *C. modesta* (Reinhardt and Lütken) Boulenger. *Perodactylus kræpelini* Werner (1910) should henceforth be known as *Colobosaura kræpelini* (Werner).

In order that perfect unity of meaning may be given to certain terms used in the treatment of the Teiidæ, the following definitions are submitted:

BASE OF TAIL.—The region just even with the posterior border of the hind leg.

LONGITUDINAL SCALE-ROWS.—The series of scales extending lengthwise of the body—these are counted transversely or around the body.

TRANSVERSE SCALE-ROWS.—The series of scales extending around the body—these are counted longitudinally or along the length of the body; segments.

AMEIVA Meyer

The writers are now engaged in the preparation of a complete taxonomic revision of the genus *Ameiva*, but they are unable to present final conclusions pertaining to all of the South American forms at this time.

Tiaporus Cope (1892) was founded upon four co-types in the collection of the United States National Museum. These were described as *T. fuliginosus*, differing from *Ameiva* by the absence of femoral pores. Through the kindness of Doris M. Cochran, three of the co-types in the collection of the United States National Museum have been examined, and it is found that all have from 17 to 18 femoral pores on each side. Moreover, the additional co-type, M. C. Z. No. 20294, also shows this number of femoral pores, having 17 on one side and 18 on the other. Therefore, the form must henceforth be known as *Ameiva fuliginosa* (Cope). This lizard inhabits Swan Island, off the northeastern coast of Honduras, and is discussed here only in connection with the status of the genus founded upon it.

On the same grounds it seems best to regard *Monoplocus* Günther (1859) as a synonym of *Kentropyx* Spix (1825). Upon examining the supposed type specimen of *Monoplocus dorsalis* (type species of *Monoplocus*), which was stated to differ from *Kentropyx* in the absence of femoral pores, Boulenger (1885) wrote as follows: "This species has been identified with *Centropyx pelviceps* (see O'Shaughnessy, 1881, p. 228) from the examination of a specimen labeled as the type of *Monoplocus dorsalis*. Although that specimen agrees pretty well in size, proportions and coloration with Günther's detailed description, it differs in several points which certainly cannot be attributed to difference in the mode of describing or to oversight:—1. The tongue is distinctly sheathed at the base; 2. Femoral pores are as distinct as can be; 3. There are fourteen instead of eleven rows of ventral shields; 4. The dorsal scales are not smooth and imbricate, but strongly keeled and juxtaposed. There is therefore no doubt that a young specimen of *Centropyx pelviceps* has been substituted in the bottle containing the original *Monoplocus dorsalis*, which has disappeared from the collection." The senior author (1929, p. 155, footnote) has already doubted the distinct-

ness of *Monoplocus* from *Kentropyx*. He regards it as significant that the "substituted" specimen of *K. pelviceps* agrees "pretty well" with *M. dorsalis* in "size, proportions and coloration" and that the differences considered as great by Boulenger are those that might be expected in a comparison of careful and careless work. Thus, it often requires considerable skill and knowledge to determine whether the tongue is sheathed at the base or not, and at least a good lens to ascertain the condition of the dorsal scutellation in young specimens of these teiids. The number of longitudinal rows of ventral plates is seldom odd (such as Günther's "eleven" for *Monoplocus*) but is almost invariably even (such as Boulenger's "fourteen" for *pelviceps*), and the femoral pores may occasionally be overlooked, as the case of Cope's *Tiaporus* has just shown. Recent collecting has failed to reveal the peculiar and unexpected *Monoplocus* from western Ecuador, although it has brought to light numerous examples of *Kentropyx calcaratus* (of which *pelviceps* is a synonym). Therefore, it appears that there is no particular point in giving further recognition to this poorly established genus *Monoplocus*.

Ameiva ameiva ameiva (Linnæus)

Lacerta ameiva Linnæus, 1758, 'Syst. Nat.,' X, p. 202, (type locality, Brazil).

Ameiva ameiva ameiva Barbour and Noble, 1915, Bull. Mus. Comp. Zoöl., LIX, p. 462.

Two well-established and distinct subspecies of *Ameiva ameiva* are in evidence. These are *Ameiva ameiva ameiva* of the Brazilian Basin and the surrounding lowlands, and *Ameiva ameiva præsignis* of northwestern South America and Central America. The differences between these two forms were well pointed out by Müller (1929), who has described intermediates from Venezuela as *Ameiva ameiva vogli*.

The American Museum has an excellent series of these lizards.

Nos.	Locality	Collector
1677–78	Beni Province, Bolivia	Edgar T. Young
36376–77	Buena Vista, Santa Cruz, Bolivia	José Steinbach
6760–63	Cochabamba Province, Bolivia	L. E. Miller and H. Boyle
22521	Espia, Bolivia	N. E. Pearson
22536	Lake Rogoagua, Bolivia	N. E. Pearson
21152–55	Mapiri, Bolivia	W. F. H. Rosenberg
32989	Mapiri, Bolivia	G. H. H. Tate
22459, 22511, 22466–67, 22506–08,		

Nos.	Locality	Collector
22513–20	Rurrenabaque, Bolivia	N. E. Pearson
38038	Sounaiporta, Santa Cruz, Bolivia	José Steinbach
615	Brazil	Maximilian
37223–25	Bahia, Brazil	R. H. Beck
36349, 37103–13	Cucuhy, Brazil	W. J. La Varre
32989, 36299–301, 36312–15	Frechal, Brazil	Tate–Carter Exp.
37091–112	Manáos, Brazil	W. J. La Varre
37268–71	Rio Cotinga, Limao, Brazil	G. H. H. Tate
37146–51	São Gabriel, Rio Grande do Sul, Brazil	W. J. La Varre
37078–85	Santa Izabel, Brazil	W. J. La Varre
36280, 36294–98	Umaratuba, Brazil	W. J. La Varre
1689–90, 1684	Rio Vaupes, near Carura Waterfall, Brazil–Colombia Boundary	H. Schmidt
8088–9, 8165–6, 8171–4. 8487–8, 8490, 8511–2, 8537–8, 8540–2, 8557–60, 8567, 8732–3	Kalacoon, Bartica District, British Guiana (types of *bipunctata* and *melanoventer*)	Wm. Beebe
25100–03, 25091	Kamakusa, British Guiana	Lang–La Varre Exp.
21295–96, 14118–19	Kartabo, British Guiana	Tropical Research Exp.
8578, 8601–03, 8605, 8608–09, 8142–43	Paramaribo, Dutch Guiana	J. A. Samuels
23118–20, 23122, 23140, 23142, 23149, 23233	Perené, Peru	Carlos Schunke
38372–74	Caicara, Venezuela	G. K. Cherrie
29322, 29333–34	Cuchivano, Venezuela	G. H. H. Tate
36633	Esmeralda, Venezuela	Tyler-Duida Exp.
36634, 36652–55	Six miles north of Esmeralda, Venezuela	Tyler–Duida Exp.
36641	Rio Pescada, Mt. Duida, Venezuela	Tyler-Duida Exp.
29327, 29329	San Antonio, Venezuela	G. H. H. Tate

Ameiva ameiva præsignis (Baird and Girard)

Cnemidophorus præsignis Baird and Girard, 1852, Proc. Acad. Nat. Sci., Phila., p. 129, (type locality, Panama).

Cnemidophorus maculatus Fischer, 1879, Ver. Naturw. Ver. Hamburg, p. 95, (type locality, Sabana-larga, Colombia).

Ameiva ameiva maculata Barbour and Noble, 1915, Bull. Mus. Comp. Zoöl., LIX, p. 467.

Ameiva ameiva vogli Müller, 1929, Zool. Anz., LXXXIII, p. 100, [type locality, Barinas (Zamora), Venezuela].

There is no constant difference in the size of the preanal plates or in the arrangement of the brachial scales in series of this subspecies from Panama and Colombia, respectively. Therefore, Barbour and Noble (1915, p. 425) are not followed in recognizing the Colombian *Ameiva ameiva maculata* as a distinct entity.

As suggested above under *Ameiva ameiva ameiva*, the form from Venezuela recently described by Müller (1929) as *Ameiva ameiva vogli* is somewhat intermediate between typical *ameiva* and *præsignis*. It seems evident, however, that *vogli* cannot be recognized as a distinct or differentiated subspecies. As shown by Müller's illustrations, the spots of *vogli* extend high on the back, well above the dorso-lateral region, and this suggests that it should be referred to *præsignis* rather than to typical *ameiva*, since the only character by which specimens of *præsignis* may be constantly differentiated from those of *ameiva* appears to be this arrangement of the spotting. The prominent light mid-dorsal streak which sometimes appears in *præsignis* in lieu of spots is never seen in typical *ameiva*. In certain young and middle-sized *præsignis* there are no dorsal streaks or spots, but the middle of the back is covered by a series of paired, undulate or branching, light areas. This type of pattern is not among the excellent series of illustrations presented by Müller, but the arrangement of the light areas is shown by an example (abb. 8, p. 198) in which the dorsal streak is present and in which the dorsal spots have not appeared. Individuals from Panama and Colombia and, quite unexpectedly, from Mount Roraima, in eastern Venezuela have been examined. These latter specimens have paired, undulate, dorsal light areas.

The American Museum has specimens from the following localities:

Nos.	Locality	Collector
35308–12, 35315, 38320–26	Colombia	Nicéforo Maria
24211, 24214	Bogotá, Colombia	Nicéforo Maria
32645–47	Envigado, Colombia	Nicéforo Maria
35299–301, 27576	Honda, Colombia	Nicéforo Maria
32648, 32637–41, 32643, 32655–57	Medellin, Colombia	Nicéforo Maria
17663–64	New Granada, Colombia	Niederlin's Exp. (Cope Collection)
19987–88	Sabanalarga, Cauca Valley, Colombia	Nicéforo Maria
27594–95, 27597, 27599	Villa Vicencio, Colombia	Nicéforo Maria
36328, 36330–33	Paulo, Mount Roraima, Venezuela	G. H. H. Tate and T. D. Carter

Ameiva atrigularis (Garman)

Ameiva surinamensis atrigularis GARMAN, 1887, Bull. Essex Inst., XIX, pp. 2–3, (type locality, Trinidad).

Ameiva atrigularis BARBOUR AND NOBLE, 1915, Bull. Mus. Comp. Zoöl., LIX, p. 460.

This insular form is very close to *Ameiva ameiva ameiva* and may be found to be identical with the parent subspecies. Specimens of *atrigularis* often show the melanism characteristic of certain Venezuelan individuals which have, because of this variation, been called *Ameiva ameiva melanocephala* by Barbour and Noble (1915).

The American Museum topotypes are listed below.

Nos.	Locality	Collector
5174, 8741	Trinidad	From N. Y. Zoöl. Soc.
1636, 1642–48, 1651–57	Princetown, Trinidad	F. M. Chapman

Ameiva bifrontata bifrontata (Cope)

Ameiva bifrontata COPE, 1862, Proc. Acad. Nat. Sci. Phila., p. 67, (type locality, "St. Thomas, W. I.," probably incorrect, and "New Grenada," probably correct).

It appears that three mainland subspecies of *Ameiva bifrontata* may be recognized as follows:

A KEY TO THE SUBSPECIES OF *Ameiva bifrontata*

1. Supraocular granules usually not extending past the anterior border of the third supraocular.....2.
   Supraocular granules usually extending past the anterior border of the third supraocular (northeastern South America)..*A. bifrontata bifrontata* (Cope).
2. Outer row of ventral plates on each side smaller than the eight inner rows (northwestern South America).....*A. bifrontata divisa* (Fischer).
   Outer row of ventral plates on each side as large as the eight inner rows (southern and central Peru).....*A. bifrontata concolor* Ruthven.

The American Museum has one specimen of *A. bifrontata bifrontata*, No. 38371, collected at Caicara, Venezuela.

The writers wish to take this opportunity to thank Mrs. Helen T. Gaige of the Museum of Zoölogy of the University of Michigan for the loan of a series of specimens of *Ameiva bifrontata divisa.*

Ameiva bifrontata divisa (Fischer)

Cnemidophorus divisus FISCHER, 1879, Verh. Naturw. Ver. Hamburg, p. 99, (type locality, Baranquilla, New Grenada).

Ameiva bifrontata divisa RUTHVEN, 1924, Occas. Pap. Mus. Zoöl. Univ. Mich., CLV, p. 6.

PERU.—Eighteen specimens: Nos. 28421–25 from Bellavista; and Nos. 28569–81 from Perico, all collected by G. K. Noble.

Ameiva edracantha Bocourt

Ameiva edracantha BOCOURT, 1874, 'Miss. Sci. Mex. et Amer. Centr.,' p. 263, (type locality, "Mexico?"); 1874, Ann. Sci. Nat., Paris, (5) XIX, Art. 4, p. 3.

Cnemidophorus armatulus COPE, 1876, Journ. Acad. Nat. Sci. Phila., (2) VIII, p. 165, (type locality, valley of Jequetepeque, Peru).

Ameiva septemlineata BARBOUR AND NOBLE, 1915, (not of Duméril), Bull. Mus. Comp. Zoöl., LIX, p. 477.

Boulenger (1885, 349) is followed in regarding this species, described as probably from Mexico, as a faunal element of western South America. The type, as figured by Bocourt, is typical of the present conception of the species, with the exception that the frontal plate is shown to be transversely divided. Normally it is entire. Since an abnormal union or division of the head plates is frequently noted when large series of *Ameiva* and *Cnemidophorus* are examined, it seems permissible to overlook this one anomaly in the type of *edracantha*. *Ameiva edracantha* Bocourt, *Cnemidophorus armatulus* Cope, and the *Ameiva septemlineata* of Barbour and Noble, all agree in the possession of certain fundamental characteristics—those used in the key below.

Ameiva edracantha and *A. septemlineata* are very closely related, resembling each other in most details of coloration. It appears, however, that they are distinct from each other, and that they may best be separated by the points used in the following key.

Femoral pores 15 or less; ventral plates usually arranged in eight full-sized rows; males with a group of conspicuous preanal spines; frontal usually entire.
A. edracantha Bocourt.

Femoral pores 16 or more; ventral plates usually arranged in only six full-sized rows; males without a group of preanal spines; frontal usually longitudinally divided and broken up so as to produce from two to four rows of interorbital plates.
A. septemlineata Duméril.

The specimens of *Ameiva edracantha* in the American Museum may be listed as follows:

Nos.	Locality	Collector
22134, 22218	Portovelo, Ecuador	G. H. H. Tate
21828–31	Puerto Bolivar, Ecuador	G. H. H. Tate
22188	Rio Lunoma, Ecuador	G. H. H. Tate
18306	Rio Pindo, Ecuador	H. E. Anthony
21964	Santa Elena, Ecuador	G. H. H. Tate
21994, 22071–81, 21938, 21823–27	Santa Rosa, Ecuador	G. H. H. Tate

Ameiva festiva (Lichtenstein)

Cnemidophorus festivus LICHTENSTEIN, 1856, 'Nomenclator Mus. Zool. Berol.,' p. 13, (type locality, Veragoa).

Ameiva ruthveni BARBOUR AND NOBLE, 1915, Bull. Mus. Comp. Zoöl., LIX, p. 471, (type locality, near the city of Panama).

In short, it may be stated that an examination of a large series of *festiva* indicates that *ruthveni* should be reduced to its synonymy. The lateral caudal serrations, a conspicuous feature emphasized in the original description, occur in specimens from many localities, both north and south, particularly in large adult males. An attempt to recognize a form on this character frequently results in the separation of specimens from the same locality (that are otherwise alike) and fails completely when one attempts to set an arbitrary line of distinction to divide one morphological variant from the other. Moreover, the distinctions based on the character of the postbrachials and tibials are worthless in this case as in most others. If *ruthveni* were recognized as a southern variant of *festiva*, the name, *Ameiva eutropia* Cope would be applicable to the population because of priority in the date of description.

The finding of the specimens listed below in western Colombia constitutes an important extension of the range of *festiva* and brings it distributionally much nearer to its close relative, *septemlineata*.

COLOMBIA.—Five specimens: Nos. 18266–68, collected at Boca de la Raspadura by E. W. Johnson; No. 18274, taken one mile below Boca de la Raspadura by R. D. O. Johnson; and No. 18265, found at Tambo, S. Monica, Atlantic slope, by R. D. O. Johnson.

Ameiva lacertoides (Duméril and Bibron)

Cnemidophorus lacertoides DUMÉRIL AND BIBRON, 1839, 'Erp. Gen.,' V, p. 134, (type locality, "Montevideo," Uruguay).

Cnemidophorus lacertinoides GRAY, 1845, 'Cat. Liz. British Mus.,' p. 22, (*emend.*).

Cnemidophorus lacertinus PHILIPPI, 1869, Archiv. f. Naturgesch., XXXV, p. 42, (*lapsus calami*).

Cnemidophorus grandensis COPE, 1869, Proc. Amer. Philos. Soc., II, (type locality, Rio Grande do Sul, Brazil).

Cnemidophorus leachei PERACCA, 1897, Boll. Mus. Torino, XII, 274, p. 6, (type locality, Jujuy, Argentina).

This species, which has hitherto been referred to the genus *Cnemidophorus*, must henceforth be regarded as belonging to *Ameiva* because of its possession of a sheath between the posterior tips of the scaly portion of the tongue and the larynx.

A specimen from Uruguay (A. M. N. H. No. 17021, Pedro Serie, collector) has ten femoral pores on each side.

Ameiva longicauda Bell

Ameiva longicauda BELL, 1843, 'Reptiles,' Zoöl. Voyage H. M. S. "Beagle," V, p. 28, (type locality, "Bahia Blanca," Argentina).

Cnemidophorus longicauda GRAY, 1845, 'Cat. Liz. British Mus.,' p. 21.

Cnemidophorus multilineatus PHILIPPI, 1869, Archiv. f. Naturgesch., XXXV, p. 41, (type locality, "Mendoza," Argentina).

The lingual characteristics of this species, which has often been regarded as belonging to *Cnemidophorus*, place it in the genus *Ameiva* as perceived by Bell (1843) while preparing the original description.

A topotype from Bahia Blanca, Argentina (A. M. N. H. No. 17020), was obtained by Pedro Serie in 1920.

Ameiva septemlineata Duméril

Ameiva septemlineata DUMÉRIL, 1851, 'Cat. Méth. Coll. Reptiles' (Paris), p. 114, (type locality, South America).

Ameiva sex-scutata GÜNTHER, 1859, Proc. Zool. Soc. London, p. 402, (type locality, Andes of western Ecuador).

Holcosus bridgesii COPE, 1868, Proc. Acad. Nat. Sci. Phila., p. 306, (type locality, not mentioned in original description).

Ameiva bridgesii BARBOUR AND NOBLE, 1915, Bull. Mus. Comp. Zoöl., LIX, p. 478.

The discussion pertaining to the status of this form has been given above under *A. edracantha*. All of the forms listed in the synonymy agree in certain fundamental characteristics, such as the possession of more than fifteen femoral pores, only six full-sized rows of ventral plates, the absence of preanal spines, and in the general multiplication of the rows of interorbital scales. The latter condition, however, is only relative, since certain typical *septemlineata* (in other respects) show the undivided frontal of *edracantha*.

The excellent series of these lizards in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
32649	South America	
22526	Huachi, Bolivia	N. E. Pearson
18269–71	Boca de la Raspadura, Colombia	E. W. Johnson
18272–73	Thirty miles up Rio Puné, Atrato Region, Colombia	R. D. O. Johnson
22102–103	Ecuador	G. H. H. Tate
24202	Balzapamba, Ecuador	Enrique Feyer
21901–905, 21907–908, 21920–22, 21925–32, 24335–36	Bucay, Ecuador	G. H. H. Tate
13469–72	Bulun, northwest Ecuador	
13465–68	Paramba, northwest Ecuador	
21822, 21857–58, 21971–72, 21979–86	Pasaje, Ecuador	G. H. H. Tate
18316–17, 22135	Portovelo, Province del Oro, Ecuador	H. E. Anthony
22222	Guayaquil, Ecuador	G. H. H. Tate
21948–55	Rio Tubones, Ecuador	G. H. H. Tate
23435	Rio Pescada, Ecuador	G. H. H. Tate
21937, 21992, 22081, 22125–28, 22135	Santa Rosa, Ecuador	G. H. H. Tate
13456–64	San Javier, northwest Ecuador	
23036–37	Ventura, Ecuador	G. H. H. Tate

ANADIA Gray

Loveridge (1929), has presented a synopsis of the described species of this genus.

Anadia bogotensis (Peters)

Ecpleopus (*Xestosaurus*) *bogotensis* PETERS, 1862, Abhandl. Berlin Akad., p. 217, Pl. III, fig. 3, (type locality, Santa Fé de Bogotá, Colombia).

Anobia bogotensis SINITSIN, 1928, Zool. Anz., LXXVI, p. 235.

One-tenth of the specimens listed below have three supraocular scales.

Nos.	Locality	Collector
1084	Bogotá, Colombia (topotype)	Maximilian
7636–40	Bogotá, Colombia (topotypes)	Apolinar Maria
24261–77, 14014–17, 14019–20, 24213	Bogotá, Colombia (topotypes)	Nicéforo Maria
32715–22	Gutierrez, southeast of Bogotá, Colombia	Nicéforo Maria
27612	La Dorada, Colombia	Nicéforo Maria
27526–27, 27529–31, 27533, 27537–38, 27540–43, 27545, 27548–50, 27558, 27560–65	Mountains near Muso, Colombia	Nicéforo Maria
17650–58	New Granada, Colombia	Cope Collection

Anadia rhombifera (Günther)

Cercosaurus rhombifera GÜNTHER, 1859, Proc. Zool. Soc. London, p. 405, (type locality,'western Ecuador).

Anadia rhombifera BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 399.

ECUADOR.—Two specimens: Nos. 24201 and 32779, collected at Balzapamba by Enrique Feyer. The variation shown by these examples may be summarized as follows: frontonasal almost as broad as long; nasal divided or entire; four pairs of large postmentals (sublabials), the three anterior pairs in contact medially; supraoculars three; 14 or 15 scales from the median suture of the postmentals to the posterior edge of the collar fold; five or six posterior preanals and four anterior preanals; 13 to 15 femoral pores on each thigh; 30 to 33 scales around the middle of the body; from 30 to 32 transverse rows of large ventral plates; 44 or 45 scales from the occiput to the base of the tail; back grayish brown; a prominent dorso-lateral dark streak on each side of the body; tail brownish, with indistinct darker and lighter markings.

ARTHROSAURA Boulenger

This genus is apparently closely related to *Ptychoglossus*, from which it differs in having the ventral plates rounded and imbricate behind instead of truncate and subimbricate or juxtaposed. It also shows certain resemblances to *Pantodactylus*.

SYNOPSIS OF THE SPECIES

1. Throat uniform grayish, cream-colored or white, without black spots.....2.
   Throat with light ground color, but black spotted (Ecuador).
   A. reticulata (O'Shaughnessy).
2. Less than 40 scales from the occiput to the base of the tail.....3.
   More than 40 scales from the occiput to the base of the tail (Venezuela).
   A. tatei, new species.
3. No light vertebral band, mid-dorsal region brownish (northeastern South America).....*A. versteegii* Van Lidth de Jeude.
   A light vertebral band present (northeastern South America).
   A. kockii (Van Lidth de Jeude)

The description of *Pantodactylus concolor* Tschudi (1847) from northern Brazil is very inadequate, but in every point that is given its characters agree with those of the more recently described *Arthrosaura versteegii* of Van Lidth de Jeude (1904). The coloration is evidently identical—no light mid-dorsal band being mentioned. Although the ventral plates of *concolor* were stated to be polygonal (instead of subpolygonal), the exact condition of the posterior borders of these scutes was not mentioned. Also, it was stated that "Die Schläfen sind mit

unregelmässigen grössern und kleinern gewölbten Schuppen besetzt," whereas this exact condition is found in Van Lidth de Jeude's *versteegii*, for he has written that the "temporal scales are irregular, rather large, without keels." In *Pantodactylus schreibersii* the temporal scutes are more regular and usually show some suggestion of the longitudinal in their arrangement. In view of these data and the geographical locality of the forms concerned, it appears that the two species may be identical.

The diagnosis of *Arthrosaurus kockii* applies with equal precision to the present species, with the exception that a light vertebral band is present in the former lizard. It is possible that future study will show *A. kockii* to be a synonym of this co-extensively distributed *A. versteegii*.

Brongersma (1928) has shown that *Prionodactylus kockii* Van Lidth de Jeude (1904) is really an *Arthrosaura* and that *A. dorsistriata* Müller (1923) is nothing but a synonym of this species. With his conclusions the writers fully concur.

It appears that three of the species of *Arthrosaura* (*versteegii*, *kockii*, and *reticulata*) are practically synonymous in details of scutellation and proportion, although future work may prove this to be untrue. Thus, in spite of the surprising statement of Amaral (1929, p. 86)—that "it would be unfortunate indeed should we accept color as a criterion for the separation of species in herpetology," etc.,—it seems entirely logical to consider color differences as diagnostic here (and elsewhere), if they prove constant throughout a given range or if their confusion is confined to an area of intergradation or morphological overlap between the two or more populations (in the latter case, subspecies) concerned.

Arthrosaura tatei,[1] new species

DIAGNOSIS.—This form is distinguished from other members of its genus in the ways indicated in the above key. It differs from these by the possession of a much higher number of transverse ventral plates, and in the higher number of scales between the occipital region and the base of the tail as well; also in other ways.

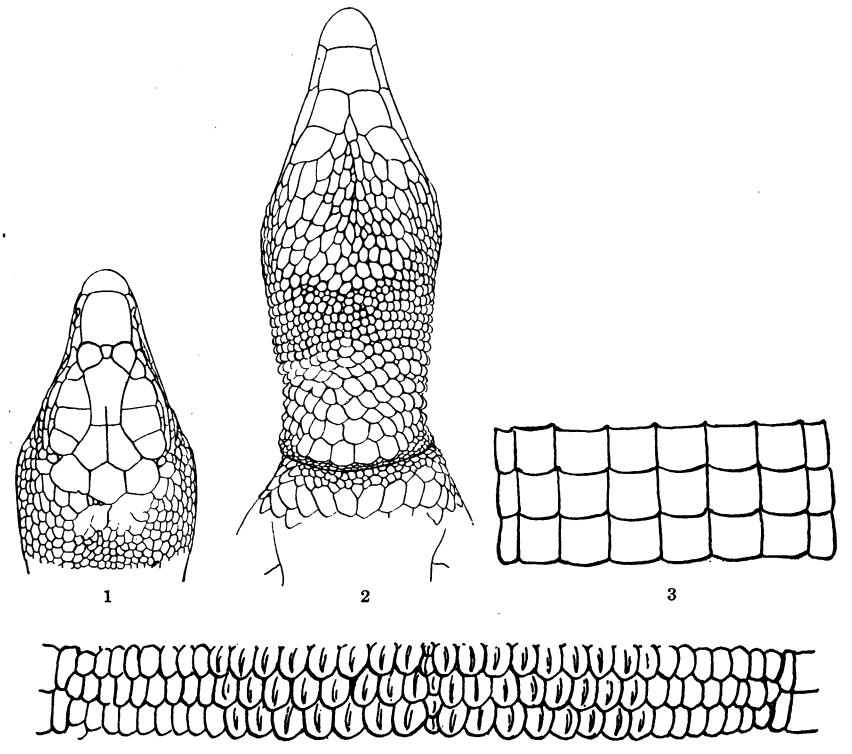
TYPE SPECIMEN.—A. M. N. H. No. 36649; Vegas Falls, fifteen miles north of Esmeralda, Mount Duida region, Venezuela, at an altitude of 4600 feet; collected by G. H. H. Tate of the Tyler-Duida Expedition on January 14, 1929; an adult.

DISTRIBUTION.—Known only from the type specimen and the type locality.

DESCRIPTION OF THE TYPE SPECIMEN.—Head moderately elongate, less than twice as long as broad; rostral prominent, rounded, largely visible from above; nostril pierced in the center of a single nasal; loreal present, in contact with the first supraocular on one side but widely separated from it on the other; about eight large

[1]This interesting form is named for G. H. H. Tate, the writers' colleague at The American Museum of Natural History, in recognition of his activity as a collector in South America.

suboculars present on each side; orbit normal, eyelids developed, lower with a whitish, non-transparent disk composed of eight or nine enlarged scales; about eight ciliaries and four or five superciliaries on each side; supraoculars four; nasals widely separated by a large frontonasal; three prefrontals, the median small and probably abnormally present; frontal large, angular in front and abruptly truncate behind, noticeably longer than broad, narrowed posteriorly; two large frontoparietals, separating the frontal from the parietals; no granules between the supraoculars and the large head plates; parietals large, three in number, the interparietal largest; four large upper labials and as many lower labials to below the center of the eye; ear opening rather



Figs. 1 to 4. *Arthrosaura tatei*, new species.
1, upper view of head; 2, lower view of head.
3, cross-section of the large ventral plates; 4, cross-section of the dorsal scales.

large, tympanum exposed. Two mentals, the terminal scute about as large as the posterior one; two large pairs of chin-shields, only the anterior pair in contact medially; anterior gulars larger than posterior gulars; posterior gulars enlarged medially, especially posteriorly; a distinct collar fold, separated from the large ventral plates by several series of minute granules; granules present on the edge of the collar fold; collar scales large, five in number.

Body slender; dorsal scales hexagonal, but not lanceolate, just a little longer than broad, rather strongly keeled near the median line but weakly keeled or smooth on the sides, subimbricate; dorsal and lateral scales forming transverse series, small, much smaller than the ventral plates; more than 70 scales from the occiput to the base of the tail; about 37 scales around the middle of the body; ventral plates smooth, squarish, rounded behind, imbricate, in regular longitudinal and transverse series; larger ventral plates in six or eight longitudinal rows and 27 transverse ones; three transverse series of preanal plates, five in the posterior row, six in the middle row and seven in the anterior row; tail covered by shields similar to those on the body; limbs well developed, slender, pentadactyl; digits elongate, with short, moderately strong, compressed claws; scales on the upper surfaces of the limbs small, smooth or weakly keeled; brachials and antebrachials continuous, numerous, small; large femorals in three or four series and large tibials in three series; 31 femoral pores.

Dorsal ground color brownish, variegated dark and light; vertebral region with a number of dark brown or blackish cross-bars; a series of about ten or 11 prominent, rounded, light spots on the dorso-lateral region of the body on each side, these continued on the tail; sides and upper surfaces of limbs less conspicuously and more irregularly spotted; lower surfaces grayish, throat white, without spots.

MEASUREMENTS OF THE TYPE SPECIMEN.—Distance from snout to anus, 75 mm.; tail, 146 mm.; total length, 221 mm.; fore limb, 26 mm.; hind limb, 38 mm.; tip of snout to collar fold, 29 mm.; tip of snout to anterior border of ear opening, 17.5 mm.; tip of snout to posterior border of large parietal plates, 15 mm.; tip of snout to anterior border of orbit, 8 mm.; and width of head, 9 mm.

BACHIA Gray

Bachia GRAY, 1845, 'Cat. Liz. British Mus.,' p. 58, (type species, *Chalcides dorbignyi* Duméril et Bibron).

Heteroclonium COPE, 1896, Proc. Acad. Nat. Sci. Phila., p. 466, (type species, *H. bicolor* Cope).

Heterodonium COPE, 1899, Sci. Bull. Phila. Museums, I, p. 9, (type species, *H. bicolor* Cope).

Garman (1892) has shown that the name *Bachia* Gray (1845) should be applied to the lizards of the present genus in lieu of *Cophias* Merrem (1820). The latter name was accepted by Boulenger in 1885.

The synopsis of the lizards of the genus *Bachia* recently presented by Ruthven (1925) is helpful to students of this group.

SYNOPSIS OF THE SPECIES

1. Dorsal scales[1] quadrangular, not overlapping (*cophias* group).....2.
   Dorsal scales hexagonal, overlapping (*dorbignyi* group).....6.
2. Interparietal present.....4.
   Interparietal absent.....3.
3. One supraocular above the superciliaries (the Guianas to eastern Colombia). *B. parkeri* Ruthven.
   Two supraoculars above the superciliaries (the Guianas to eastern Colombia). *B. cophias* (Schneider).

[1]Examination should be made along the median line, not too far anteriorly.

4. Less than 30 scale-rows around the middle of the body.....5.
   More than 30 scale-rows around the middle of the body (Central America?). *B. boettgeri* (Boulenger).
5. Three supraoculars (habitat unknown).....*B. tridactyla* (Daudin).
   Two supraoculars (Venezuela).....*B. lineata* Boulenger.
6. Two pairs of chin-shields (postmentals) in contact medially; outer edge of each of the second pair of chin-shields forming a continuous suture with the lower labials, not reaching the oral border.....10.
   One pair of chin-shields in contact and medially; outer edge of each of the second pair of chin-shields usually wedged in between the lower labials and thus reaching the oral border.....7.
7. Fore limb with less than four digits.....9.
   Fore limb with four digits.....8.
8. Hind limb with only one or two tubercular, unclawed digits (Colombia) *B. bicolor* (Cope).
   Hind limb with three clawed digits (Venezuela)....*B. heteropa* (Lichtenstein).
9. Fore limb with three digits; hind limb very small, undivided (Colombia). *B. talpa* Ruthven.
   Fore limb with two digits; hind limb absent or represented by a small tubercule (northwestern Peru).....*B. barbouri*, new species.
10. Fourth or fifth upper labial in contact with the parietal on each side; darker stripes on body dark brown.....11.
    Upper labials entirely free from parietals; darker stripes on body light brown (northwestern Peru).....*B. intermedia* Noble.
11. Fourth upper labial in contact with parietal on each side (central Peru). *B. peruana* (Werner).
    Fifth upper labial in contact with parietal on each side (Chile and Bolivia). *B. dorbignyi* (Duméril et Bibron).

Boulenger (1887, 'Cat. Liz. British Mus.,' III, pp. 507–508), after an examination of the type specimen of *Chalcides heteropus* Lichtenstein, redescribed the species and included Cope's *Brachypus pallidiceps* in its synonymy. At the same time he proposed the name, *Cophias bœttgeri*, for *Cophias heteropus* Boulenger (1885, 'Cat. Liz. British Mus.,' II, p. 418) (not of Lichtenstein). Thus the *Bachia heteropus* of recent writers, who have followed Boulenger (1885), rather than Boulenger (1887), must be given future recognition under the name, *Bachia bœttgeri* (Boulenger). The status of the true *Bachia heteropus* (Lichtenstein) is not so easily fixed, however.

Boulenger (1887) gave no reason for placing Cope's *Brachypus pallidiceps* (now *Scolecosaurus pallidiceps*) in the synonymy of *Cophias heteropus* (Lichtenstein). The former species has prefrontal plates and is therefore not to be referred to the present genus. However, this is probably not true of the latter species, *heteropus*, which apparently has no prefrontals. It seems significant that Boulenger did not mention

the prefrontals in his rather detailed re-description of the type specimen and that he considered *heteropus* a form of *Cophias* (a genus in which prefrontals are absent), after the examination of that specimen. Therefore, *Scolecosaurus pallidiceps* is given full recognition here while *Cophias heteropus* is regarded as a form of *Bachia.*

In the genus *Bachia* itself, the true *heteropus*, as described by Boulenger (1887), occupies a position close to *B. bicolor* (Cope), agreeing with that form in the number of digits on the fore limb, the type of dorsal scales, the number of scales around the body, the position of the chin-shields, and in other ways. In fact, it appears to differ diagnostically only in the possession of three clawed digits on the hind foot instead of one or two clawless ones.

The *Chalcides flavescens* of Bonnaterre (1789), apparently the oldest described form of *Bachia*, has not been recognized by recent writers. It was applied to the present *Bachia cophias* (Schneider), a form with only a single digital tubercule on the hind foot,[1] by Boulenger (1885). Bonnaterre showed clawed digits on the hind foot in his illustration of *flavescens* (Pl. XII, fig. 4) and indicated in the text that the species is three-toed. Unfortunately, the rest of the description is very fragmentary and the figure, as a whole, is lacking in detail. It is suggested here that Bonnaterre's *flavescens* may be identical with Daudin's *tridactylus*, a form with three clawed digits on all four feet. If this proves to be the case, the species must bear the name, *Bachia flavescens* (Bonnaterre).

Bachia bicolor (Cope)

Heteroclonium bicolor COPE, 1896, Proc. Acad. Nat. Sci. Phila., p. 466, (type locality, New Granada, Colombia).

Heterodonium bicolor COPE, 1899, Sci. Bull. Phila. Museums, I, p. 9, (type locality, New Grenada, Colombia).

Bachia bicolor RUTHVEN, 1925, Proc. Boston Soc. Nat. Hist., XXXVIII, p. 108.

This form served as the type species of Cope's genera, *Heteroclonium* and *Heterodonium* which are now to be regarded as synonyms of *Bachia.*

The two co-types are in the collection of the American Museum (Nos. 9544–45).

Additional specimens have been examined.

COLOMBIA.—Four specimens, all in the collection of the M. C. Z.: No. 25053 from Rio Frio; and Nos. 6557–59 from Palomina. The variation shown by these specimens may be summarized as follows: interparietals absent; no supraoculars; 27 to 32 scales around the

[1]We are indebted to Dr. Leonhard Stejneger for calling our attention to this character.

middle of the body; two pairs of large chin-shields, the anterior pair in contact medially; fore limb with four digits; fourth upper labial separated from the parietal in one specimen (No. 25053) and in contact with it in the rest; dorsal scales hexagonal; body segments 42 to 45.

Bachia barbouri,[1] new species

DIAGNOSIS.—Dorsal scales hexagonal, imbricate; supraocular scales absent; two superciliaries; an interparietal; fore limb with two digits; hind limb reduced to a small tubercule or absent; one pair of chin-shields in contact medially, the second pair separated; outer edge of second pair of chin-shields wedged in between the lower labials, reaching oral border; transverse body segments, 46 to 48; longitudinal body scale-rows 30.

TYPE.—An adult, A. M. N. H. No. 28437, from Perico, Department of Cajamarca, Peru; September, 1916; G. K. Noble, collector.

DISTRIBUTION.—Known only from the type locality.

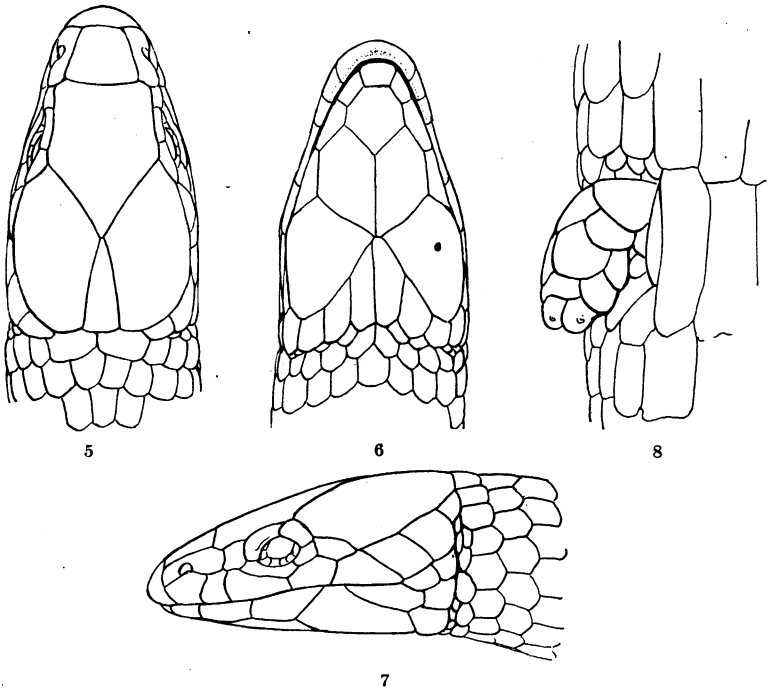
DESCRIPTION OF TYPE SPECIMEN.—Fore limb with two digital tubercules; hind limb reduced to a minute tubercule or absent. Rostral bluntly trapezoid, visible from above; frontonasal broad, four-sided, wider behind than in front, average breadth about equal to the length; prefrontals absent; nasals moderate, mostly lateral, nostril just visible from above; loreal and preocular fused, squarish, just in front of the eye; frontal pentagonal, elongate and pointed behind, squarish in front, about twice as long as the frontonasal, but a little shorter than the parietals; parietals nearly twice as long as broad, separated by a triangular interparietal which is sharply pointed anteriorly; two superciliaries (appear as supraoculars); three infraoculars; postocular fused to temporals, elongate, separating parietals from upper labials; occipitals (or posterior temporals) lateral, three on each side, inner smallest; upper labials five, the first fused with the anterior nasal; no ear opening. Chin-shields, one single anterior mental, followed by two pairs of large postmentals, the first pair in contact medially, the second pair separated by the two large median gulars. Lower labials five, the third largest, the fourth very small, fourth and fifth separated by the outer edge of the second paired postmental on each side, this reaching the oral border. Eight large gular scales in a single series, these longitudinally elongate, largest medially. Dorsal scales elongate, hexagonal, overlapping, smooth or slightly striated; ventral scales elongate, angular in front, rounded behind, overlapping, smooth, broader than the dorsals; thirty scale-rows around the middle of the body, forty-seven segments from the occiput to the base of the tail. Pectoral shields four, less than twice as long as the adjacent ventral plates; five preanal plates, the median largest, these arranged in a semicircle, anteriorly a single large shield which may be regarded as a sixth preanal; no anal pores; tail elongate (broken and reproduced in the type), covered with scales similar to those on the body.

Color pale reddish-brown above, with, perhaps, a yellowish tinge, dark chocolate-brown on the sides, slightly lighter on the ventral surfaces. Three narrow dark brown dorsal stripes indicated back of the occiput, coverging anteriorly to form a point on the large head shields, this terminating on the frontonasal; the mid-dorsal stripe fades rapidly on the body and finally disappears altogether; dorso-lateral

[1]Named for the eminent herpetologist, Dr. Thomas Barbour, of the Museum of Comparative Zoölogy.

stripes distinct for the entire length of the body and tail, but less pronounced posteriorly. Sides and belly, although of dark chocolate-brown ground color, variegated with streaks of dark and light brown, the dark brown more intense at the outer border of the wide, light reddish-brown, mid-dorsal band, where it forms a continuous longitudinal line.

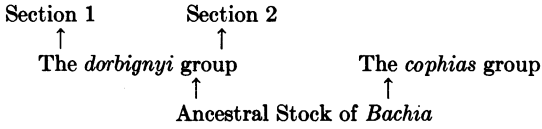
MEASUREMENTS OF TYPE SPECIMEN.—Length from tip of snout to posterior border of interparietal, 6 mm.; tip of snout to insertion of fore limbs, 11 mm.; tip of snout to anus, 56 mm.; width of head, 3 mm.; and fore limb, 2 mm.



Figs. 5 to 8. *Bachia barbouri*, new species.
5, upper view of head; 6, lower view of head.
7, side view of head; 8, fore limb.

AFFINITIES.—This species belongs to the "*dorbignyi* group" of *Bachia*, as defined by Ruthven (1925) and indicated in the above key. This group itself is divided into two genetic sections as follows: (1) one pair of chin-shields in contact medially, second pair of chin-shields usually reaching the oral border; and (2) two pairs of chin-shields in contact medially, second pair of chin-shields not reaching the oral border. Because of its characteristics *barbouri* must be assigned to group one of the *dorbignyi* group instead of group two.

The evolution thus suggested for *Bachia* may be summarized diagrammatically as follows:



The only known species of section one of the *dorbignyi* group are the Venezuelan *heteropa* (see p. 316) and two Colombian forms, *bicolor* and *talpa*. To these is now added a fourth species, *barbouri*. All four of these forms vary little in size, coloration, relative proportions (excepting for the limbs), and scutellation. However, there is a progressive tendency in the degenerate or specialized teiids toward the loss of digits and the reduction in the size of the limbs. This is well carried out here. *Heteropa*, the least specialized, has clawed digits on all four feet, four digits on the front feet and three digits on the rear ones; *bicolor* has one or two clawless digits on the hind feet and four clawed digits on the front ones; *talpa* has three digits on the fore feet and a very small, tubercular, undivided hind limb; and *barbouri* has only two digits on the fore feet, smaller fore limbs than all the rest, and no hind limbs at all. The course of evolution thus suggested is illustrated by the following diagram:

heteropa——→*bicolor*——→*talpa*——→*barbouri*

Thus, it is seen that *barbouri* is one of the most specialized members of the genus *Bachia* with its nearest relatives occupying distant northern areas in Colombia and Venezuela rather than co-extensive territory in northwestern Peru, as does *intermedia* of section two.

Bachia cophias (Schneider)

Chamæsaura cophias Schneider, 1801, 'Hist. Amph.,' part 2, p. 209, (type locality, unknown).

Bachia cophias Ruthven, 1925, Proc. Boston Soc. Nat. Hist., XXXVIII, p. 108.

Bachia parkeri Ruthven (1925), based on specimens from British Guiana and Colombia, is apparently very close to *B. cophias* of the same range. In Ruthven's key the two forms were separated as follows:

Two supraoculars; fore limb with three (or four, Boulenger) unclawed digits; hind limb undivided; body scale-rows 30 longitudinal, and 47 to 50 transverse: *cophias*.

One supraocular; fore limb with three unclawed digits; hind limb undivided; body scale-rows 26 to 28 longitudinal, and 50 to 51 transverse..... *parkeri*.

In the only species of *Bachia* represented in the collection of the American Museum by a significant series, *B. intermedia*, the number of supraoculars (or more correctly, superciliaries) is not constant and in

the other species the supraoculars and superciliaries are of uneven sizes. The tendency in the evolution of the genus *Bachia*, as in the family Teiidæ, is clearly toward the reduction of the number of head plates. This is illustrated by the loss of one or two supraoculars in all of the species of the *cophias* group but *tridactyla*, which is probably the most primitive member, and their total absence in the *dorbignyi* group. Moreover, in the latter group the frontonasal becomes increasingly smaller until in *peruana* it offers a very significant approach to *Ophiognomon*, in which it does not appear at all. Therefore, it is seen that the random appearance of specimens with only a single supraocular in the general, wide-ranging population of *cophias* may be of evolutionary or phylogenetic significance rather than of specific value.

In connection with this discussion, it is interesting to note that a specimen of *Bachia* from British Guiana (A. M. N. H. No. 21269) shows the supraocular count (2) and body segments (47–48) of *cophias* and the longitudinal body scale-rows (26) attributed to *parkeri*.

The variation in the three specimens listed below may be summarized as follows: no interparietal; supraoculars two; superciliaries two; one pair of chin-shields (postmentals) in contact medially; outer edge of second pair of postmentals not projecting through the lower labials to the oral border; longitudinal body scale-rows in 24 to 30 series; transverse body segments 44 to 48; preanal pores two on each side, or absent; fore limb with three digits; hind limb with two digits.

British Guiana.—Three A. M. N. H. specimens: No. 21269, collected in the Bartica District by William Beebe; and Nos. 25084–85, secured at Kamakusa by H. R. Lang and W. J. La Varre.

Bachia dorbignyi (Duméril and Bibron)

Chalcides dorbignyi Duméril and Bibron, 1839, 'Erp. Gen.,' V, p. 462, (type locality, Santa Cruz du Chili).

Cophias dorbignyi Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 419.

Bachia dorbignyi Ruthven, 1925, Proc. Boston Soc. Nat. Hist., XXXVIII, p. 109.

Bolivia.—One A. M. N. H. specimen: No. 22525, collected at Tumupasa by W. M. Mann; also two additional (M. C. Z.) specimens, taken at Buenavista, Santa Cruz, by José Steinbach.

There has been some question as to the distinctness of *B. peruana* Werner (1900) from the present species (see discussion below under *peruana*). However, the three specimens of *dorbignyi* at hand are perfectly typical. Their characteristics may be listed as follows: frontonasal distinct; fifth upper labial in contact with the parietal; no supra-

oculars; two superciliaries; two pairs of chin-shields in contact medially, the outer edge of the second pair forming a continuous suture with the lower labials, not reaching the oral border; longitudinal body scale-rows in 24 to 26 series; transverse body segments 45 to 51; fore limb with three tubercular digits; hind limb present, undivided.

Bachia intermedia Noble

Bachia intermedia Noble, 1921, Ann. N. Y. Acad. Sci., XXIX, p. 142, (type locality, Perico, Department of Cajamarca, Peru).

The examination of a series of paratypes of this form (A. M. N. H. Nos. 28438–59 and 22730) gives the following data: interparietal absent; superciliaries two or three; outer edge of second pair of chin-shields forming a continuous suture with the lower labials, not reaching oral border; two pairs of chin-shields in contact medially, length of suture between second pair somewhat variable; no preanal pores; fore limb with three digits, hind limb with two; annuli on body 46 to 51; longitudinal body scale-rows 30 to 35; upper labials not in contact with parietals.

All of the paratypes listed above were collected by G. K. Noble at Perico, Peru, the type locality.

Bachia peruana (Werner)

Cophias peruanus Werner, 1900, Abhandl. u. Ber. d. K. Zool. u. Anthr.-Ethn. Mus. zu Dresden, IX, No. 2, p. 5, (type locality, Chanchamayo, Peru).

Bachia peruana Ruthven, 1925, Proc. Boston Soc. Nat. Hist., XXXVIII, p. 108.

As remarked by Ruthven (1925, p. 109), this species may prove to be a synonym of *dorbignyi*: "The only character given in the original description which distinguishes *peruana* is the number of upper labials. In *B. cophias* and *B. lineata* the fourth labial may or may not be fused with the fifth, and there is no reason to believe that a similar variation may not occur in *B. dorbignyi*. Furthermore, apparently typical *dorbignyi* occurs in Peru. *B. peruana* probably should not be relegated to synonymy until more material from the type locality has been studied."

Since the three specimens of *peruana* at hand are entirely typical of that species, as defined by Ruthven, there is still insufficient grounds for uniting the two forms as synonyms or subspecies. The variation of these three examples may be summarized as follows: transverse body segments 50 to 53; longitudinal body scale-rows 24 to 26; interparietal absent; two pairs of postmentals in contact; fourth upper labial on

each side in contact with the corresponding parietal; superciliaries two; fore limb with three digits.

PERU.—Three specimens: Nos. 23212, and 23414–15, collected at Perené by Carlos Schunke.

CALLOPISTES Gravenhorst

SYNOPSIS OF THE SPECIES

Large ventral plates in less than 35 longitudinal rows; dorsal pattern regular, with four rows of dark brown spots and their paired, black-edged, white ocelli (Chile). *C. maculatus* Granvenhorst,

Large ventral plates in more than 35 longitudinal rows; dorsal pattern irregular, adults with many light spots and reticulations (Peru). *C. flavipunctatus* (Duméril et Bibron).

Callopistes flavipunctatus (Duméril et Bibron)

Aporomera flavipunctata DUMÉRIL ET BIBRON, 1839, 'Erp. Gen.,' V, p. 72, (type locality, the "Nouveau-Monde").

Callopistes flavipunctatus GRAY, 1845, 'Cat. Liz. British Mus.,' p. 17.

PERU.—Two specimens: Nos. 28515–16, collected at Bellavista by G. K. Noble.

Callopistes maculatus Gravenhorst

Callopistes maculatus GRAVENHORST, 1838, Nova Acta Acad. Cæs. Leop.-Carol., XVIII, 2, p. 744, (type locality, Chile).

CHILE.—Four specimens: Nos. 36288–89 and 36334–35, taken at Tofo by T. Hallinan.

CERCOSAURA Wagler

Only one species in the genus.

Cercosaura ocellata Wagler

Cercosaura ocellata WAGLER, 1830, 'Nat. Syst. Amph.,' p. 158, (type locality, "Asia?"). BOULENGER, 1885, 'Cat. Liz. British Mus.,' II. 1885, p. 395, (Brazil).

Specimens of this species from British Guiana and Bolivia are found to resemble each other very closely. The variation in the examples listed below may be summarized as follows: supraoculars three, without an anterior element which has fused to the anterior superciliaries and become latero-superior in position; two prefrontals forming a broad suture; from 30 to 34 segments from the occiput to the base of the tail; large dorsal plates in eight longitudinal series, the outer pair reduced in size; large ventral scutes in six longitudinal series, the outer pair less than one-half the width of the other pairs; from seven to nine small scales separating the large dorsals from the large ventrals on each

side; a longitudinal fold present on each side just above the large ventral plates (British Guiana, adult) or entirely absent (Bolivia, young); femoral pores present (British Guiana, five on one side and six on the other) or absent (Bolivia); four (Bolivia) or five (British Guiana) yellowish white stripes on the body.

BOLIVIA.—Two specimens: Nos. 22530–31, collected at Tumupasa by N. E. Pearson of the Mulford Biological Expedition.

BRITISH GUIANA.—One specimen: No. 21264, secured at Kartabo by William Beebe.

CNEMIDOPHORUS Wagler

Most details pertaining to the South American forms of *Cnemidophorus* have been reserved for the senior author's forthcoming revision of the genus.

SYNOPSIS OF THE SPECIES

1. Large ventral plates in less than ten longitudinal series.....2.
   Large ventral plates in ten or more longitudinal series (Bonaire and Curaçao, Dutch Leeward Islands).....*C. murinus murinus* (Laurenti).
2. Femoral pores 14 or more; preanal spurs often present.....3.
   Femoral pores less than 14; preanal spurs absent (Brazil, Paraguay, and Bolivia).....*C. ocellifer* (Spix).
3. Dorsal region with continuous light lines.....4.
   Dorsal region without continuous light lines.....6.
4. Sides not completely striped, often with large blue spots.....5.
   Sides completely striped, spots confined to interspaces or absent (northern South America).....*C. lemniscatus lemniscatus* (Linnæus).
5. Femoral pores 27 or less; sides unicolor or with small light spots (northern South America).....*C. lemniscatus lemniscatus* (Linnæus).
   Femoral pores 27 or more; spots on sides larger (Aruba, Dutch Leeward Islands).....*C. murinus arubensis* (Van Lidth de Jeude).
6. Sides unspotted or with small white spots or flecks.....7.
   Sides with large rounded spots; adults large (Aruba, Dutch Leeward Islands).
   C. murinus arubensis (Van Lidth de Juede).
7. Ground color of mid-dorsal region essentially bluish, at least laterally; sides, darker above, with a dorso-lateral band of brown or black which is abruptly contrasted with the ground color of the mid-dorsal field (northern South America).....*C. lemniscatus lemniscatus* (Linnæus).
   Ground color of mid-dorsal region black, slate, gray, or grayish brown; sides usually dark, but essentially of the same color and of a shade not abruptly contrasted with that of the back (islands north of Venezuela from the Aves east to Blanquilla, southward on Margarita Island).
   C. lemniscatus nigricolor (Peters).

Cnemidophorus lemniscatus lemniscatus (Linnæus)

Lacerta lemniscata LINNÆUS, 1758, 'Syst. Nat.,' X, p. 209, (type locality, "Guinea," lapsus calami for Guiana).

This form may be distinguished from other South American *Cnemidophori* by the following characters: ventral plates in eight longitudinal series; ventral caudals more or less definitely ridged or keeled; femoral pores 15 to 27; young with six to ten stripes, usually with nine; adult, if unstriped, with ground color of back in contrast to that of sides, often with a dark dorso-lateral streak on each side.

Specimens of *lemniscatus* from Cucuhy, Brazil, have the outer (first and fifth) parietals reduced to an unusual extent.

The specimens in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
36358–60, 36362–70, 37867–69	Cucuhy, Brazil	W. J. La Varre
37295	Rio Cotinga, near Limão, Brazil	W. J. La Varre
2283–84	Santarem, Brazil	Louis Agassiz
37272–94	São Gabriel, Brazil	W. J. La Varre
38002–803	Talmapunta, near the Rio Vaupes, Brazil	Olalla Bros.
32282–83	Kartabo, British Guiana	George Morgan
14123–31, 15127–29	Kartabo, British Guiana	William Beebe
1685–88, 1946–51	Alto Rio Vaupes, near Carura Waterfall, Colombia–Brazil boundary	J. H. Batty
32658	Antiquru, Cauca Valley, Colombia	Nicéforo Maria
35316–90, 35391–440	Colombia	Nicéforo Maria
18106–107	El Guano, Colombia	Nicéforo Maria
27498–523	Girardot, Colombia	Nicéforo Maria
35296–98, 27573–75, 27577–92	Honda, Colombia	Nicéforo Maria
27600–10	La Dorada, Colombia	Nicéforo Maria
32642, 32644, 32652–54, 36353	Medellin, Colombia	Nicéforo Maria
17662	New Granada, Colombia	Nicéforo Maria
27568–72	Puerto Berrio, Colombia	Nicéforo Maria
19974–86, 19989, 38053–62	Sabanalarga, Cauca Valley, Colombia	Nicéforo Maria
32650–51	Santa Rosa de Osa, Colombia	Nicéforo Maria
27596, 27598	Villa Vicencio, Colombia	Nicéforo Maria
8626	Dutch Guiana	J. A. Samuels
8362	Patas Island, B. W. I.	
38375	Caicara, Venezuela	G. K. Cherrie
13473–75	Chama, Venezuela	
29321	Cuchivano, Venezuela	G. H. H. Tate
36680	Esmeralda, near Mount Duida, Venezuela	Tyler-Duida Exp.
13409–10	Rios Albarregas y Milla, near Mérida, Venezuela	

Cnemidophorus murinus murinus (Laurenti)

Seps murinus LAURENTI, 1768, 'Synops. Reptilium,' p. 63, (type locality, "Guiana," probably incorrect).

Cnemidophorus murinus WIEGMANN, 1834, 'Herpetologia Mexicana,' p. 27.

Cnemidophorus minimus COPE, 1899, Sci. Bull. Phila. Museums, I, p. 9, (lapsus calami).

Cnemidophorus arubensis (not of Van Lidth de Jeude) WERNER, 1925, Zeitschr. f. wissensch. Zool., CXXV, pp. 537, 545, (part).

This species is readily determined because it is the only form of *Cnemidophorus* with from ten to twelve longitudinal series of large ventral plates. Otherwise, it is very close to *arubensis*.

CURAÇAO, DUTCH LEEWARD ISLANDS.—One specimen: No. 13538.

Cnemidophorus ocellifer (Spix)

Tejus ocellifer SPIX, 1825, 'Spec. Novæ. Lacert. Brasil,' p. 23, tab. 25, (type locality, Bahia, Brazil).

Cnemidophorus hygomi REINHARDT AND LÜTKEN, 1861, Vidensk. meddel. nat. Foren., p. 231, (type locality, Marium, Brazil).

Cnemidophorus ocellifer PETERS, 1877, Monatsbr. Berlin Akad. Wiss., p. 414.

This form is easily distinguished from *murinus* by the presence of eight longitudinal rows of ventral plates, and from the other South American *Cnemidophori* by its low number of femoral pores (less than fourteen).

Topotypes of *ocellifer* (A. M. N. H. Nos. 36372–75) were taken at Bahia, Brazil, by R. H. Beck.

CROCODILURUS Spix

One species in South America.

Crocodilurus lacertinus (Daudin)

Tupinambis lacertinus DAUDIN, 1802, 'Hist. Nat. des Reptiles,' III, p. 85, (type locality, "Les îles adjacentes à l'Amerique meridionale").

Crocodilurus lacertinus DUMÉRIL AND BIBRON, 1839, 'Erp. Gen.,' V, p. 46.

An individual of this species (A. M. N. H. No. 36627), taken near the Rio Casiquiare, four miles below Esperanza, Venezuela, by members of the Tyler-Duida Expedition on September 27, 1928, has very small femoral pores: ten on one side and eleven on the other. The lower surfaces are pinkish with scattered black spots; otherwise the description given by Boulenger (1885, p. 380) may be applied.

DICRODON Duméril and Bibron

Dicrodon heterolepis (Tschudi)

Cnemidophorus heterolepis TSCHUDI, 1845, 'Herpetologie, in "Fauna Peruana,"' p. 40, (type locality, "In den heissen Wäldern der Ostabdachung der Anden, Peru"); 1845, Archiv. f. Naturgesch., XI, part 1, p. 160. COPE, 1869, Proc. Amer. Philos. Soc., XI, p. 158. GÜNTHER, 1870, Zool. Rec. for 1869, VI, p. 111. BOCOURT, 1874, Miss. sci. Mex. et Amer. cent., III, p. 269. BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 375. STEINDACHNER, 1891, Annalen des k.k. natur. Hofmus., Wien, p. 373. COPE, 1900, Ann. Rept. U. S. Nat. Mus. for 1898, p. 563. WERNER, 1900, Abhandl. Mus. Dresden, IX, No. 2, p. 4. GADOW, 1906, Proc. Zool. Soc. London, p. 301. WERNER, 1912, Jahrb. d. Hamburg wiss. Inst. Anst., XXX, 2, p. 13.

Verticaria heterolepis COPE, 1869, Proc. Amer. Philos. Soc., XI, p. 158.

Dicrodon calliscelis COPE, 1876, Journ. Acad. Nat. Sci. Phila., VIII, p. 163, (type locality, Pacasmayo, Peru). BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 378.

Cnemidophorus centropyx STEINDACHNER, 1891, Annalen des k.k. natur. Hofmus., Wien, p. 374, (type locality, "Ostabhang der Anden, Peru"). COPE, 1892, Trans. Amer. Philos. Soc., XVII, p. 27, (footnote). WERNER, 1900, Abhandl. Mus. Dresden, IX, No. 2, p. 4. STEINDACHNER, 1902, Denkschr. d. mathem.-naturw. Cl. Akad. Wien, LXXII, p. 102. BOULENGER, 1901, Zool. Rec., XXXVIII, "Reptilia," 1902, p. 19.

Cnemidophorus peruanus STEINDACHNER, 1891, Annalen des k.k. natur . Hofmus., Wien, p. 375, (type locality, "Peru"). COPE, 1892, Trans. Amer. Philos. Soc., XVII, p. 27, (footnote). GADOW, 1906, Proc. Zool. Soc. London, p. 301.

Cnemidophorus tumbezanus STEINDACHNER, 1891, Annalen des k.k. natur. Hofmus., Wien, p. 375, (type locality, "Tumbez"). WERNER, 1898, Zool. Jahrb., Suppl.-Bd., nr. 4, p. 260.

Cnemidophorus tumbesanus COPE, 1892, Trans. Amer. Philos. Soc., XVII, p. 27.

Cnemidophorus heterolepis was described by Tschudi in 1845. The exact type locality was not known, so the type was merely said to have come from the high woods of the eastern slope of the Andes in Peru. In 1869, Cope, through an over-emphasis on the character of the fronto-parietal plate (single in this case) and by a total disregard for the geographic factors of distribution, placed this sturdy Peruvian species in the genus *Verticaria*, which he then described as new, with the delicate *Cnemidophorus hyperythrus* of Lower California as the type species. Cope's action has been rightfully disregarded by later workers, in spite of the fact that some of them have given complete recognition to the genus *Verticaria*, *heterolepis* being retained in the genus *Cnemidophorus*.

Dicrodon calliscelis, described by Cope in 1876 from Pacasmayo, coast of northern Peru, is not separable from *heterolepis*, as shown by the examination of a topotype (No. 20741) in the collection of The American Museum of Natural History.

A short redescription of *heterolepis* was presented by Steindachner (1891), who after an examination of the type specimen, still referred it to *Cnemidophorus*. In addition, Steindachner managed to describe three new species, which he styled *Cnemidophorus centropyx*, *C. peruanus* and *C. tumbezanus*, from Peruvian material of more or less uncertain locality. Although the character of the teeth was not mentioned, Cope (1892, footnote, p. 27), in his synopsis of the species of *Cnemidophorus*, recognized that these three supposedly new forms did not present the characteristic features and ranges that might be expected of them as Cnemidophori, and expressed the belief that they were either *Dicrodon* or *Verticaria*. A study of the original descriptions and later annotations strongly indicates that all three of Steindachner's species represent a single distinct form, which in itself is nothing more than *heterolepis*. The examination of two examples, one from southern (M. C. Z.) and one from northern (A. M. N. H.) Peru, further substantitates this belief, and the strong transverse compression of the teeth in these individuals shows that this *heterolepis* must be referred to the genus *Dicrodon*.

Moreover, a charting of the characters of the four supposed species under consideration shows that they agree, so far as known, in the possession of certain fundamental characteristics. These may be summarized as follows: femoral pores, 17 to 19; supraoculars, four; longitudinal rows of ventral plates varying from eight to ten, often eight and a fraction, the outer row being reduced in size; transverse rows of ventral plates, 33 or 34; frontoparietals united or divided; dorsal granules smaller anteriorly and inferiorly, but strongly enlarged posteriorly and superiorly so as to form somewhat flattened plates which are noticeably keeled; posterior cephalic plates small, and usually irregular; nostril anterior to nasal suture; caudal scales large and strongly keeled.

The type specimen of *Cnemidophorus centropyx*, according to the original description, has the dorsal granules larger than in *heterolepis* (presumably larger than in the type specimen which was available to Doctor Steindachner at the time he drew up his descriptions), and this is to be expected since the type of *centropyx* has a total length of 421 mm. and the type of *heterolepis* a total length of only 305 mm. Another difference advanced for *centropyx* was the presence of two frontoparietal plates, but this distinction is not trustworthy in *Dicrodon* as is shown particularly by the writers' study of *D. lentiginosus*, which is to

be presented below, and by the fact that a transition specimen, M. C. Z. No. 12327, has a single frontoparietal plate which is partly divided by short anterior and posterior sutures.

The original description of *Cnemidophorus peruanus* also fails to show that the diagnosis of the species was warranted. It is of almost no significance that the tibials appeared smaller than those of *tumbezanus*, since the type of *peruanus* had a total length of only 377 mm., as compared to the type of *tumbezanus* which had a total length of 430 mm.

Steindachner's distinctions for *tumbezanus* are likewise weak. The enlargement of the interparietal plate of the type specimen, as compared with the smaller size of the interparietal of the type of *centropyx* is doubtless of little significance. The individual variation in the size of this scute in *Ameiva* and *Cnemidophorus* is seemingly endless, and there is no reason to believe that such variation should be more stable in *Dicrodon*, a genus in which the posterior head plates are showing a decided tendency to break into smaller sections.

A single specimen of *heterolepis* (A. M. N. H. No. 20741) was obtained at Pacasmayo, Peru, by R. C. Murphy. This is a topotype of *Dicrodon calliscelis*.

Dicrodon lentiginosus barbouri (Noble)

Dicrodon barbouri NOBLE, 1924, Occas. Pap. Boston Soc. Nat. Hist., V, p. 108, (type locality, edges of thickets near Chira River, Sullana, northwestern Peru).

Dicrodon lentiginosus barbouri BARBOUR AND LOVERIDGE, 1929, Bull. Mus. Comp. Zoöl., LXIX, p. 251.

The specimens of this subspecies in the collection of The American Museum of Natural History may be listed as follows:

Nos.	Locality	Collector
28585–87	Chongolappi, Peru	G. K. Noble
20742–44	Pacasmayo, Peru	R. C. Murphy
28506–14	Sullana, Peru	G. K. Noble
31535, 28969	Talara, Peru	R. C. Murphy

The examples collected in Peru by G. K. Noble are paratypes.

Dicrodon lentiginosus lentiginosus (Garman)

Cnemidophorus lentiginosus GARMAN, 1892, Bull. Essex Inst., XXIV, p. 92, (type locality, San Francisco de Psorja, Ecuador); reprint, p. 5.

Dicrodon lentiginosus lentiginosus BARBOUR AND LOVERIDGE, 1929, Bull. Mus. Comp. Zoöl., LXIX, p. 242.

ECUADOR.—Twenty-two specimens: Nos. 21977–81, collected at El Muerto by R. C. Murphy; and Nos. 21840–44, 21869–77, and 21940–42, taken at Santa Elena by G. H. H. Tate.

DRACÆNA Daudin

Dracæna guianensis Daudin

Dracæna guianensis DAUDIN, 1802, 'Hist. Nat. des Reptiles,' II, p. 423, (type locality, Saint-François River, Brazil).

SOUTH AMERICA.—Eight specimens: Nos. 31742–43, 31749, 31926, 32121, 32270, 32272, and 32347, from the New York Zoölogical Park.

BRAZIL.—One specimen: No. 5250, collected at Matto Grosso by Leo Miller.

ECHINOSAURA Boulenger

Echinosaura BOULENGER, 1890, Proc. Zool. Soc. London, p. 82, (type species, *E. horrida* Boulenger).

The three described species of *Echinosaura* are all very closely related, as indicated by their continuous geographical distribution in Panama, Colombia, and Ecuador, and their common possession of certain features, such as from six to eight ventral scutes (the outer pair reduced in size when eight are counted), from six to eight femoral pores in the male, a similar size, and a general (more or less variegated) brownish coloration.

SYNOPSIS OF THE SPECIES

1. Two frontonasal plates back of the rostral shield; ventral scutes smooth; sides of neck and posterior part of the throat with some strongly tubercular and more or less definitely keeled scales, these scarcely spinose . . . . . 2.
   One frontonasal plate; ventral scutes more or less definitely keeled; sides of neck and posterior part of throat with some prominent spinose tubercules (Ecuador) . . . . . *E. horrida* Boulenger.
2. Two supraoculars (southwestern Colombia) . . . . . *E. palmeri* Boulenger (1911).
   Three or four supraoculars (Panama) . . . . . *E. panamensis* Barbour (1924).

Echinosaura horrida Boulenger

Echinosaura horrida BOULENGER, 1890, Proc. Zool. Soc. London, p. 83, (type locality, Ecuador).

The described species of *Echinosaura* have been but inadequately separated from each other. The examination of the specimens listed below (*horrida*) and others from Panama (*panamensis*), shows that the presence or absence of a double vertebral ridge on the body is not a reliable diagnostic character, this double ridge being more or less broken or irregular in all of the species, including *horrida* itself. Also, it seems

significant in this regard that the double ridge occurs rather definitely, anteriorly at least, in certain representatives of *panamensis* in which it has been presumed to be absent. Moreover, this latter species shows a few keeled ventral plates now and then, and *horrida* sometimes shows a few smooth ones.

Unfortunately, *palmeri*, which seems unquestionably close to *panamensis*, is not available for examination. It appears to differ from the latter form in the possession of two supraoculars instead of three or four. An examination of future series may prove this distinction worthless, for theoretically *palmeri* of Colombia is expected to show characters intermediate between those of *horrida* of Ecuador and *panamensis* of Panama, yet its supraoculars are two, as stated above, instead of three or four, as in these other species. At present, *palmeri* is known from but a single specimen, the type, in the British Museum.

ECUADOR.—Three specimens: Nos. 13402–404, collected at Paramba. These were secured from W. F. H. Rosenberg and therefore they may be regarded as topotypes.

EUSPONDYLUS Tschudi

Euspondylus TSCHUDI, 1845, 'Fauna Peruana, Herpetologie,' p. 41, (type species, *E. maculatus* Tschudi); 1845, Archiv. f. Naturgesch., XI, part 1, p. 160. BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 404.

Prionodactylus O'SHAUGHNESSY, 1881, Proc. Zool. Soc. London, p. 231, [type species, *Cercosaura* (*Prionodactylus*) *manicata* O'Shaughnessy].

The only apparent distinction advanced for the separation of the genus *Prionodactylus* from *Euspondylus* is that used by Boulenger (1885) in his key to the Teiidæ, namely, smooth dorsal scales in *Euspondylus* and keeled ones in *Prionodactylus*. Since many of the species of both presumed sections show much variation in the degree of keeling or smoothness of the dorsal scales and since certain entities, such as *ockendeni* and *vertebralis*, may show both the keeled and the smooth condition on the same or on different lizards, it seems unwise to give *Prionodactylus* further recognition. Moreover, an attempt to establish a new division of the species on different characters has failed in every instance.

In order that the taxonomy of this interesting, though confusing, group of lizards be brought up to date, both the literature and the available specimens have been carefully examined, and the results have been incorporated in the following key. The keys of Werner (1916) and Griffin (1917), including only part of the forms now assigned to the genus (*Prionodactylus*) are helpful, but based for the most part on unreliable characters, such as the number of nasal plates, the condition

of the preanals, the number of longitudinal rows of ventral plates, the condition of the chin-shields, and the presence or absence of a prefrontal suture. The examination of the series of these lizards in the collections of the American Museum, the United States National Museum, and the Museum of Comparative Zoölogy has revealed much variation in even the more reliable features, such as the number of supraoculars, the number of scales from the occiput to the base of the tail, the number of scales around the middle of the body, the number of transverse rows of ventral plates, the condition of the frontonasal, and the coloration; and it is only after much study that the writers are able to present a synopsis that will identify the material that they have examined or found in the literature. It is obvious that an examination of future collections will extend the range of variation now known for many of the species and that at such a time certain forms must be re-defined or reduced to the synonymy.

SYNOPSIS OF THE SPECIES

1. Less than 47 scales around the middle of the body ..... 3.
   More than 47 scales around the middle of the body ..... 2.
2. Three supraoculars; nasal plate usually divided (Colombia).
   E. palmeri (Boulenger).
   Four supraoculars; nasal plate usually entire (Ecuador) .. *E. strangulatus* Cope.
3. Less than 25 transverse rows of ventral plates from edge of collar to preanal shields ..... 8.
   Twenty-five or more than 25 transverse rows of ventral plates ..... 4.
4. Supraoculars two or three[1] ..... 5.
   Supraoculars four[1] (Venezuela) ..... *E. acutirostris* (Peters).
5. Twenty-seven or less than 27 transverse series of ventral plates ..... 7.
   More than 27 transverse series of ventral plates ..... 6.
6. Dorsal scales smooth; nasal plate entire (Venezuela).
   E. brevifrontalis Boulenger.
   Dorsal scales keeled; nasal plate divided (Ecuador) ... *E. ocellifer* (Werner).
7. Thirty-four or less than 34 scales around the middle of the body (Bolivia).
   E. ockendeni holmgreni (Andersson).
   More than 34 scales around the middle of the body (Ecuador).
   E. ocellifer (Werner).
8. Two or three supraoculars[1] ..... 18.
   Four supraoculars[1] ..... 9.
9. Frontonasal plate entire ..... 11.
   Frontonasal plate divided by a median longitudinal suture ..... 10.
10. More than 36 scales from the occiput to the base of the tail (Venezuela).
    E. acutirostris (Peters).
    Thirty-six or less than 36 scales from the occiput to the base of the tail (Colombia) ..... *E. argulus* (Peters).

[1] If an anterior supraocular is fused with the superciliaries so that it has a latero-anterior position, it is not to be counted here.

11. Over 31 scales around the middle of the body ..... 13.
    Thirty-one or less than 31 scales around the middle of the body ..... 12.
12. Thirty-three or more than 33 scales from the occiput to the base of the tail (southern Brazil and Bolivia) ..... *E. champsonatus* (Werner).
    Less than 33 scales from the occiput to the base of the tail (western British Guiana and eastern Venezuela) ..... *E. leucostictus* (Boulenger).
13. Forty-two or more than 42 scales around the middle of the body ..... 17.
    Less than 42 scales around the middle of the body ..... 14.
14. Nasal plate divided ..... 16.
    Nasal plate entire ..... 15.
15. Dorsal scales smooth (Ecuador) ..... *E. guentheri* (O'Shaughnessy).
    Dorsal scales weakly striated (Ecuador) ..... *E. festæ* Peracca.
16. A light vertebral stripe or streak ..... 30.
    No light vertebral stripe or streak (northern Peru and southern Ecuador) *E. maculatus* Tschudi.
17. Ventral plates in about 18 transverse series; nasal plate usually divided (Colombia) ..... *E. stenolepis* (Boulenger).
    Ventral plates in from 22 to 24 transverse series; nasal plate usually entire (Ecuador) ..... *E. strangulatus* Cope.
18. Frontonasal plate undivided ..... 23.
    Frontonasal plate divided by a median longitudinal suture ..... 19.
19. Thirty-five or more than 35 scales from the occiput to the base of the tail ..... 21.
    Less than 35 scales from the occiput to the base of the tail ..... 20.
20. Twenty-seven or less than 27 scales around the middle of the body (Colombia). *E. columbiensis* (Werner).
    More than 27 scales around the middle of the body (Ecuador and southern Colombia) ..... *E. vertebralis* (O'Shaughnessy).
21. Less than 40 scales around the middle of the body ..... 22.
    Forty or more than 40 scales around the middle of the body (Ecuador) *E. manicatus* (O'Shaughnessy).
22. Ventral plates in 21 or more than 21 transverse series (Bolivia). *E. ockendeni holmgreni* (Andersson).
    Ventral plates in less than 21 transverse series (Ecuador). *E. oshaughnessyi* (Boulenger).
23. Ventral plates arranged in 19 or more than 19 transverse series ..... 25.
    Ventral plates arranged in less than 19 transverse series ..... 24.
24. Twenty-eight or less than 28 scales around the middle of the body; 30 or less than 30 scales from the occiput to the base of the tail (south central Brazil). *E. quadrilineatus* (Bœttger).
    More than 28 scales around the middle of the body; more than 30 scales from the occiput to the base of the tail (Bolivia) ..... *E. bolivianus* (Werner).
25. Ventral plates arranged in 21 or less than 21 transverse series ..... 29.
    Ventral plates arranged in more than 21 transverse series ..... 26.
26. Thirty-six or less than 36 scales from the occiput to the base of the tail ..... 28.
    More than 36 scales from the occiput to the base of the tail ..... 27.
27. More than 33 scales around the middle of the body (Peru). *E. ockendeni ockendeni* (Boulenger).
    Thirty-three or less than 33 scales around the middle of the body (Bolivia). *E. ockendeni holmgreni* (Andersson).

28. Lower surfaces dark, usually grayish or slate-colored (Ecuador and Colombia). *E. vertebralis* (O'Shaughnessy).
Lower surfaces often light, usually yellowish or white, sometimes black spotted (Peru) ..... *E. ockendeni ockendeni* (Boulenger).

29. Thirty-one or less than 31 scales around the middle of the body ..... 32.
More than 31 scales around the middle of the body ..... 30.

30 Lower surfaces usually light, often with small black spots (Peru) ..... 31.
Lower surfaces usually dark, often grayish (Ecuador and Colombia). *E. vertebralis* (O'Shaughnessy).

31. Dorsal scales separated from ventral plates by only a few irregular rows of very small scales or none at all, upper sides covered by scales similar to the dorsals (Peru) ..... *E. ockendeni ockendeni* (Boulenger).
Dorsal scales separated from ventral plates by a wide band of small scales, upper sides covered by scales abruptly smaller than the dorsals (central Peru) ..... *E. simonsii* Boulenger.

32. Lower surfaces usually light, often pinkish or yellowish, sometimes with small black spots (Brazil, Bolivia, and Peru) ..... 33.
Lower surfaces usually dark, often grayish (Ecuador and Colombia). *E. vertebralis* O'Shaughnessy).

33. Thirty or less than 30 scales around the middle of the body ..... 34.
More than 30 scales around the middle of the body (central Peru). *E. simonsii* Boulenger.

34. Dorsal scales separated from ventral plates by only a few irregular rows of very small scales or none at all, upper sides covered by scales similar to the dorsals (southern Brazil and Bolivia) ..... *E. champsonatus* (Werner).
Dorsal scales separated from ventral plates by a wide band of small scales, upper sides covered by scales abruptly smaller than the dorsals (central Peru). *E. simonsii* Boulenger.

In order to determine the number of valid forms of *Euspondylus* before the preparation of the above key, the characteristics of the various described species were carefully charted and compared. The conclusions reached will be presented partly in the following paragraphs, and partly in the discussion under the forms in the collection of the American Museum.

A comparison of the original descriptions of *Euspondylus bolivianus* (Werner, 1899, Zool. Anz., XXII, p. 481), described from the Chaco of Bolivia, and *Prionodactylus eigenmanni* Griffin (1917, Ann. Carnegie Mus., XI, p. 316), described from Province del Sara, also in Bolivia, shows identity in all fundamental characteristics. Although *eigenmanni* was originally described without reference to the other forms in the genus, Griffin (*loc. cit.*, XI, pp. 428–429) subsequently thought that it differed from *bolivianus* in the possession of six longitudinal rows of ventral plates instead of eight. Since the size of the external rows of ventral plates is highly variable and uncertain, as the examination of a series

of almost any species of *Euspondylus* will show, this distinction is of little value. Therefore, these two lizards, inhabiting the same general area, are considered as identical.

Prionodactylus albostrigatus (Griffin, *loc. cit.*, XI, p. 314), originally described without reference to other members of the genus, and subsequently separated (by Griffin, *loc. cit.*, XI, p. 428) from *Euspondylus quadrilineatus* (Bœttger, 1876, Ber. Senckenb. Ges., p. 141) only on the character of the number of longitudinal rows of ventral plates, seems likewise unworthy of recognition. These Brazilian lizards are identical in the important details of scutellation and coloration, as are the preceding lizards, *bolivianus* and *eigenmanni*.

Euspondylus champsonatus (Werner)

Prionodactylus champsonatus Werner, 1910, Mitt. Naturhist. Mus., Hamburg, XXVII, Jahrb. Hamburg. Wiss. Anstalten, beiheft 2, p. 31, (type locality, Itapocú, District of Jaraguá, Santa Catharina, Brazil).

This form is very closely related to *quadrilineatus*, a form with which it may ultimately be united.

Diagnosis.—Three or four supraoculars; nasal plate entire or partly divided; one frontonasal; 18 to 20 transverse series of ventral plates; 31 to 37 scales from the occiput to the base of the tail; 25 to 29 scales around the middle of the body; dorsal scales more or less definitely keeled; light brown above, with or without a dark middorsal streak; a dark brown, light-edged, longitudinal band on each side of the body; lower surfaces light, often pinkish.

The specimens of *champsonatus* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
22527	Ixiamus, Bolivia	N. E. Pearson
22528, 22537–38	Rurrenabaque, Bolivia	N. E. Pearson
22529	Tumupasa, Bolivia	N. E. Pearson

In addition to the specimens listed above, the writers have examined three examples from Buenavista, Bolivia, M. C. Z. Nos. 20627–29.

Euspondylus ockendeni holmgreni (Andersson)

Prionodactylus holmgreni Andersson, 1914, Arkiv. f. Zool., IX, No. 3, p. 9, (type locality, San Fermin, northwest Bolivia).

This lizard is very closely allied to *ockendeni* of adjacent western areas in Peru, agreeing with that form in most details of coloration and scutellation.

Diagnosis.—Three supraoculars; nasal plate entire or divided; frontonasal plate entire or divided by a longitudinal suture; prefrontals separated or in contact;

from two to six posterior preanal plates in a single row; from six to ten longitudinal rows of ventral shields, depending essentially on how they are counted; 22 to 27 transverse series of ventrals; 37 to 43 scales from the occiput to the base of the tail; 28 to 33 scales around the middle of the body; seven to ten femoral pores; dorsal scales keeled or smooth, or (on some individuals) keeled posteriorly and smooth anteriorly; tranversely dilated rows of median gulars present or absent, and, if present, in either complete or incomplete series; coloration as in *ockendeni*.

BOLIVIA.—Ten specimens: Nos. 22740–41, secured by N. E. Pearson; and Nos. 38955–62, collected at Incachaca by José Steinbach.

Euspondylus ockendeni ockendeni (Boulenger)

Prionodactylus ockendeni BOULENGER, 1907, Ann. and Mag. Nat. Hist., (7) XIX, p. 486, (type locality, Carabaya, eastern Peru).

Prionodactylus spinalis BOULENGER, 1911, Ann. and Mag. Nat. Hist. (8), VII, p. 23, (type locality, Huancabamba, eastern Peru). BARBOUR AND NOBLE, 1920, Proc. U. S. Nat. Mus., LVIII, p. 614.

Barbour and Noble (1920) have shown that the type locality of Boulenger's *spinalis* is indefinite and very probably not as indicated in the original description. Since specimens from Juliaca, Peru, in the collection of the American Museum, show a range of variation which includes that attributed to both *spinalis* and *ockendeni*, it is necessary to consider them as one from. There are apparently no constant geographical differences in the Peruvian representatives of this entity and, in addition, extreme difficulty is experienced in separating these specimens from *vertebralis* of Ecuador and southern Colombia and *holmgreni* of Bolivia. The coloration is of the same type in all three species and the scutellational variation largely overlaps in at least *ockendeni* and *vertebralis*. It is very probable that these latter forms will ultimately be regarded as subspecies of each other, but in the absence of specimens from the intermediate region of northern Peru, they are maintained as full species here.

DIAGNOSIS.—Three or four supraoculars; nasal plate divided or entire; one frontonasal; three or four pairs of chin-shields; two to five posterior preanals in a single row; six to 12 longitudinal series of ventral plates; 18 to 23 transverse series of ventrals; collar scales four to nine; 33 to 46 scales from the occiput to the base of the tail; 34 to 45 scales around the middle of the body; femoral pores none to ten, averaging less in the female than in the male; dorsal scales keeled or smooth, or keeled posteriorly and smooth anteriorly; coloration highly variable; a vertebral stripe present or absent, if present, dark or light and narrow or broad; sides darker than the dorsal ground color; sides often with white, black-edged ocelli, especially in the males, but also very frequently without them; under parts usually light, but sometimes darkened or blackish, often with small black spots.

The specimens of *ockendeni* in the collection of the American Museum may be listed as follows:

Nos.	Locality
5280, 13477–80, 13483–85	Huanacabamba, Peru (topotypes of *spinalis*)
1702, 1704–06	Juliaca, near Lake Titicaca, Peru.

Euspondylus oshaughnessyi (Boulenger)

Prionodactylus oshaughnessyi BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 392, (type locality, Canelos and Pallatanga, Ecuador).

DIAGNOSIS.—Supraoculars three; nasal plate entire; two frontonasals; 17 to 19 transverse series of ventral plates; 38 to 41 scales from the occiput to the base of the tail; 33 to 37 scales around the middle of the body; three to nine femoral pores in the species, more in the male than in the female (average); dorsal scales keeled; brown above, but with a black vertebral line; a dark band and two light streaks on each side of the body; male with white, black-edged ocelli on the sides, these indistinct or absent in the female; lower surfaces light, each scale with a blackish central dot.

ECUADOR.—Five specimens: Nos. 38954, 14561–63, 23328, and 32724, all collected at Riobamba by Enrique Feyer.

Euspondylus simonsii Boulenger

Euspondylus simonsii BOULENGER, 1901, Ann. and Mag. Nat. Hist., (7) VII, p. 549, (type locality, Puntoyacu, Perené River, Peru).

DIAGNOSIS.—Three supraoculars; nasal plates divided or not divided; one frontonasal; 19 transverse series of ventral plates; 36 to 38 scales from the occiput to the base of the tail; 28 to 37 scales around the middle of the body; dorsal scales distinctly striated; a wide band of small lateral scales on each side separating the large ventral plates from the dorsals; olivaceous above; a dark vertebral stripe present or absent; a light dorso-lateral stripe present on each side, at least anteriorly, this fading with age; sides grayish; under parts light, often with small black spots; abdomen often tinted with bluish, especially laterally.

PERU.—Five specimens: Nos. 23190–91, 23193, 23216, and 23232, all secured at Penené, near the type locality, by Carlos Schunke.

Euspondylus strangulatus Cope

Euspondylus strangulatus COPE, 1868, Proc. Acad. Nat. Sci. Phila., p. 99, (type locality, Ecuador).

DIAGNOSIS.—Four supraoculars; nasal plate entire; one frontonasal; 22 to 24 transverse series of ventral plates; about 61 segments from the occiput to the base of the tail; 44 to 50 scales around the middle of the body; male with from 24 to 26 femoral pores, female with an indistinct series, or none at all; olivaceous or brownish above, with or without round darker spots; sides of body much darker, brownish, with or without a series of small ocelli or light spots; lower surfaces white or yellowish; sides of head and gular region sometimes spotted or tiger-barred.

ECUADOR.—Three specimens: A. M. N. H. No. 28881, collected at San José de Sumaco by Carlos Ollala and Sons; and M. C. Z. Nos. 8075–76, secured at Alpayaca, Rio Pastaza.

Euspondylus vertebralis (O'Shaughnessy)

Cercosaura (*Pantodactylus*) *vertebralis* O'SHAUGHNESSY, 1879, Ann. and Mag. Nat. Hist., (5) IV, p. 298, (type locality, Intac, Ecuador).

Prionodactylus vertebralis BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 394.

Prionodactylus marianus RUTHVEN, 1921, Occas. Pap. Mus. Zool. Univ. Mich., CIII, p. 1, (type locality, Medellin, Colombia).

In describing *marianus* from Colombia, Ruthven (1921) noted its apparent relationship to *vertebralis*, and stated that it could be "readily distinguished" from that form. However, he failed to give his criteria for separating the two presumed species. The present writers have examined a large series of Colombian examples of *marianus* and a charting of their characters shows them to be typical *vertebralis*. Even the coloration described for the Ecuadorian form is identical with that exhibited by these numerous Colombian examples. Therefore, it seems necessary to place *marianus* in the synonymy of the previously described *vertebralis*.

DIAGNOSIS.—Two or three supraoculars; nasal plate entire or divided; one or two frontonasals; 19 to 22 transverse series of ventral plates; 30 to 34 scales from the occiput to the base of the tail; 29 to 40 scales around the middle of the body; dorsal scales keeled or smooth, or keeled posteriorly and smooth anteriorly; coloration similar to that of *columbiensis*, *ockendeni*, and *holmgreni;* a light, grayish-blue vertebral stripe usually present above, this often bordered by a pair of dark stripes, all three stripes varying greatly in width and distinctness in the specimens examined; sides brownish or bluish gray; a dorso-lateral or lower lateral stripe often present, at least anteriorly; lower surfaces unicolor, usually slaty or blackish.

Apparently, a much higher percentage of *vertebralis* specimens shows the light vertebral stripe or streak than does that of the closely related *ockendeni*, which often has a narrow dark stripe in place of the light one. This dark stripe in the latter entity may be formed by the loss of the light one and the union of the two bordering dark lines which are usually present.

The specimens of *vertebralis* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
35313	Colombia	Nicéforo Maria
32772–73, 32775, 32758–59	Medellin, Colombia (topotypes of *Prionodactylus marianus*)	Nicéforo Maria
38950–53	Rio Negro, Colombia	Nicéforo Maria
32737–57	San Pedro, Colombia	Nicéforo Maria
32766–69	Santa Rosa de Osa, Colombia	Nicéforo Maria
35302, 32723, 32725–36	Sonson, Colombia	Nicéforo Maria

In addition to the above material, a series of paratypes of *marianus*, from San Pedro, Colombia, M. C. Z. Nos. 14651–60, have been examined.

GYMNOPHTHALMUS Merrem

SYNOPSIS OF THE SPECIES

1. Dorsal scales all perfectly smooth ..... 3.
   Dorsal scales not all perfectly smooth, at least the median ones being ridged or keeled ..... 2.
2. Fifteen scale rows around the middle of the body (from an unknown West Indian locality) ..... *G. lütkenii* Bocourt.
   Sixteen or 17 scale-rows around the middle of the body (Martinique and St. Lucia, West Indies) ..... *G. pleii* Bocourt.
3. Frontal not in contact with the frontonasal; prefrontals forming a median suture ..... 4.
   Frontal in contact with the frontonasal; prefrontals separated from each other medially (northern Argentina and Bolivia) ... *G. rubricaudus* Boulenger.
4. Back and sides without light lines, or with only a faint dorso-lateral streak on each side (western America from central Chile, northward to southern Mexico) ..... *G. lævicaudus* (Cope).
   Back and sides lined, at least a faint pair of lateral light stripes on each side (Brazil, northeastern South America and the Dutch Leeward Islands). *G. lineatus* (Linnæus).[1]

Gymnophthalmus lævicaudus (Cope)

Tretioscincus lævicaudus COPE, 1870, Proc. Amer. Philos. Soc., XI, p. 557, (type locality, Occidental Department, Nicaragua). 1871, Ann. Rept. Trustees Peabody Acad. Sci. for the years 1869 and 1870, Nos. 2 and 3, p. 80.

Epaphelus sumichrastii COPE, 1876, Journ. Acad. Nat. Sci. Phila., (2) VIII, p. 115, (type locality, Costa Rica).

Gymnophthalmus sumichrasti BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 428. GÜNTHER, 1885, 'Biol. Centr.-Amer., Reptilia and Batr.,' p. 29. RUTHVEN, 1922, Misc. Publ. Mus. Zool. Univ. Mich., VIII, p. 64. WERNER, 1925, Zeitschr. f. wiss. Zool., CXXV, p. 539.

[1]Andersson (1900) has shown that *Gymnophthalmus quadrilineatus* (Linnæus) is preoccupied by *G. lineatus* (Linnæus).

Tretioscincus lævicauda BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 426. GÜNTHER, 1885, 'Biol. Centr.-Amer., Reptilia and Batr.,' p. 29. ANDERSSON, 1918, Arkiv. f. Zool., XI, n:o 16, p. 8.

Gymnophthalmus lævicaudus COPE, 1887, Bull. U. S. Nat. Mus., XXXII, p. 46.

The systematic history of this small lizard is very interesting. The form was first described by Cope in 1870 as *Tretioscincus lævicaudus* in the Proceedings of the American Philosophical Society (p. 557), although it was again diagnosed as a new entity by the same author in 1871 in an article in the Annual Report of the Trustees of the Peabody Academy of Science for 1869 and 1870. There is no synonymy nor preoccupation of species as a result of this action, however, since the scientific designation, the description, the type locality, the type, and the collector of the type specimen are the same in both publications.

In 1876 Cope described his *Epaphelus sumichrastii* from Costa Rica as the type species of a new genus, *Epaphelus*. This genus was synonymized with the present *Gymnophthalmus* by Boulenger in 1885, who at the same time gave recognition to *Tretioscincus lævicauda*.

No distinction between *Tretioscincus lævicaudus*, as a species, and *Gymnophthalmus sumichrasti* has ever been developed; a careful examination of the original descriptions and the account of Boulenger (1885) show no reason for their retention as distinct from each other. In this connection, attention is called to the fact that Cope himself (1887, p. 46) early recognized his mistake in describing them as such and righted his error by placing *G. sumichrasti* in the synonymy of *G. lævicaudus*, which he here transferred from the genus *Tretioscincus*.[1]

In writing of *G. sumichrasti*, Ruthven (1922, p. 64) gave some interesting data in regard to the number of longitudinal scale-rows, showing that in five specimens from Colombia, one had 13, two 15, and two an "intermediate" condition, possessing either 13 or 15 rows. In regard to the latter he wrote: "In the specimens with both 13 and 15 rows an extra row is added on the sides about half-way between the fore and hind limbs." In connection with the present study, this general range of variation has been noted, and, in addition, a specimen in the collection of the United States National Museum, No. 22755, shows only 12 rows, the number given by Cope for the type of *sumichrasti*.

The variation found in the specimens of *lævicaudus* examined may be summarized as follows: nasal plate divided or undivided, (if divided, the nostril in the suture between the anterior and posterior nasals); prefrontals forming a median suture; supraoculars two, an enormous

[1]This change was noted in the Zoological Record for 1887 (XXIV, 1888, Reptilia, p. 11).

anterior one, and a small posterior one or only one, these two elements having fused; dorsal scales smooth; scale-rows around the middle of the body, 12 to 15; segments from occiput to base of tail, 31 to 40; femoral pores, three or four; back usually unicolor, but sometimes with a faint dorso-lateral streak on each side; under parts white, black or gray-spotted.

CHILE.—One specimen, No. 38816, collected by T. Hallinan at Tofo in 1917. This specimen upon careful examination does not seem to differ in any significant way from the examples of *lævicaudus* inhabiting Colombia, Venezuela, and Central America. Moreover, it shows none of the specializations described for *rubricaudus* of Argentina and Bolivia. Such constancy in specific characters seems remarkable. The characters of this specimen are as follows: nasal plate undivided; prefrontals in substantial contact with each other medially; two supraoculars, the posterior extremely minute; dorsal scales smooth; 13 scale-rows around the body; segments from the occiput to the base of the tail, 38; back blackish, unlined; lower parts whitish; tail light, possibly reddish brown; frontal small, separating fronto-parietals.

COLOMBIA.—One specimen: No. 32770, collected at Santa Rosa de Osa by Nicéforo Maria. (Body with a faint dorso-lateral streak on each side.) The writers have also examined the three co-types of this form, M. C. Z. No. 5783, from Polvon, Nicaragua.

The species, *lævicaudus* and *lineatus*, are obviously closely related. They occupy geographically adjacent ranges, as an examination of the available locality records will show, and moreover, there is no apparent scutellational or proportional difference between the two populations. Therefore, in consideration of the fact that their respective types of coloration are found to approach each other very closely in at least the intermediate region of northern South America, it seems very probable that *lævicaudus* will ultimately be regarded as at least a subspecies of the previously described *lineatus*.

IPHISA Gray

Iphisa elegans Gray

Iphisa elegans GRAY, 1851, Proc. Zool. Soc. London, p. 39, Pl. VI, fig. 3, (type locality, Pará, northern Brazil).

BRITISH GUIANA.—One specimen: A. M. N. H. No. 21294, collected at Kartabo by William Beebe.

Boulenger (1885) stated that the "Dorsal and nuchal scales form a double alternating series of 29 or 30 pairs," but in the example of *Iphisa*

elegans listed above these scales are not paired, there being 28 scutes in the left series and 29 in the right. The body scale-rows are 12, two dorsal, two ventral, and four lateral on each side, and the femoral pores (absent in the female, according to Boulenger) are ten on one side and 12 on the other.

KENTROPYX Spix

Kentropyx SPIX, 1825, 'Spec. Novæ Lacert. Brasil.,' p. 21, (type species, *K. calcaratus*).

Centropyx WIEGMANN, 1834, 'Herpetologia Mexicana,' p. 9, (emend.). BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 339.

Monoplocus GÜNTHER, 1859, Proc. Zool. Soc. London, p. 404, (type species, *M. dorsalis* Günther).

There has been considerable use of the incorrect spelling of this generic name (as "*Centropyx*") chiefly due to the fact, perhaps, that it appears with the emended spelling of Wiegmann in Boulenger's catalogue of the lizards.

A detailed discussion of the status of *Monoplocus* Günther (1859) is given above (pp. 303-304) under the discussion of *Ameiva*.

SYNOPSIS OF THE SPECIES

1. Femoral pores 12 or more on each thigh ..... 5.
   Femoral pores less than 12 ..... 2.
2. Large ventral plates in 14 to 16 longitudinal series ..... 3.
   Large ventral plates in 10 longitudinal series (Paraguay).
   K. viridistriga (Boulenger, 1894).
3. First pair of postmentals (chin-shields) in contact medially, at least anteriorly, not separated by one or more series of granules ..... 4.
   First pair of postmentals not in contact medially, separated by one or more series of granules (southern Brazil) ..... *K. paulensis* (Bœttger, 1893).
4. Enlarged dorsal scales very large, with sharp keels which form about 14 longitudinal series; keels converging posteriorly, chiefly on the tail; femoral pores usually less than 9 (northeastern South America).
   K. striatus (Daudin).
   Enlarged dorsal scales only moderate in size (noticeably larger than the lateral granules, especially posteriorly, however), with less conspicuous keels; keels convering toward the vertebral line even at the center of the body; femoral pores more than 9 (northeastern South America).
   K. intermedius (Gray).
5. Dorsal scales granular, uniform or only very slightly enlarged and graded posteriorly; posterior dorsals much smaller than caudal scutes; vertebral rows of scales juxtaposed (not overlapping) ..... 6.
   Dorsal scales noticeably enlarged on the posterior half of the body, beginning with small granules anteriorly and gradually increasing in size posteriorly so that the posterior dorsals grade into the caudal scutes; vertebral rows of scales either imbricate or juxtaposed (northeastern South America).
   K. intermedius (Gray).

6. Femoral pores more than 15 on each thigh.....7.
   Femoral pores 15 or less (Manáos, Brazil).....*K. williamsoni* Ruthven.
7. Dorsal scales keeled, at least in part (northern and western South America). *K. calcaratus* Spix.
   Dorsal scales smooth (Moyobamba, Peru).....*K. altamazonicus* (Cope).

Kentropyx calcaratus Spix

Kentropyx calcaratus Spix, 1825, 'Spec. Novæ. Lacert. Brasil.,' p. 21, (type locality, "Itapicurú, in provincia Maranhão," Brazil).

Monoplocus dorsalis Günther, 1859, Proc. Zool. Soc. London, p. 404, (type locality, western Ecuador).

Centropyx pelviceps Cope, 1868, Proc. Acad. Nat. Sci. Phila., p. 98, (type locality, Napo or Upper Amazon, Ecuador). Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 342.

?*Centropyx altamazonicus* Cope, 1876, Journ. Acad. Nat. Sci. Phila., (2) VIII, p. 162, (type locality, Moyobamba, Peru).

Centropyx dorsalis O'Shaughnessy, 1881, Proc. Zool. Soc. London, p. 228. Cope, 1885, Proc. Amer. Philos. Soc., XXIII, p. 101.

As indicated by O'Shaughnessy (1881), there is apparently no way to separate *Monoplocus dorsalis* from *Kentropyx pelviceps*. Discussion pertaining to the status of *Monoplocus* is given above (pp. 303-304) under *Ameiva*, and this may be consulted for further information.

Kentropyx calcaratus was listed from British Guiana and Peru by Boulenger (1885), while *pelviceps* was given from Ecuador and northern Peru, so there is no obvious difference in the general range of the two forms.

Both *calcaratus* and *pelviceps* were assigned to the same section of the genus by Boulenger, who admitted their "very close" relationship and separated them as follows:

"The femoral scales which touch the row of femoral pores anteriorly hardly as large as the median gulars.....*calcaratus*.
These scales larger than the median gulars.....*pelviceps*."

An examination of these femoral scales shows that their size is variable in either sex, and that, on the whole, they are comparatively larger in adult males than in the adult females and young. Comparison of individuals from different parts of the range does not reveal a diagnostic difference in this respect as in others. The occipital concavity was thought to be stronger in *pelviceps*, but here again it is stronger in the old males, and weak or even absent in the females and young. In fact, some fairly large females show the head plane described for *williamsoni* and presumed (by Ruthven, 1929) to separate it from both *calcaratus* and *pelviceps*. Moreover, there is no difference in the number of femoral pores in specimens from different regions, the number varying

from 16 to 22 in the series listed below with high counts coming from British Guiana as well as from Ecuador, or in the keeling of the scales of the preanal region. In regard to the latter point, it may be said that females with rather smooth preanal scales occur in British Guiana (A. M. N. H. No. 21328), as well as in Ecuador (A. M. N. H. No. 14557), and that in both places the males have strongly keeled preanal plates. Therefore, it does not seem advisable to retain the two forms longer as distinct from each other.

Cope's *altamazonicus* is very closely allied to this form and will probably be found to be synonymous with it. The type specimen, the only representative known, was young, measuring only 40 mm. from the snout to the vent, and an examination of young and adults of *calcaratus* shows that the keels on the dorsal scales are weak and sometimes absent on part of the scutes in the young, and usually strongly developed in large adults (particularly in the males). Therefore, the smooth dorsal scales of *altamazonicus* may prove to be valueless in separating it from *calcaratus*, thus making it imperative to find new diagnostic characters or relegate it to the synonym of that form.

It may be remarked here that the first pair of postmental plates in *calcaratus* may be in contact medially for a varying distance, or entirely separated by granules. This raises the question as to the advisability of using this character in the differentiation of one species of *Kentropyx* from another.

The collection of *calcaratus* in the American Museum may be listed as follows:

Nos.	Locality	Collector
37553	Bahia, Brazil	R. H. Beck
21277–78	Bartica District, British Guiana	William Beebe
25104, 25109	Itaki Falls, British Guiana	W. S. Lang and W. J. La Varre
37465, 8489, 8508, 8562–63	Georgetown, British Guiana	William Beebe
25064–68, 25090, 25108, 25110–12	Kamakusa, British Guiana	W. S. Lang and W. J. La Varre
18186, 21258, 21327–28	Kartabo, British Guiana	William Beebe
38601	Mahaica, British Guiana	William Beebe
25105–107	Papika Rapids, British Guiana	W. S. Lang and W. J. La Varre

Nos.	Locality	Collector
37850	Between Baños and Canelos, Ecuador	Enrique Feyer
14556–57	Riobamba, Ecuador	Enrique Feyer
28864–65	San José de Sumaco, Ecuador	Carlos Ollala
5253	Yuhuarmayo, Peru	
36635	6 miles north of Esmeralda, Venezuela	Tyler-Duida Exp.
36660	10 miles north of Esmeralda, Venezuela	Tyler-Duida Exp.
36647	Savana Hills, 20 miles north of Esmeralda, Venezuela	Tyler-Duida Exp.

Kentropyx intermedius (Gray)

Teius (*Centropyx*) *intermedius* GRAY, 1831, 'Synops. Reptilia,' in Griffith's 'Cuvier's Animal Kingdom,' p. 31, (type locality, Surinam).

Centropyx intermedius BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 340.

Centropyx copii GARMAN, 1887, Bull. Essex Inst., XIX, p. 2, (n.n.).

Gastropholis mertensi DE GRIJS, 1926, Mitt. Zool. Staatinst. Hamburg, XLII, p. 37, (type locality, Wari, Nigerdelta, Africa, in error).

Mertens (1928, p. 227) is followed in regarding *Gastropholis mertensi* De Grijs (1926), based on a specimen supposedly from Africa, as synonymous with the common *Kentropyx intermedius* of northern South America.

From the original description, it is impossible to ascertain whether *Kentropyx intermedius* (Gray, 1831) should be given recognition as a distinct entity, or included in the synonymy of *calcaratus*. Furthermore, as Garman (1887) has shown, *intermedius* was actually placed in the synonymy of the previously described *calcaratus* by Gray in 1845. Yet, Boulenger (1885) and Barbour (1914) have retained *intermedius* for the lizards which fit the conception of the species as set forth in the above key. If the type of *intermedius* (said in 1831 to have been in the Leyden Museum) is still extant, the true status of the species may be readily determined by a re-examination of this specimen, but if the type is lost, a step toward systematic stability will be made by the retention of the species as defined by Boulenger (1885) and given here. In case *intermedius* is found to be synonymous with *calcaratus*, the name *copii*, proposed by Garman in 1887, will still be available for the present form.

BRITISH GUIANA.—Eleven specimens: Nos. 37450–51, collected in the Bartica District by William Beebe; No. 37900 from Demerara; and Nos. 37457–64, secured at Georgetown by William Beebe.

Kentropyx striatus (Daudin)

Lacerta striata Daudin, 1802, 'Hist. Nat. des Reptiles.' III, p. 247, (type locality, Surinam).

Centropyx striatus Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 340.

Dutch Guiana.—One specimen: No. 37478, collected by J. A. Samuels.

Venezuela.—One specimen: No. 37880, secured at Paulo, Mount Roraima, by G . H. H. Tate.

Leposoma Spix

Leposoma Spix, 1825, 'Spec. Novæ. Lacert. Brasil.,' p. 24, (type species, *L. scincoides* Spix).

Hylosaurus Müller, 1923, Zool. Anz., LVII, p. 145, (type species, *H. percarinatus* Müller.

A charting and comparison of the original diagnoses of the two genera listed in the above synonymy has convinced the writers that they should be united under one head. The second genus listed, *Hylosaurus* Müller (1923), here considered as a synonym, is apparently preoccupied by *Hylosaurus* Fitzinger (1843, p. 53), an emendation for *Hylæosaurus* Mantell (1832, Proc. Geol. Soc. London, I, p. 411), the name applied to a genus of fossil reptiles.

Diagnosis.—Tongue moderately elongate, arrow-headed; lateral teeth longitudinally compressed, bi- or tri-cuspid; head with large regular shields, these usually somewhat striated or roughened; a large frontonasal separating the nasals; prefrontals and frontoparietals present; nostril pierced in the middle of a single nasal; eyelids developed, lower with a transparent disk composed of several scales; ear exposed; limbs well developed, pentadactyl, clawed, the inner digit somewhat reduced; scales of the body, above and beneath, subequal, lanceolate-hexagonal, strongly keeled, imbricate; dorsal scales arranged in transverse and oblique rows; ventral plates arranged in regular transverse and longitudinal series; a recognizable collar fold; tail subcylindrical.

Remarks.—This genus appears to be closely related to *Pantodactylus* from which it differs chiefly in having keeled, instead of smooth, ventral plates.

The radical lumping of 27 species under this head by Cope (1885) seems entirely unwarranted in view of the distinctive variations presented by the lizards concerned. It is hoped that the following table, indicating the present status of these forms, will prove helpful to herpetologists.

The species of *Leposoma* as listed by Cope (1885, pp. 97–98)	Present designation
L. scincoides Spix	*Leposoma scincoides* Spix
L. carinicaudatum Cope	*Pantodactylus carinicaudatus* (Cope)
L. rugiceps Cope	*Pantodactylus rugiceps* Cope
L. dispar Peters	*Leposoma dispar* Peters
L. buckleyi O'Shaughnessy	*Pantodactylus buckleyi buckleyi* (O'Shaughnessy)
L. ocellatum Wagler	*Cercosaura ocellata* Wagler
L. humile Peters	*Cercosaura ocellata* Wagler
L. reticulatum O'Shaughnessy	*Arthrosaura reticulata* (O'Shaughnessy)
L. picticeps Cope	*Ptychoglossus picticeps* (Cope)
L. vertebrale O'Shaughnessy	*Euspondylus vertebralis* (O'Shaughnessy)
L. schreibersii Wiegmann	*Pantodactylus schreibersii* (Wiegmann)
L. bivittatum Cope	*Pantodactylus schreibersii* (Wiegmann)
L. concolor Tschudi	*Arthrosaura concolor* (Tschudi)
L. argulus Peters	*Euspondylus argulus* (Peters)
L. gaudichaudi Duméril et Bibron	*Ecpleopus gaudichaudii* Duméril and Bibron
L. affinis Peters	*Ecpleopus affinis* (Peters)
L. maculatum Tschudi	*Euspondylus maculatus* (Tschudi)
L. rhombiferum Günther	*Anadia rhombifera* (Günther)
L. acutirostre Peters	*Euspondylus acutirostris* (Peters)
L. ocellatum Gray	*Anadia ocellata* Gray
L. strangulatum Cope	*Euspondylus strangulatus* (Cope)
L. guentheri O'Shaughnessy	*Euspondylus guentheri* (O'Shaughnessy)
L. olivaceum Gray	*Argalia marmorata* Gray
L. marmoratum Gray	*Argalia marmorata* Gray
L. pœcilochilus Lichtenstein	*Argalia marmorata* Gray
L. metallicum Cope	*Anadia metallica* (Cope)
L. bogotense Peters	*Anadia bogotensis* (Peters)

SYNOPSIS OF THE SPECIES

1. More than 32 scales from the occiput to the base of the tail.....2.
   Thirty-two or less than 32 scales from the occiput to the base of the tail (Colombia, northward to Costa Rica).....*L. dispar* Peters.
2. Twenty-five or more than 25 scales around the middle of the body (northern Brazil, British Guiana and Venezuela).....*L. percarinatum* (Müller).
   Less than 25 scales around the middle of the body (Brazil)..*L. scincoides* Spix.

The comparison of examples of *Leposoma* from Colombia and Panama fails to reveal any constant diagnostic differences between the populations of the two areas, so it becomes necessary to relegate the Panaman *L. southi* Ruthven and Gaige (1924, Occas. Pap. Mus. Zool. Univ. Mich., CXLVII, p. 1) to the synonymy of the previously described Colombian *L. dispar* Peters (1880, Monatsbr. Berlin Acad. Wiss., pp. 217 and 309). Although *southi* was thought to "differ widely from the

hitherto known species" of *Leposoma* by its describers, the only distinction mentioned to separate it from the other members of the genus was the statement that the scales from the eye to the shoulder are rougher in *southi* than in *dispar*, but it is found that there is no actual break in this regard, individual, age, and probably sexual variation being evident.

The variation in the Colombian examples may be summarized as follows (M. C. Z. Nos. 16836–37, from Las Pavas, Santa Marta Mountains): head shields roughened posteriorly; four supraoculars; 26 to 29 segments from the occiput to the base of the tail; 22 to 24 scales around the middle of the body; four pairs of chin-shields, all in contact medially (No. 16836), or three pairs of chin-shields, two pairs in contact medially (No. 16837); nine to 11 transverse series of gular scales; 22 to 24 transverse rows of ventral plates.

In the type specimen of *dispar*, a Colombian lizard, there were four pairs of chin-shields, but only three pairs were in contact medially.

The variation in two specimens from Panama (M. C. Z. No. 18915, a paratype of *southi* from Progreso, Chiriqui Province; and M. C. Z. No. 22298, an example from Barro Colorado Island) may be summarized thus: head shields roughened posteriorly; four supraoculars; 28 to 31 scales from the occiput to the base of the tail; 21 to 23 scales around the middle of the body; three pairs of chin-shields, the two anterior pairs in contact medially; nine to 11 transverse rows of gular plates; 20 to 23 transverse series of ventral scutes.

Two individuals from Suretka, Costa Rica (M. C. Z. Nos. 18916–17) show the following variation: head shields roughened posteriorly; four supraoculars; 27 to 28 scales from the occiput to the base of the tail; 19 to 20 scales around the middle of the body; two or three pairs of chin-shields, the two anterior pairs in contact medially; seven to nine transverse rows of gular plates, and 23 transverse series of ventral scutes.

Upon considering these data geographically we find that there is no significant variation in the keeling of the cephalic plates, the number of supraoculars, the number of scales from the occiput to the base of the tail, the number of transverse rows of gular plates, or in the number of transverse series of ventral scutes. However, there is an indication of a progressive tendency toward the reduction of the number of rows of scales around the middle of the body in the more northern specimens, particularly in the two Costa Rican representatives. There may also be an evolutionary trend toward the reduction of the number of chin-shields in the north, but the overlap is complete in this case, examples with three pairs being found in Costa Rica, Panama, and Colombia.

As the problem now stands, there is no way to separate the examples from Panama from those in Colombia and the two known Costa Rican specimens show only one or two less scales in a count around the middle of the body than do certain of these lizards from Panama and Colombia. Therefore, it does not seem advisable to describe them as a new form, since additional material from Costa Rica is fairly certain to reveal a greater range of variation in this regard as in others.

Leposoma percarinatum (Müller)

Hylosaurus percarinatus MÜLLER, 1923, Zool. Anz., LVII, p. 146, (type locality, Peixeboi, State of Pará, northeastern Brazil).

Leposoma tæniata NOBLE, 1923, Zoologica, III, No. 15, p. 303, (type locality, Kartabo, British Guiana).

Hylosaurus muelleri MERTENS, 1925, Senckenbergiana, VII, p. 76, (type locality, Inirida River, southern Venezuela).

A charting of the characteristics given for the three species listed in the above synonymy shows that they agree very closely in the fundamental details listed below in the diagnosis. As indicated by Boulenger (1885), the teeth of *Leposoma* may be either bi- or tri-cuspid. Likewise, the number of scales in the collar depends not only on the method of counting, but also upon the size of the lizard, the larger lizards tending to have more "large" collar-scales than the small ones.

Hylosaurus percarinatus Müller (1923) was described on August 28, so, upon the union of the two forms, it takes precedence over *Leposoma tæniata* Noble (1923), which was described thirteen days later (on September 10).

DIAGNOSIS.—Four supraoculars; upper head shields rough; three pairs of large chin-shields, the first two in contact medially; from 25 to 29 scales around the middle of the body; 35 to 39 scales from the occiput to the base of the tail; 34 to 40 transverse ventral and gular scales; 24 or 25 scutes from the collar to the preanal plates; no black spotting on the dorsal surface, sometimes some brownish and yellowish reticulations or flecks; upper surfaces light yellowish brown; each side with a pronounced dark brown longitudinal band; young with a rather distinct dorso-lateral streak on each side, this reduced or absent in the adult; lower surfaces white or yellowish.

BRITISH GUIANA.—Seven specimens: Nos. 25082–83, taken at Kamakusa by W. S. Lang and W. J. La Varre; No. 21266, the type specimen of *Leposoma tæniata* Noble (1923), secured at Kartabo by William Beebe; and Nos. 21260, 21263, and 21267–68, four paratypes of *L. tæniata*, with the same data as the type.

VENEZUELA.—Two specimens: No. 39320, 12 miles north of Esmeralda; and No. 36637, collected near the Rio Pescada, Mt. Duida, by members of the Tyler-Duida Expedition. The frontal plate of this

specimen is six-sided, instead of "8-eckig," the aberrant condition emphasized in the diagnosis of the recently described *Hylosaurus muelleri* Mertens (1925), which was likewise listed from southern Venezuela.

Leposoma percarinatum is not preoccupied by *Alopoglossus venezolanus* Bœttger (Ber. Senck. Nat. Ges., 1896, p. liv), a *nomen nudum* which Mertens (1925) thought synonymous with his *Hylosaurus muelleri*, because of the obvious applicability of Article 25 of the 'International Rules of Zoölogical Nomenclature,' although, if *venezolanus* had been accompanied by a description, the name would have to be applied to the species under discussion, no doubt.

MACROPHOLIDUS Noble

Macropholidus ruthveni Noble

Macropholidus ruthveni NOBLE, 1921, Ann. N. Y. Acad. Sci., XXIX, p. 137, (type locality, the cordillera forming the boundary between the departments of Piura and Cajamarca, northwestern Peru).

The small toe on the hind foot of this species is rudimentary and often with only a trace of a claw. In this way it approaches the teiids in which the finger, if distinct, is clawless.

PERU.—Two paratypes: Nos. 38817–18, collected at Coucumayo by G. K. Noble.

NEUSTICURUS Duméril and Bibron

The few species of this genus are in great systematic confusion and the authors, without representatives of *N. bicarinatus*, a form as yet inadequately described, are unable to construct a key to the group. *N. bicarinatus* was described by Linnæus from the "South American Islands and India," but qualified by Boulenger (1885) to fit the representative of *Neusticurus* in the interior of Brazil. It seems significant that this intermediately distributed species may approach or show the characters of either *ocellatus*, *ecpleopus*, or *rudis*.

Neusticurus ecpleopus cochranæ,[1] new subspecies

DIAGNOSIS.—This form is a northern derivative of *ecpleopus*, with which it intergrades through an intermediate population in central Ecuador. However, all specimens at hand may be placed by the following key to the subspecies of *ecpleopus:*

1. Paired median series of longitudinal dorsal keels continuous or nearly so; the large scutes bearing these keels juxtaposed or imbricate, seldom entirely surrounded by granules.....2.

[1]Named for our friend, Doris M. Cochran, of the Division of Reptiles, United States National Museum.

Paired median series of longitudinal dorsal keels more or less irregular, seldom continuous; the large scutes bearing these keels usually entirely surrounded by granules, seldom juxtaposed or imbricate (Bolivia, and southern and central Peru)..... *N. ecpleopus ocellatus* (Sinitsin).

2. Lateral scales of contrasting sizes (some granular, smooth and inconspicuous, others larger, keeled or strongly tubercular, and conspicuous); femoral pores of male more than 14; tail usually distinctly bicarinate superiorly (always in the males) (northern Peru, and southern and central Ecuador). *N. ecpleopus ecpleopus* (Cope).

Lateral scales not of contrasting sizes, granular, without strongly tubercular or keeled units; femoral pores of male 14 or less; tail not definitely bicarinate superiorly (northern Ecuador)..... *N. ecpleopus cochranæ*, new subspecies.

TYPE SPECIMEN.—A. M. N. H. No. 28891; San José de Sumaco, Ecuador; Carlos Ollala and Sons, collectors; an adult male.

DISTRIBUTION.—Ecuador, in the area northeast of Riobamba.

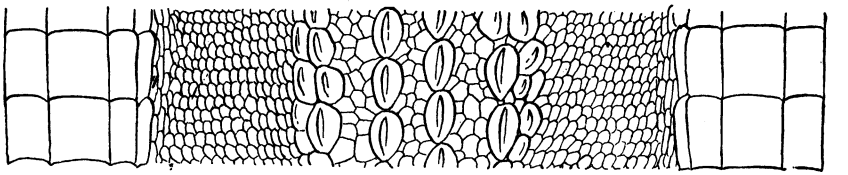


Fig. 9. *Neusticurus ecpleopus cochranæ*, new subspecies.

Cross-section of the scales at the middle of the body. Note the longitudinal contact of the large dorsal scales and the absence of scutes of contrasting sizes at the sides of the body.

DESCRIPTION OF THE TYPE SPECIMEN.—Head elongate, about twice as long as broad; most of rostral visible from above; nostril pierced in a single large, subtriangular nasal plate; loreal present; inferior and lateral borders of orbit bordered by eight large plates, a few smaller ones, and an inner series of small granules; orbit normal, eyelids developed; ciliaries nine or ten; superciliaries six or seven, not of uniform size; supraoculars four; nasals separated by a large four-sided frontonasal, the latter broader posteriorly than anteriorly; prefrontals three, the median triangular, acutely pointed behind, about one-third as large as the other two; frontal apparently aberrant, composed of three pieces; the large anterior section of the frontal with two short, oblique sutures in front; postfrontals two, wedged in between the two large frontoparietals and the large anterior frontal mentioned above; no granules separating the supraoculars from the large median head plates; parietals three, of about the same size, bordered posteriorly by six large occipitals; four large upper labials to below center of eye; large lower labials also four; teeth longitudinally compressed or conical, the lateral bi- or tricuspid. Ear opening large, tympanum exposed. Throat with a strong median groove; mental plate with an incomplete median longitudinal suture, a continuation of this groove; four or five pairs of large sublabials, the third very large and the last pair in contact medially; anterior gular scales large, irregular; posterior gulars also large, but showing a transverse arrangement; a definite transverse collar fold present; collar with six large plates, these separated from the large ventral scutes by granules.

Body slender; back showing four series of enlarged, keeled, longitudinally juxtaposed plates; these series separated from each other by several rows of smooth, irregularly arranged granules; outer series of enlarged dorsal plates separated from the large ventral plates by many small, smooth, flattened granules, none of which are strongly enlarged or tubercular; ventral plates in 20 transverse and eight longitudinal series, the outer longitudinal series reduced in size; large preanal shields in two rows, three units behind and two in front. Tail with only a few granules, these present only anteriorly and dorsally, similar to those on the back; most of the caudal scutes large, smooth inferiorly, weakly keeled dorsally; caudal bicarination absent. Limbs slender, pentadactyl; digits elongate, with short compressed claws; large brachials in about six rows, keeled, scarcely continuous with antebrachials; antebrachials in three or four series; femorals smooth or weakly keeled, in six or seven rows; tibials in two or three series; femoral pores 12 on each thigh.

Coloration dull; back and sides brownish; head and throat much lighter, tan or straw-colored; ventral surfaces of body yellowish; an indistinct white streak from back of eye to shoulder, soon breaking into a short series of obscure white spots; sides with about five or six pairs of small black spots, most of which do not show white centers, the posterior three distinct, the others obscure.

MEASUREMENTS OF THE TYPE SPECIMEN.—Distance from snout to anus, 69 mm.; tail (incomplete), 102 mm.; total length, over 171 mm.; fore limb, 29 mm.; hind limb, 38 mm.; tip of snout to collar fold, 28 mm.; tip of snout to anterior border of ear opening, 17 mm.; tip of snout to base of large occipitals, 17 mm.; tip of snout to anterior border of orbit, 7 mm.; and width of head, 10 mm.

PARATYPES.—Ecuador: two specimens, No. 38814, collected at Mera by G. H. H. Tate; and No. 28868, secured at San José de Sumaco by Carlos Ollala and Sons.

VARIATION.—Both of the paratypes are females. These show from none to two preanal pores on either side and possess the small lateral granules characteristic of the present form. Also, both have large frontoparietals that are in direct contact with a single large frontal, the "postfrontals" present in the type as accessory units being absent. The general appearance of the example from the type locality is like that of the type, but the representative from Mera is uniform dark brown in color, without evident dark spots on the sides. The latter specimen has sharper keels on the back, but even then does not have a superior caudal bicarination. Both paratypes, instead of exhibiting a unicolored ventral surface as in the type, have the under parts spotted or blotched with dark brown areas.

AFFINITIES.—The new form, *cochranæ*, is a northwestern derivative from the *Neusticurus* stock, and a direct off-shoot from *N. ecpleopus ecpleopus*. It is apparently the most specialized form in the genus, showing a loss of the presumably "primitive" bicarinate condition of the tail (argument in support of this view will be presented in the senior author's forthcoming revision of the genus *Cnemidophorus*), a notable reduction in the number of femoral pores in both sexes, and other modifications. Thus, it serves as a link between *Neusticurus*, which here shows a minimum of 12 femoral pores in the male and none in the female, and *Echinosaura* (likewise without a caudal bicarination) which has a maximum of eight femoral pores in the male and none in the female. Thus, *Echinosaura* appears to be a northern relative of *Neusticurus*, as shown by its range and these characteristics, being directly derived in the area known as northern Ecuador.

Neusticurus ecpleopus ecpleopus (Cope)

Neusticurus ecpleopus COPE, 1876, Journ. Acad. Nat. Sci. Phila., (2) VIII, p. 161, (type locality, Peru).

This form was described by Cope in a paper on Peruvian reptiles, and although no locality was mentioned in the original description, it is probable that the type was collected in northern Peru as were most of the specimens reported.

All of the specimens listed below were collected in southern and central Ecuador. Their variation may be summarized as follows: femoral pores in the males, 15 to 21; preanal pores in the females, two to four; enlarged back tubercules more or less definitely arranged in transverse rows, numbering from about 12 to about 16 in a transverse series at the middle of the body; lateral granules and tubercules smaller than dorsal granules and tubercules; lateral tubercules and enlarged scales very irregularly placed as a rule, although at times forming more or less

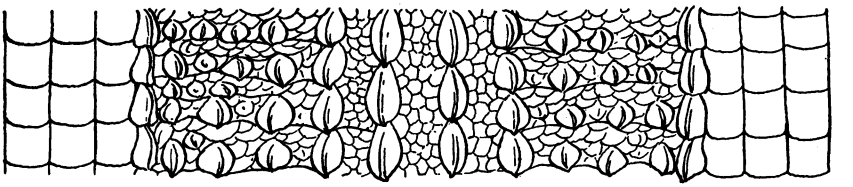


Fig. 10. *Neusticurus ecpleopus ecpleopus* (Cope).
Cross-section of the scales at the middle of the body. Note the longitudinal contact of the large dorsal scales and the presence of large and small scales at the side of the body.

definite longitudinal series; supraoculars four; collar scales six or eight; frontonasal usually divided by a longitudinal suture, but sometimes incompletely divided or entire; large ventral plates in from 19 to 23 transverse series and from six to eight longitudinal series, if eight are counted, the outer pair reduced in size; caudal keels or ridges in an anterior segment about ten or 12, the superior two forming a distinct bicarination, excepting in the northernmost females which are approaching *cochranæ* in which this feature is inconspicuous, or even absent; the caudal bicarination separated by from three to six granules, these irregularly distributed; head plates often showing abnormalities, both by fusion and splitting, or by a combination of both.

There is a marked sexual dimorphism in this form, the males having femoral pores, the females preanal pores. The latter are in reality the rudiment of a chain of femoral pores, being the anterior or inner few remaining from its reduction. Moreover, the spots on the sides of the body,

consisting of conspicuous black-edged white areas, when fully developed in the male, are reduced in number or absent in the female. There are from three to four of these ocelli in the males. The abdominal region of the males was found to be either blackish or light colored, while in the females it was always light. The female tends to show a dorso-lateral light streak from the posterior border of the eye to the shoulder, this breaking posteriorly into spots, whereas in the males this marking is absent, excepting in the young which have a more or less distinct, widened light mid-dorsal band which is in contrast with the dark ground color of the sides.

The specimens of *ecpleopus* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
38813	Abitagua, Oriente, Ecuador	Enrique Feyer
24145	Baños, Ecuador	Enrique Feyer
14563–72	Riobamba, Ecuador	Enrique Feyer
28806, 28882, 28890, 28899	Region south of San José de Sumaco, Ecuador	Carlos Ollala and Sons

Neusticurus ecpleopus ocellatus (Sinitsin)

Neusticurus ocellatus Sinitsin, 1930, Amer. Mus. Novitates, No. 408, p. 1, (type locality, Rurrenabaque, Bolivia).

This lizard, recently diagnosed by Sinitsin (1930), is found to be a subspecies of *ecpleopus*, and is apparently separable on the characters pointed out in the above key to the subspecies of that form (see p. 350). Since the original description was very brief, it seems best to present a detailed treatment of *ocellatus* in the present work.

Description of the Type Specimen.—Head elongate, less than twice as long as broad; rostral visible from above; nostril in an anterior nasal plate; posterior nasal forming an incomplete suture with the anterior nasal; a large loreal present; two anterior and three posterior suboculars, the series divided by the upper part of an enlarged fourth upper labial; orbit normal, eyelids developed; superciliaries four or five, not of uniform size; supraoculars four; nasals separated by a large frontonasal, which is cleft anteriorly by a short, incomplete median suture; prefrontals two; frontal large, entire; large frontoparietals two, a small granule split from right unit to form a wedge between this frontoparietal and the frontal; no granules between the supraoculars and the large median head plates; a large median interparietal present; external parietals three or more in number on each side, irregular, scarcely separable from the small temporals and occipitals; four large upper labials to below center of eye; large lower labials also four; lateral teeth longitudinally compressed, anterior

teeth conical. Ear opening large; tympanum exposed, prominent. Throat with a strong median groove anteriorly, this groove continued forward into the posterior border of the second, unpaired mental (the postmental); four or five pairs of large sublabials, only the anterior two in contact medially, the third, fourth, and fifth pairs being separated by the anterior gular scales which are large and more or less definitely arranged in transverse rows; anterior gulars largest medio-laterally, smaller medially and laterally; posterior gulars less prominent than anterior gulars, with two strongly enlarged median rows, lateral ones smaller; transverse collar with six large plates, these separated from the large ventral scutes by granules.

Body slender; back showing many irregularly arranged, enlarged keeled plates, these surrounded in most instances by small, smooth, granular scales; both enlarged and small scutes of the back showing a definite transverse arrangement, those on the sides smaller but of essentially the same nature as those on the middle of the back; ventral scales in about 21 transverse rows and in eight longitudinal series, the outer pair reduced in size. Tail with from two to three series of irregularly placed granules between a definite superior bicarination; each caudal segment composed of large smooth plates inferiorly, and of smaller, keeled or tuberculate ones laterally and latero-superiorly. Limbs slender, pentadactyl; digits elongate, with short, strongly compressed claws; large brachials smooth, in five or six rows, more or less definitely

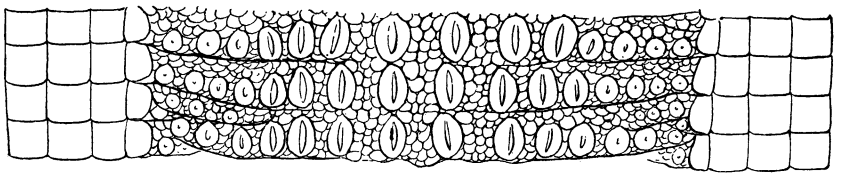


Fig. 11. *Neusticurus ecpleopus ocellatus* (Sinitsin).
Cross-section of the scales at the middle of the body. Note the isolation of the large dorsal scales.

continuous with the antebrachials at a point of contact; antebrachials numerous, scarcely differentiated from the post-antebrachials; femorals smooth or weakly keeled, in seven or eight rows; tibials in two or three series; femoral pores 20 on one thigh and 21 on the other.•

VARIATION.—There are 54 paratypes of *ocellatus* in the collection of The American Museum of Natural History. The variation exhibited by these specimens may be summarized as follows: femoral pores in the males, 20 to 26; preanal pores in the females, one to three; enlarged back tubercules arranged in transverse rows, numbering from about 12 to about 16 in a segment at the middle of the body; lateral granules and tubercules smaller than dorsal granules and tubercules, sometimes much smaller, and often more or less irregularly arranged, seldom forming definite longitudinal series; supraoculars normally four, but sometimes five or six, in which case, the additional ones are irregular, usually formed by longitudinal sutures instead of transverse ones; collar scales four to eight, the number of prominent ones increasing with the age of the individual; frontonasal usually divided by a longitudinal suture, but sometimes incompletely divided or entire; large ventral plates in 20 to 24 transverse series and in from six to eight longitudinal rows, if eight are counted, the outer pair reduced in size; caudal ridges in an anterior segment from ten to 16 in the male, and from six

to 12 in the the female, the superior two nearly always forming a distinct caudal bicarination, the ridges of this feature separated by from two to six granules anteriorly, by less distally; head plates often showing abnormalities, either by fusion or by splitting, or by a combination of both.

The female of *ocellatus* tends to show a distinct dorso-lateral streak on each side, extending from just behind the orbit to the shoulder or beyond, this breaking up into a series of spots posteriorly. The young male may also show an indication of this marking, but it is absent in the adult males. The white, black-edged ocelli on the sides are very distinct in the male, in which there are usually five or six, but the female generally has only one or two of these markings, or none at all. Moreover, the belly of all of the females examined was light in color, whereas in the males it was either light or dark-spotted.

BOLIVIA.—One specimen, No. 22512, collected at Rurrenabaque by N. E. Pearson in October, 1921. This example serves as the type of *N. ocellatus* Sinitsin (1930).

PERU.—Fifty-four specimens: Nos. 23162–82, taken at Chanchamayo by Carlos Schunke; and Nos. 23155–60, 23183–84, 23187, 23189, 23199, 23201–02, 23204, 23206, 23208, 23211, 23214–15, 23226, 23229, 23231, and 23234–44, secured at Perené by Carlos Schunke. All of these individuals serve as paratypes of *N. ocellatus*.

Neusticurus rudis Boulenger

Neusticurus rudis BOULENGER, 1900, Trans. Linnæan Soc. London, (2) VIII, Zool., p. 53, (type locality, "foot of Mt. Roraima").

Without further material it is not possible to determine the status of *N. surinamensis* Müller (1923) and *N. dejongi* Brongersma (1927), both of which were described from Dutch Guiana (Surinam), or of *N. rudis* Boulenger (1900), described from Mount Roraima on the border between western British Guiana and Venezuela. Furthermore, the Linnæan *N. bicarinatus* may prove identical with one or more of these recent forms. Each of the species mentioned here, with the exception of *dejongi*, has been described without reference to the other two and they have, therefore, never been definitely and thoroughly diagnosed. The key presented by Brongersma (1927, p. 545) is clearly based, for the most part, on characters that are often variable and unreliable in other small teiids, so it may be found to be unusable when series are examined.

The specimens listed below are females with very minute, obsolescent femoral pores. The tail of each is bicarinate superiorly and the frontonasal is divided by a median longitudinal suture.

BRITISH GUIANA.—Two specimens: No. 25069, collected at Kamakusa by W. J. La Varre; and No. 21259, secured at Kartabo by William Beebe.

OPHIOGNOMON Cope

This genus is very closely allied to *Bachia*, from which it is specialized in the loss of the frontonasal.

Ophiognomon abendrothii (Peters)

Chalcides (Hapalolepis) abendrothii PETERS, 1871, Monatsbr. Berlin Akad. Wiss., p. 399, (type locality, Sarayacu, Ecuador).

Ophiognomon abendrothii BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 421.

The two specimens listed below agree more closely with *abendrothii* than *trisanale*, although certain intermediate features are shown. Subsequent specimens may show the two forms to be identical, or subspecifically allied. The variation in the examples at hand may be summarized as follows: dorsal scutes hexagonal, weakly imbricate; supraoculars absent; superciliaries two; an upper labial in contact with the parietal on each side; one pair of chin-shields in contact medially; the outer border of the second pair of chin-shields forming continuous sutures with the lower labials, not reaching the oral border; longitudinal body scales in from 24 to 28 series; transverse body segments 46 to 48; fore limb with three or four weakly pronounced digits; hind limb present, reduced to a minute tubercule, but still almost half as long as the preanal plates.

ECUADOR.—Two specimens: No. 38809, taken at Macas, western part; and No. 14574, found at Riobamba; both collected by Enrique Feyer.

PANTODACTYLUS Duméril and Bibron

Pantodactylus DUMÉRIL AND BIBRON, 1839, 'Erp. Gen.,' V, p. 428, (type species, *P. dorbignyi* Duméril et Bibron = *Cercosaura schreibersii* Wiegmann).

Loxopholis COPE, 1868, Proc. Acad. Nat. Sci. Phila., p. 305, (type species, *L. rugiceps* Cope).

Alopoglossus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 383, (type species, *Leposoma buckleyi* O'Shaughnessy).

Peracca (1894) has shown that a specimen from Paraguay shows the oblique plicæ on the posterior part of the tongue that Boulenger (1885) considered as characteristic of his *Alopoglossus*, but the imbricate scales attributed to the rest of the small teiids are present on the anterior half. The examination of additional tongues shows that the lingual papillæ may be imbricate or juxtaposed, so that there is really no essential or diagnostic difference in this type of character. Therefore, *Alopoglossus* is to be considered as a synonym of *Pantodactylus*.

The comparison of specimens of *Pantodactylus copii* (M. C. Z. No. 25916) with examples of *Loxophilis rugiceps*, a species not examined by

Boulenger (1885) who gave recognition to the genus *Loxopholis*, shows no more than specific variation between the two. The collar fold is very weak in *copii* and, although said to be absent in *rugiceps* (genus *Loxopholis*), it is discernible in the latter species as well (M. C. Z. Nos. 16834–35). Therefore, *Loxopholis* cannot be recognized as distinct from *Pantodactylus*.

SYNOPSIS OF THE SPECIES

1. Thirty-two or less than 32 scales around the middle of the body.....3.
   More than 32 scales around the middle of the body.....2.
2. Thirty-seven or more than 37 scales from the chin-shields to the preanal scutes (Colombia).....*P. nicefori*, new species.
   Less than 37 scales from the chin-shields to the preanal scutes (southeastern Brazil).....*P. gracilis* (Werner).
3. Third pair of chin-shields not in contact medially, separated by granules.....4.
   Third pair of chin-shields in contact medially, not entirely separated by granules (western Ecuador).....*P. buckleyi festæ* (Peracca).
4. Four supraoculars.....6.
   Three supraoculars.....5.
5. Twenty-eight or less than 28 scales around the middle of the body; large ventral plates usually in only four longitudinal series (Brazil, Uruguay, Paraguay, and Argentina).....*P. schreibersii* (Wiegmann).
   More than 28 scales around the middle of the body; large ventral plates in six or eight longitudinal series (Venezuela).....*P. tyleri*, new species.
6. Twenty-eight or less than 28 scales from the occiput to the base of the tail....8.
   More than 28 scales from the occiput to the base of the tail.....7.
7. Twenty-eight or less than 28 scales from the chin-shields to the preanal plates; usually more than 25 scales around the middle of the body (central and eastern Ecuador).....*P. buckleyi buckleyi* (O'Shaughnessy).
   More than 28 scales from the chin-shields to the preanal plates; usually 25 or less than 25 scales around the middle of the body (Colombia and Panama). *P. rugiceps* (Cope).
8. Ventral plates triangular or nearly so, usually definitely pointed behind; prefrontals usually separated or in slight contact.....9.
   Ventral plates squarish, sometimes narrowed or rounded posteriorly, but not pointed behind; prefrontals usually in rather broad contact (eastern and central Ecuador).....*P. copii* (Boulenger).
9. Gular scales keeled (valley of the Marañon River)....*P. carinicaudatus* (Cope).
   Gular scales smooth (Villa Murtinho and vicinity, northwestern Matto Grosso, Brazil).....*P. amazonius* (Ruthven).

Pantodactylus buckleyi buckleyi (O'Shaughnessy)

Leposoma buckleyi O'SHAUGHNESSY, 1881, Proc. Zool. Soc. London, p. 233, (type locality, Canelos, Ecuador).

Alopoglossus buckleyi BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 385.

From the available data considerable variation is shown by the representatives of this subspecies.

DIAGNOSIS.—From 26 to 29 scales around the middle of the body; 29 to 32 scales from the occiput to the base of the tail; nine to 14 femoral pores in the male, femoral pores indistinct or absent in the female; ventral plates usually quadrangular or squarish, often narrower behind than in front, sometimes rounded, generally smooth; longitudinal ventral plates in from four to eight longitudinal series, and in about 17 transverse rows to the collar fold; transverse rows of gular scales about seven; transverse rows of scales from the chin-shields to the preanal scutes about 24; temporal scales smooth or keeled, usually much less keeled in front than behind; preanal shields usually eight, four posterior, four anterior; three pairs of chin-shields, the two anterior pairs in contact medially, the last pair separated by a row of graules; prefrontals entirely separated or in a varying degree of contact, sometimes in substantial contact medially; parietal plates more or less definitely ridged; supra-oculars four.

ECUADOR.—Two specimens: No. 32777, collected at Naranjal by G. H. H. Tate; and No. 28898, secured at San José de Sumaco by Carlos Ollala and Sons.

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Pantodactylus buckleyi festæ (Peracca)

Alopoglossus festæ PERACCA, 1904, Boll. Mus. Zool. Univ. Torino, XIX, No. 465, p. 7, (type locality, Vinces, Ecuador).

This form is separated from typical *buckleyi* chiefly by having three pairs of chin-shields in contact medially instead of two. The forms scarcely show distinctive ranges and morphological intergradation exists between them, so they are subspecies at best. Typical *buckleyi* without *festæ* (referring to American Museum specimens) has been found only at San José de Sumaco, typical *festæ* without *buckleyi* only at Pasaje and Santa Elena, and both occur at Naranjal. Examples in which the third pair of chin-shields is partly separated medially by granules have been secured at Ventura, Bucay, Santa Rosa, and Piñas.

DIAGNOSIS.—Twenty-four to 27 scales around the middle of the body; 27 to 32 scales from the occiput to the base of the tail; femoral pores usually indistinct or absent; ventral plates squarish, usually narrower behind than in front, smooth, occasionally rounded behind; four to eight longitudinal rows of ventral plates and from 17 to 20 transverse series between the preanal shields and the collar; five to nine transverse rows of gular plates, including the collar; 24 to 29 transverse rows of scales between the chin-shields and the preanal scutes; temporal scales smooth or slightly keeled; from five to seven preanal plates, usually five (three posterior, two anterior); three pairs of large chin-shields, all in contact medially, at least anteriorly; prefrontals in contact for a varying distance medially; parietal plates smooth or slightly ridged; four supraoculars.

The specimens of *festæ* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
21956	Bucay, Ecuador	G. H. H. Tate
23429	Naranjal, Ecuador	G. H. H. Tate
21846, 21856	Pasaje, Ecuador	G. H. H. Tate
22217	Piñas, Ecuador	G. H. H. Tate
24342	Puente de Chimbo, near Bucay, Ecuador	G. H. H. Tate
21855	Santa Elena, Ecuador	G. H. H. Tate
21995	Santa Rosa, Ecuador	G. H. H. Tate
23038–39	Ventura, Ecuador	G. H. H. Tate

Pantodactylus nicefori,[1] new species

DIAGNOSIS.—As indicated in the above key, this form is easily distinguished from other lizards of the genus *Pantodactylus*. Its most important characteristics may be summarized as follows: 39 to 41 scales from the occiput to the base of the tail; 18 femoral pores present on each side, at least in the male; 46 to 51 scales from the chin-shields to the preanal plates; 34 to 37 scales around the middle of the body; temporal and parietal scales smooth; four supraoculars, the anterior one very small; olivaceous above, darker on the sides; a pair of more or less distinct lateral stripes present on each side; lower parts whitish or grayish.

TYPE SPECIMEN.—A. M. N. H. No. 1082; Bogotá, Colombia; collected by Maximilian and purchased by The American Museum of Natural History; an adult male.

DISTRIBUTION.—Known only from the type locality.

DESCRIPTION OF THE TYPE SPECIMENS.—Head rather short, less than twice as long as broad; rostral very blunt, scarcely visible from above; nostril pierced inferiorly between two nasal plates; loreal present, in contact with the frontonasal and prefrontal, but separated from the anterior supraocular; a large preocular and a large postocular; large suboculars fused with the fifth upper labial, so that this scute forms the base of the orbit; orbit normal, eyelids developed, lower scaly; ciliaries numerous, small; four superciliaries, the second elongate, about as large as the other three; supraoculars four, the anterior one very small; nasals separated by a single, large frontonasal, this angular in front and rounded behind; three prefrontals, the median small, the external ones large, frontal separated from the frontonasal; frontal large, angular in front, nearly truncate behind; two frontoparietals, these each larger than the frontal, but decidedly smaller than the external parietals; two interparietals, one behind the other, both small; no granules between the supraoculars and the median head shields; five large upper labials to below the center of the eye; five lower labials; ear opening rather large, tympanum exposed. A large mental; four large pairs of chin-shields, the anterior three pairs in contact medially, the last pair separated by granules; median gulars not dilated transversely; gular fold absent—more so than in *rugiceps;* no noticeable collar.

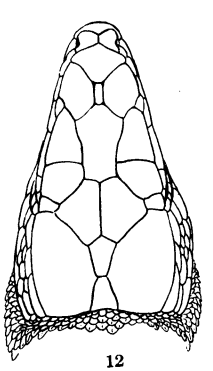
Body only moderately slender; dorsal scales hexagonal, strongly imbricate, moderately lanceolate, strongly keeled; lateral scales similar to the dorsals, showing a definite oblique arrangement; all scales in more or less definite transverse rows; ventral plates smooth, not definitely separated from the lateral scales; about 51

[1]This species is named for Bro. Nicéforo Maria of the Instituto de la Salle, Bogotá, Colombia, whose collecting in Colombia has greatly increased the number of South American lizards preserved in The American Museum of Natural History.

scales from the chin-shields to the preanal plates; an unusually large preanal scute, bordered on each side by a small scale; caudal scales similar to those on the body, but the dorsal ones arranged in more definite transverse series and the ventral ones more pointed behind; ventral caudals smooth; limbs well developed, slender, pentadactyl; digits elongate, with rather long, moderately curved, compressed claws; scales on the upper surfaces of the limbs keeled, imbricate; brachials entirely continuous with antebrachials, and femorals entirely continuous with tibials; femoral pores eighteen on each thigh.

Color pattern simple; olivaceous above, darker on the sides; two yellowish stripes on each side; lower parts light.

MEASUREMENTS OF THE TYPE SPECIMEN.—Distance from snout to anus, 71 mm.; tail, 147 mm., broken about 28 mm. from the base; total length, 218 mm.; fore limb, 25 mm.; hind limb, 42 mm.; tip of snout to anterior border of arm, 26



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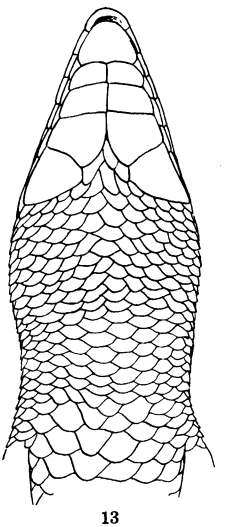

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Figs. 12 and 13. *Pantodactylus nicefori*, new species.
12, upper view of head; 13, lower view of head.

mm.; tip of snout to anterior border of ear opening, 17 mm.; tip of snout to posterior edge of parietal plates, 19 mm.; tip of snout to anterior border of orbit, 8 mm.; and width of head, 11 mm.

PARATYPE.—A. M. N. H. No. 1083, with the same data as the type.

VARIATION.—The paratype is a small individual with a body length of 41 mm. It has two prefrontal plates, instead of three as in the type, and these are in substantial contact medially. There are, however, two median interparietals, one behind the other, in both specimens. The scale counts of the paratype have been included above in the diagnosis.

AFFINITY.—The new form, *nicefori*, is apparently not closely related to other members of its genus, although it agrees with *gracilis* in having a high number of scales around the middle of the body.

Pantodactylus schreibersii (Wiegmann)

Cercosaura schreibersii WIEGMANN, 1834, 'Herpetologia Mexicana,' p. 10, (type locality, Brazil).

Pantodactylus dorbignyi DUMÉRIL AND BIBRON, 1839, 'Erp. Gen.,' V, p. 431, (type locality, Buenos Aires, Argentina).

Pantodactylus orbignii TSCHUDI, 1847, Archiv. f. Naturgesch., XXX, part 1, p. 49.

Pantodactylus bivittatus COPE, 1863, Proc. Acad. Nat. Sci. Phila., p. 103, (type locality, Paysondu, Uruguay).

Pantodactylus schreibersii BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 388.

Pantodactylus borellii PERACCA, 1894, Boll. Mus. Zool. Univ. Torino, IX, No. 176, p. 1, (type locality, "Colonia Apa, oggi Colonia Risso, alto Paraguay").

Boulenger (1885) is followed in regarding this species as a wide-ranging southern entity.

Pantodactylus borellii Peracca (1894) agrees with the present form, as defined by Boulenger, in the possession of the following characteristics: two prefrontals; three supraoculars; four pairs of postmental plates; hexagonal, imbricate, keeled dorsals; 30 to 34 scales from the occiput to the base of the tail; four longitudinal rows of enlarged ventral plates; 22 to 26 scales around the middle of the body; 31 to 33 scales from the chin-shields to the preanal plates; two femoral pores in the female (four in the male); a grayish-brown or olivaceous ground color.

ARGENTINA.—One specimen: A. M. N. H. No. 17022, collected at Salta.

BOLIVIA.—One specimen: A. M. N. H. No. 32776, taken at Buenavista, Santa Cruz, by José Steinbach.

URUGUAY.—Two specimens: M. C. Z. Nos. 22155–56, collected at Montevideo.

Pantodactylus tyleri,[1] new species

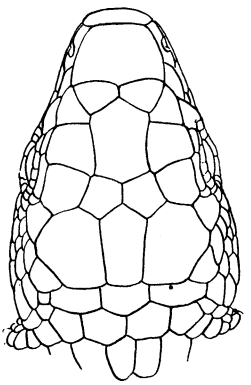
DIAGNOSIS.—This form is distinguished from other members of the genus *Pantodactylus* in the ways indicated in the above key. Its most important characteristics may be summarized as follows: 30 to 32 scales around the middle of the body; 29 or 30 scales from the occiput to the base of the tail; four to seven femoral pores present in the male, these absent or indistinct in the female; six or eight longitudinal, and 17 or 18 transverse rows of ventral plates; temporal and parietal scales smooth; three supraoculars; brownish above, darker on the sides; lower parts white, but much spotted with black or grayish.

TYPE SPECIMEN.—A. M. N. H. No. 36645; summit of Mount Duida, southern Venezuela, at an altitude of 7100 feet; collected by members of the Tyler-Duida Expedition; an adult female.

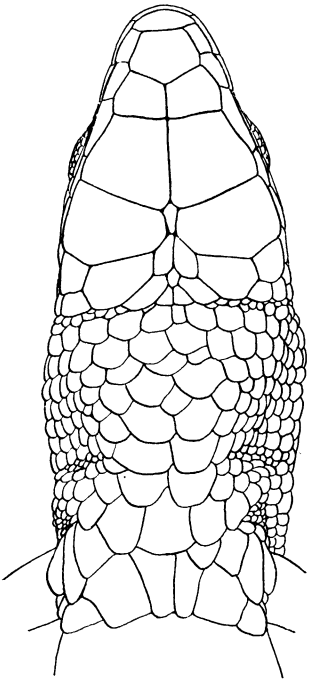
[1]This interesting species is named for Mr. Sidney F. Tyler, Jr., in appreciation of his support of the recent American Museum expedition to the isolated Mount Duida region of southern Venezuela (Tyler-Duida Expedition).

DISTRIBUTION.—Known only from the region of Mount Duida, where it was taken between the altitudes of 6900 and 7100 feet.

DESCRIPTION OF THE TYPE SPECIMEN.—Head moderately elongate, nearly twice as long as broad; rostral blunt, rounded, partly visible from above; nostril pierced in the inferior part of a single nasal plate; loreal present, in contact with the frontonasal and the anterior supraocular on both sides; six or seven suboculars present on each side; orbit normal, eyelids developed; three or four large ciliaries and as many superciliaries on each side; supraoculars three; nasals separated widely by a large four-sided frontonasal, which is noticeably broader than long; two prefrontals, these forming a median suture; frontal large, angular in front, rounded behind, longer than



14



15

Figs. 14 and 15. *Pantodactylus tyleri*, new species.
14, upper view of head; 15, lower view of head.

broad; two frontoparietals, separating the frontal from the parietals; no granules separating the supraoculars from the large head plates; parietals large, three in number; interparietal narrower than external parietals, but somewhat longer; four large upper labials and as many lower labials to below center of eye; ear opening rather small, vertically elongate, tympanum exposed. A small terminal mental and a large median posterior mental; four pairs of chin-shields, the posterior small, the others large, the two anterior pairs in contact medially, the others separated by granules; some large median scutes bordering the posterior pairs of chin-shields, the other gulars smaller, a median double longitudinal row of enlarged, slightly dilated

scales present, the outer scales smaller; a collar fold present; collar composed of seven scales.

Body slender; dorsal scales hexagonal, imbricate, moderately lanceolate, strongly keeled; lateral scales similar to the dorsals, showing an oblique arrangement; both dorsal and lateral scales forming regular transverse series; ventral plates smooth, in 17 transverse series and in from six to eight longitudinal rows; if eight are counted, the outer reduced in size; ten preanal plates, three large median and two small external scutes in the posterior row, a single median plate anterior to these, and four additional shields in an anterior row; tail covered with scales similar to those on the body, except that the inferior caudal scutes tend to become hexagonal, especially posteriorly; limbs well developed, slender, pentadactyl; digits elongate, with short, weak, compressed claws; scales on the upper surfaces of the limbs large, smooth; about four series of large femoral plates, and about three rows of tibials; brachials entirely continuous with antebrachials, and femorals entirely continuous with tibials; femoral pores absent.

Coloration dark; brownish above, a black longitudinal band on each side, no light stripes; light below, but with many blackish spots.

MEASUREMENTS OF THE TYPE SPECIMEN.—Distance from snout to anus, 47 mm.; tail (incomplete, regenerated), 63 mm.; total length, over 110 mm.; fore limb, 13 mm.; hind limb, 18 mm.; tip of snout to collar fold, 18 mm.; tip of snout to anterior border of ear opening, 11 mm.; tip of snout to posterior border of large parietal plates, 9.5 mm.; tip of snout to anterior border of orbit, 4 mm.; and width of head, 6.5 mm.

PARATYPES.—A. M. N. H. Nos. 36643–44, with the same data as the type.

VARIATION.—The paratypes resemble the type very closely. The variation in scale counts of these specimens has been included above in the diagnosis.

AFFINITIES.—The new form, *tyleri*, is probably a northeastern derivative of *buckleyi*.

PHOLIDOBOLUS Peters

Pholidobolus montium (Peters)

Ecpleopus (*Pholidobolus*) *montium* PETERS, 1862, Abhandl. Berlin Akad. Wiss., p. 196, (type locality, Quito, Ecuador).

Pholidobolus montium BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 403.

Proctoporus montium COPE, 1885, Proc. Amer. Philos. Soc., XXIII, p. 98.

The characters of *montium* may be summarized as follows: large superior supraoculars usually two (sometimes abnormally united with each other, or with the median head shields, such as the frontoparietals or frontal), the anterior (a third one) supraocular having fused with the first superciliaries to form a latero-superior scute which has a suture with the loreal; dorsal scales usually with longitudinal striations or folds, but sometimes smooth or indistinctly marked anteriorly; dorsals arranged in transverse series only; 36 to 40 scales from the occiput to the base of the tail; dorsal scales about as long as the ventral scutes but only about half as wide; 30 to 35 scales around the middle of the body,

large ventral plates in six or eight longitudinal, and about 25 transverse series; femoral pores absent; fingers and toes five, all clawed; two prominent median series of transversely elongated gular scales present as in *Pantodactylus:* body brownish, unspotted, with one to three light yellowish stripes on each side; no mid-dorsal light stripe or whitish area; ventral shields often exhibiting central black spots.

The specimens of *montium* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
23446	Contrayerbas, Ecuador	G. H. H. Tate
5282, 13486–89	Ibarra, Ecuador	
27138	Molino Urcu, Ecuador	H. E. Anthony
24345	Mt. Naupan, Ecuador	G. H. H. Tate
28771–82	Quito, Ecuador (topotypes)	H. E. Anthony
18309	Sabanilla, Rio Zamora, Ecuador	H. E. Anthony

PROCTOPORUS Tschudi

Proctoporus TSCHUDI, 1845, 'Fauna Peruana, Herpetologie,' p. 43, (type species, *P. pachyurus* Tschudi).

Riama GRAY, 1858, Proc. Zool. Soc. London, p. 445, (type species, *R. unicolor* Gray).

Oreosaurus PETERS, 1862, Abhandl. d. Akad. Wiss. zu Berlin, p. 201, [type species, *Ecpleopus* (*Oreosaurus*) *luctuosus* Peters].

Emphrassotis O'SHAUGHNESSY, 1879, Ann. and Mag. Nat. Hist., (5) IV, p. 295, (type species, *E. simoterus* O'Shaughnessy).

Gonioptychus WERNER, 1916, Zool. Anz., XLVII, p. 305, (type species, *G. bicolor* Werner).

As indicated by the above synonymy, the lizards of this widespread and highly variable South American genus have been described under many different names. The recognition of too many genera has naturally resulted in the description of too many species. Consequently, the synonymy has become rather intricate.

Boulenger (1885) is followed in regarding *Riama* Gray (1858) and *Emphrassotis* O'Shaughnessy (1879) as synonyms of *Proctoporus*, and Andersson (1914) is followed in finding *Oreosaurus* Peters (1862) another synonym. A comparison of the characters of *Proctoporus* with those described for *Gonioptychus*, which Werner (1916) believed to be closely allied to *Ptychoglossus* and *Alopoglossus*, indicates that the form should also be relegated to the synonymy. All of these described "genera" possess the characteristics given below in the diagnosis.

In regard to *Proctoporus* and *Oreosaurus*, it may be stated that the same geographical variations are evident in the species assigned to each, and that the distinctions established on the dentition and scutellation are worthless.

DIAGNOSIS.—Tongue moderatelye longate, arrow-headed, sometimes with a poorly defined posterior emargination; lateral teeth conical or compressed longitudinally, mono-, bi-, or tri-cuspid; head with large regular shields; frontonasal separating the nasals; no prefrontals; frontoparietals present; nostril usually pierced in the middle of a single nasal; eyelids developed, lower with a non-transparent disk; ear exposed; limbs well developed, more or less shortened, pentadactyl; dorsal scales elongate, quadrangular, smooth or keeled (often merely striated), juxtaposed or subimbricate, often arranged in longitudinal and transverse series, but frequently showing an irregular arrangement on the vertebral line and on the sides; a collar fold; tail cylindrical; femoral and preanal pores present or absent, each species showing numerical sexual dimorphism in this regard; coloration variable, usually brownish or blackish in tonality.

GEOGRAPHICAL SYNOPSIS OF THE SPECIES

1. Supraoculars usually two or three (Peru and Bolivia).....11.
   Supraoculars usually four or five (Ecuador, Colombia, and Venezuela).....2.
2. Dorsal scales keeled or striated.....6.
   Dorsal scales smooth.....3.
3. Less than 37 scales around the middle of the body.....5.
   More than 37 scales around the middle of the body.....4.
4. A small median occipital present; usually 38 or less than 38 scales from the occiput to the base of the tail (Ecuador).....*Proctoporus meleagris* (Boulenger).
   No median occipital; usually more than 38 scales from the occiput to the base of the tail (Colombia).....*P. columbianus* (Andersson).
5. Three pairs of large chin-shields (Colombia).....*P. lævis* (Boulenger).
   Four pairs of large chin-shields (Ecuador).....*P. simoterus* (O'Shaughnessy).
6. More than 30 scales from the occiput to the base of the tail.....7.
   Thirty or less than 30 scales from the occiput to the base of the tail (northwestern Ecuador).....*P. hypostictus* Boulenger.
7. Chest and abdomen not uniform blackish or lead-colored, sometimes white or yellowish, often variegated or spotted with dark and light.....8.
   Chest and abdomen uniform blackish or lead-colored or nearly so (Ecuador). *P. unicolor* (Gray).
8. Forty or less than 40 scales from the occiput to the base of the tail.....9.
   More than 40 scales from the occiput to the base of the tail. (Venezuela). *P. luctuosus* (Peters).
9. More than 38 scales around the middle of the body.....10.
   Less than 38 scales around the middle of the body (Colombia). *P. striatus* (Peters).
10. Thirty-three or more than 33 scales from the occiput to the base of the tail (Ecuador).....*P. oculatus* (O'Shaughnessy).
    Less than 33 scales from the occiput to the base of the tail (Colombia). *P. bicolor* (Werner).

11. Dorsal scales keeled or striated.....14.
Dorsal scales smooth.....12.
12. Less than 37 scales from the occiput to the base of the tail.....13.
More than 37 scales from the occiput to the base of the tail (southern Peru and western Bolivia).....*P. petersii* (Bœttger).
13. Underparts black or black-spotted (northern Peru).
P. ventrimaculatus Boulenger.
Under parts white (southern and central Peru).....*P. ocellifer* (Boulenger).
14. Fifty or less than 50 scales from the occiput to the base of the tail.....15.
More than 50 scales from the occiput to the base of the tail (Peru).
P. pachyurus Tschudi.
15. More than 33 scales around the middle of the body.....17.
Thirty-three or less than 33 scales around the middle of the body.....16.
16. More than 32 scales from the occiput to the base of the tail (western Bolivia).
P. guentheri (Bœttger).
Less than 32 scales from the occiput to the base of the tail (southern and central Brazil).....*P. ocellifer* (Boulenger).
17. Less than 35 scales from the occiput to the base of the tail.....18.
More than 35 scales from the occiput to the base of the tail (southern Peru and western Bolivia).....*P. petersii* (Bœttger).
18. Supranasals absent (southern and central Peru).....*P. ocellifer* (Boulenger)
Supranasals present (southern and central Peru).
P. anomalus (Barbour and Noble).

Oreosaurus guentheri Bœttger (1891, Zool. Anz., XIV, p. 345) is found to be a valid species of the present genus, but *Proctoporus bolivianus* Werner (1910, Mitt. Nathist. Mus. Hamburg, XXVII, Anstalten, Beiheft 2, p. 30) cannot be given recognition. Both forms have been described from the same locality, namely, "Sorata, Bolivia," and upon comparison it is found that they resemble each other very closely, but show the usual sexual dimorphism of these small teiids in regard to the femoral pores, the former species being established on the male, the latter on the female, Moreover, the more recent *bolivianus* was described without reference to *guentheri*. Therefore, its origin may be attributed to the general failure of herpetologists of the time to consider the species of *Oreosaurus* when describing Proctopori.

The nearest relative of *guentheri* seems unquestionably the more northern *ocellifer* of Peru, with which it agrees in most details of scutellation and coloration.

Proctoporus hypostictus Boulenger

Proctoporus hypostictus Boulenger, 1902, Ann. and Mag. Nat. Hist., (7) IX, p. 55, (type locality, Paramba, northwestern Ecuador).

Diagnosis.—Three or four pairs of chin-shields, two in contact medially; 29 or 30 scales from the occiput to the base of the tail; 38 to 40 scales around the middle of the body; 19 transverse rows of ventral scutes and about nine transverse rows of

gular scales; four to six femoral pores, smaller and less numerous in the female; supraoculars two or three; dorsal scales distinctly striated; dark brown or blackish above, sometimes with irregular black spots; a whitish vertebral streak present or absent; blackish beneath, but sometimes with numerous rounded white spots; chin unicolor or tiger-barred.

ECUADOR.—One specimen: No. 18312, collected at El Chiral, Province del Oro, by H. E. Anthony.

Proctoporus meleagris Boulenger

Proctoporus meleagris BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 415, (type locality, western Ecuador).

DIAGNOSIS.—Thirty-four to 38 scales from the occiput to the base of the tail; 40 to 44 scales around the middle of the body; ventral plates in about 21 transverse rows; femoral pores 11 or 12 in the male; supraoculars four; dorsal scales smooth or nearly so; a loreal often present; body blackish, often with irregular white spotting or other white markings, above and below.

ECUADOR.—Two specimens: No. 32778, collected by G. H. H. Tate; and No. 38820, secured at Riobamba by Enrique Feyer.

Proctoporus ocellifer (Boulenger)

Oreosaurus ocellifer BOULENGER, 1902, Ann. and Mag. Nat. Hist., (7) X, p. 400, (type locality, Marcapata Valley, eastern Peru).

DIAGNOSIS.—Three pairs of large chin-shields, all in contact medially, the posterior pair sometimes partly separated by granules; 29 to 33 segments from the occiput to the base of the tail; 29 to 37 scales around the middle of the body; ventrals in about 19 transverse rows, gulars in about eight transverse rows; femoral pores seven or eight in the male; supraoculars three; dorsal scales keeled or smooth, often smooth anteriorly and weakly striated posteriorly; loreal and median occipital present or absent; brown above, darker on the sides; a yellowish, dark-edged dorsolateral streak sometimes present, especially anteriorly; a series of black ocelli with small white centers often present on the sides of the body, particularly in the adult males; sides of head yellowish, often mottled with darker; belly and chest yellowish or whitish, throat sometimes dotted with dark brown.

The specimens of this species in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
23161	Chanchamayo, Peru	Carlos Schunke
1703, 1714	Juliaca, Lake Aracona, Peru	H. H. Keays
23203, 23205, 23207, 23209–10, 23213, 23217–23, 23227–28, 23230	Perené, Peru	Carlos Schunke

Proctoporus oculatus (O'Shaughnessy)

Ecpleopus oculatus O'Shaughnessy, 1879, Ann. and Mag. Nat. Hist., (5) IV, p. 297, (type locality, Intac, Ecuador).

Oreosaurus oculatus Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 410.

Proctoporus oculatus Cope, 1885, Proc. Amer. Philos. Soc., XXIII, p. 98.

Proctoporus lividus Thominot, 1889, Bull. Soc. Philomathique Paris, (8) I, p. 25, (type locality, unknown).

Thominot (1889) was apparently in error in assuming that the closest relative to his *lividus* was *meleagris*, for the two forms are not as closely allied as *lividus* and *oculatus*, which was then, unfortunately, recognized as a species of *Oreosaurus*. A charting of the characters of *lividus* and *oculatus* shows such close correlation that they must be united as one entity, even the number of scales-rows around the body being the same (41) in both type specimens. Therefore, Boulenger (Zoological Record for 1889, 1890, XXVI, p. 8) is not followed in regarding *lividus* as a synonym of *unicolor*.

Diagnosis.—Three or four pairs of chin-shields, the two anterior pairs usually in contact medially; 33 to 35 scales from the occiput to the base of the tail; 38 to 42 scales around the middle of the body; transverse ventral plates in about 20 series; femoral pores five or six in the male, sometimes absent in the female; supraoculars four; dorsal scales keeled or feebly striated; loreal and median occipital present or absent; back brown or blackish brown, with or without a light, dark-edged, dorsolateral streak on each side; males with a series of black ocelli with white centers on each side, females and young usually without these ocelli; gular and ventral scales predominantly white or black, and mottled, not unicolor, the scales often black in the centers, but white-edged.

Ecuador.—Three specimens: Nos. 38821–22, taken at Abitagua, Oriente, by H. E. Anthony; and No. 18310, secured at El Chiral, Province del Oro, by the same collector.

Proctoporus petersi (Bœttger)

Ecpleopus (*Oreosaurus*) *petersi* Bœttger, 1878, Bericht Offenbach. Ver. f. Naturkunde, Nos. 17 und 18, Mittheilunge, p. 9, Pl. 1, fig. 2, (type locality, Province of Pará, Brazil, no doubt in error).

Oreosaurus petersii Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 411.

Oreosaurus lacertus Stejneger, 1913, Proc. U. S. Nat. Mus., XLV, p. 546, (type locality, Tincochchaca, Peru).

Proctoporus longicaudatus Andersson, 1914, Arkiv. f. Zool., IX, No. 3, p. 6, (type locality, Pelechucio, western Bolivia).

Proctoporus obesus Barbour and Noble, 1920, Proc. U. S. Nat. Mus., LVIII, p. 616, (type locality, Ñusta Hispaña, southern Peru).

All of the species listed in the above synonymy agree in the possession of the series of diagnostic characters given below. In this way they

are more like each other than like other forms of *Proctoporus*. The reasons for this synonymy are apparently these: the indefinite nature of the locality data given for the type specimen of *petersi* (for discussion pertaining to this see Stejneger, 1913, p. 547); the failure of taxonomists to unite *Proctoporus* and *Oreosaurus;* the existence of variation and sexual dimorphism in the number of femoral pores and of variation in the number of ventral plates, and in the keeling or striation of the dorsal scales.

Oreosaurus lacertus Stejneger (1913) was held to be "most nearly related to Bœttger's *Oreosaurus petersi,*" but was thought to differ from that form in having "more longitudinal rows of ventral plates and fewer femoral pores." The ventral plates of *petersi* were stated to be ten in number, whereas Stejneger found that *lacertus* has twelve. This seems of little significance, however, since the outer rows of longitudinal ventral scutes are gradually reduced in size in the species of *Proctoporus*, so that it is difficult to tell exactly the number of series present. For this reason, the number of longitudinal rows of ventral plates has little value as a diagnostic feature. Moreover, these plates vary in *Proctoporus* from eight to 14, or possibly from six to 14, in the number of longitudinal series, depending partly on the method of counting. The presence of a reduced number of femoral pores indicates the female sex, although subsequent specimens in the case of *petersi* show a normal variation of from four to ten in the males and the females have no femoral pores, in some instances at least.

Proctoporus longicaudatus Andersson (1914), described without reference to *petersi* and *lacertus* and originally distinguished from only *unicolor* and *bolivianus* (now *guentheri*), exhibits the scutellation and coloration of the present form.

Proctoporus obesus Barbour and Noble, (1920), listed from the same locality as specimens of "*Oreosaurus lacertus*" was thought to differ in having smooth dorsal plates instead of weakly striated ones. An examination of the series of these specimens in the collection of the United States National Museum shows that there is a complete transition from one extreme to the other. In fact, some individuals are found in which the dorsal scales are smooth, or nearly so, on the anterior half of the body, and keeled, or nearly so, on the posterior half. The variation of this keeling or striation of the dorsal scales in *petersi* is exactly paralleled by the condition shown in *ocellifer*, a lizard of the same general range in Peru.

DIAGNOSIS.—From two to four pairs of chin-shields, two or three pairs in contact medially; 38 to 46 scales from the occiput to the base of the tail; 36 to 39 scales around the middle of the body; ventral plates in from 21 to 26 transverse and from eight to 12 longitudinal series; preanal shields five to eight; femoral pores often absent in the females, from four to ten in the males; supraoculars two or three; gular plates in nine to eleven transverse series, including the collar; collar scales nine or ten; dorsal scales keeled, weakly striated or smooth, often smooth for a greater or lesser distance anteriorly and striated or keeled posteriorly; loreal and median occipital present or absent, but the latter is usually present; back brownish or grayish, often marked with black; under parts dark, unicolor, or spotted.

PERU.—One specimen: No. 38823, collected at Sicuani by R. H. Beck.

Proctoporus striatus (Peters)

Ecpleopus (*Oreosaurus*) *striatus* PETERS, 1862, Abhandl. d. Akad. Wiss. zu Berlin, p. 201, Pl. III, fig. 2, (type locality, Santa Fé de Bogotá, Colombia).

Oreosaurus striatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 411.

Proctoporus striatus COPE, 1885, Proc. Amer. Philos. Soc., XXIII, p. 98.

Proctoporus bogotensis BOULENGER, 1919, Proc. Zool. Soc. London, p. 80, (type locality, Bogotá, Colombia).

Here again an *Oreosaurus* and a *Proctoporus* species have been described from the same population and locality. At first sight it seems as though the coloration of *bogotensis* were different from that of *striatus*, being much darker, but the wide variation in this respect in the excellent series of these lizards in the collection of the American Museum shows a complete transition from one extreme to the other. In synonymizing *bogotensis*, it seems significant that *striatus* was not mentioned in the original description.

DIAGNOSIS.—Chin-shields usually in three pairs, two pairs in contact medially; 31 to 37 segments from the occiput to the base of the tail; 32 to 37 scales around the middle of the body; ventral plates in 22 to 25 transverse and eight to 12 longitudinal series; femoral pores none to six in number; supraoculars four, rarely five; transverse gular patches in eight to ten series, including the collar; collar composed of eight to ten scales; dorsal scales keeled or striated; loreal and median occipital plates present or absent; coloration highly variable; body brownish above, uniform or marked with darker; a light dorso-lateral streak present or absent; a dark median band present or absent, often incomplete or broken; ground color of lower surfaces varying from nearly black to yellowish, usually showing both black and white in a more or less irregular arrangement, with one color or the other predominating.

The specimens of *striatus* in the collection of the American Museum may be listed as follows:

Nos.	Locality	Collector
32764–65	Colombia	Nicéforo Maria
7635, 24212, 24217–23, 32714	Bogotá, Colombia (topotypes)	Nicéforo Maria
32706–707	Medellin, Colombia	Nicéforo Maria
27535–36, 27544, 27551, 27554–55	Mountains near Muzo, Colombia	Nicéforo Maria
19960–69, 32708–13	Santa Rosa, Colombia	Nicéforo Maria

Proctoporus unicolor (Gray)

Riama unicolor Gray, 1858, Proc. Zool. Soc. London, p. 446, Pl. xv, fig. 2, (type locality, western Ecuador).

Proctoporus unicolor Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 413.

This lizard is apparently rather closely allied to *luctuosus* of Venezuela.

Diagnosis.—Three pairs of chin-shields, two or three pairs forming a median suture; 37 to 44 scales from the occiput to the base of the tail; 30 to 38 scales around the middle of the body; 23 to 26 transverse rows of ventral plates; preanals five to seven; femoral pores nine to 12 in the male; supraoculars three or four; dorsal scales keeled or striated; dark brown above, uniform or dotted with black; a dorsolateral streak or chain of light spots often present on each side of the body, anteriorly; lower surfaces, usually uniform blackish or lead-colored; throat often variegated with whitish.

Ecuador.—Three specimens have been examined, these are: A. M. N. H. No. 27139, secured at Molino Urcu, by H. E. Anthony; M. C. Z. No. 21070, from Chillo; and M. C. Z. No. 22154 from Quito.

Ptychoglossus Boulenger

Ptychoglossus Boulenger, 1890, Proc. Zool. Soc. London, p. 83, [type species, *P. bilineatus* Boulenger = *P. picticeps* (Cope)].

Diastemalepis Peracca, 1896, Boll. Mus. Zool. Univ. Torino, XI, No. 235, p. 1, (type species, *D. festæ* Peracca).

Boulenger (Zoological Record for 1896, 1897, XXXIII, p. 22) is followed in regarding *Diastemalepis* as a synonym of *Ptychoglossus*.

Diagnosis.—Tongue moderately elongate, arrow-headed or heart-shaped in outline, with oblique plicæ converging toward the median line; lateral teeth longitudinally compressed, bi- or tri-cuspid; head with large regular shields; nasals widely separated by a frontonasal; prefrontals and frontoparietals present; nasal plate divided or entire; eyelids developed; ear exposed; limbs well developed, five-toed, clawed; dorsal and lateral scales subequal, narrow, hexagonal-lanceolate, imbricate, keeled, arranged in regular transverse series, but alternate and not in longitudinal or oblique rows; ventral plates large, not rounded behind, but quadrangular or square, juxtaposed or subimbricate, smooth, forming regular transverse

and longitudinal series; collar fold present, often strong; tail subcylindrical; femoral and preanal pores present in the male.

The nearest ally of *Ptychoglossus* seems to be *Arthrosaura* from which it is distinguished by having the large ventral plates truncate behind instead of rounded.

SYNOPSIS OF THE SPECIES

1. Thirty-five or less than 35 scales around the middle of the body.....2.
   More than 35 scales around the middle of the body (Ecuador).
   P. picticeps (Cope).
2. Four supraoculars; more than 28 scales from the occiput to the base of the tail..3.
   Three supraoculars; 28 or less than 28 scales from the occiput to the base of the tail (Venezuela).....*P. kugleri* Roux.
3. More than 29 scales around the middle of the body (Panama and Colombia).
   P. festæ (Peracca).
   Twenty-nine or less than 29 scales around the middle of the body (eastern Ecuador).....*P. brevifrontalis* Boulenger.

Cope's *Leposoma picticeps*, described in 1885, was soon relegated to the synonymy of *Arthrosaura reticulata* by Boulenger (Zoological Record for 1886, XXIII, 1887, Reptilia, p. 13), and was thus overlooked by the latter writer when in 1890 he described his *Ptychoglossus bilineatus*, which shows the same characters as *picticeps* and inhabits the same general area. Boulenger's action is surprising since Cope (p. 101) called attention to the fact that the ventral plates of *picticeps* were not "rounded in posterior outline" as they are in *Arthrosaura reticulata*. Upon the synonymizing of *bilineatus*, *picticeps* now becomes the type species of the genus *Ptychoglossus*.

Ptychoglossus festæ (Peracca)

Diastemalepis festæ PERACCA, 1896, Boll. Mus. Zool. Univ. Torino, XI, No. 235, p. 2, (type locality, Rio Cianati, Darien, Panama).

DIAGNOSIS (from the original description).—Ventral plates in ten longitudinal and 17 transverse rows; 34 scales around the middle of the body; femoral and preanal pores present in the male; dorsal and lateral scales of about the same size; four supraoculars; three pairs of large postmentals, two pairs in contact medially; ground-color brownish.

COLOMBIA.—Two specimens: No. 38819, secured near El Clara Creek, not far from Angelopolis; and No. 32774, found at Medellin; both collected by Nicéforo Maria. The variation shown by these examples may be summarized as follows: supraoculars three or four; 32 or 33 scales around the middle of the body; from 31 to 33 scales in a line from the occiput to the base of the tail; ventral plates smooth, quadrangular, not rounded behind, in 19 transverse series and about

(eight or) ten longitudinal rows, continuous with, rather than segregated from, the laterals; dorsals alternate, keeled, hexagonal-lanceolate, imbricate, in transverse series only; transverse gulars in from seven to ten series; collar composed of about seven large plates, the median largest; femoral pores absent in the female (No. 32774), but present (ten small and poorly defined units) in the male (No. 38819); a more or less distinct dorso-lateral light or yellowish line on each side; general color brownish.

Scolecosaurus Boulenger

Synopsis of the Species

1. Supraoculars three or four; digits four on all feet; more than 24 scale-rows around the middle of the body; superciliaries usually three.....2.
   Supraoculars two; digits four on the front feet only, three on the hind feet; not over 24 scale-rows around the middle of the body; superciliaries usually two (Colombia).....*S. pallidiceps* (Cope).
2. Prefrontals larger, forming a short median suture; frontal and frontonasal not in contact (Grenada).....*S. cuvieri* (Fitzinger).
   Prefrontals reduced in size, separated at least for a short distance; frontal and frontonasal in contact (Trinidad, and probably the mainland of northeastern South America).....*S. trinitatis* Barbour.

Scolecosaurus cuvieri (Duméril and Bibron)

Brachypus cuvieri Fitzinger, 1826, Neue Classif. der Reptilien, p. 50, (type locality, not given).

Chalcides cuvieri Duméril and Bibron, 1839, 'Erp. Gen.,' V, p. 453.

Scolecosaurus cuvieri Boulenger, 1885, 'Cat. Liz. British Mus.,' II, p. 416.

Scolecosaurus alleni Barbour, 1914, Mem. Mus. Comp. Zoöl., XLIV, No. 2, p. 315, (type locality, St. George's, Island of Grenada).

This form was originally described by Duméril and Bibron (1839), having appeared as a *nomen nudum* in the work of Fitzinger (1826). So far as evident, there is no essential difference in the description given by Duméril and Bibron and in that given by Boulenger (1885). Therefore, it seems significant that the latter authority should have stated that the prefrontals form a short suture in the species, thus excluding the possibility of its identity with either *pallidiceps* or *trinitatis*, as at present defined. Since *Scolecosaurus alleni* of Grenada does show this feature, it seems best to consider it identical with the previously described *cuvieri*, for the locality of the latter species has never been definitely established. A literal translation of Duméril and Bibron on this subject would read as follows: "*Cuvieri* inhabits South America. We have an individual that has been collected in Colombia." Boulenger's records were even more indefinite, on first sight, being merely "South America" and "West

Indies (?)." Possibly the earlier report from Colombia caused Boulenger to place the question mark after the West Indian citation, perhaps not, but at any rate, the definitely known Colombian examples are now all *pallidiceps*, showing the significant diagnostic variations used to separate it from the remaining forms of the genus in the above key.

Since the amount of contact between the frontal and the frontonasal is subjected to considerable variation in the specimens of *trinitatis* examined in connection with this study, it is possible that these elements will be found to be separated by the prefrontals in specimens from Trinidad when larger series are available. Such an event would make it necessary to find new diagnostic characters for *trinitatis*, or to consider it as a mere variant of the form from Grenada, here recognized as *cuvieri*.

The variation in the specimens listed below may be summarized as follows: three supraoculars; interparietal present; prefrontals in contact medially; three superciliaries; two pairs of chin-shields, only the anterior pair in contact medially; 34 to 36 body segments: 28 to 30 scales around the middle of the body; about six to eight series of vertebral scale-rows hexagonal, imbricate, the lateral dorsals quadrangular, juxtaposed; all limbs with four digits, clawed.

The collections of these lizards in both the American Museum and the Museum of Comparative Zoölogy have been examined. These are all listed below.

GRENADA.—Eight specimens: M. C. Z. No. 7793 (three co-types of *Scolecosaurus alleni*), M. C. Z. 4513, and A. M. N. H. No. 38968, from St. George's; and M. C. Z. Nos. 9005–9006, 9009 from Grand Etang.

Scolecosaurus pallidiceps (Cope)

Brachypus pallidiceps COPE, 1862, Proc. Acad. Nat. Sci. Phila., p. 356, (type locality, Truando River region, northwestern Colombia).

Scolecosaurus pallidiceps BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 417.

The characters of this lizard readily distinguish it from all of the remaining forms of the genus. The single specimen at hand (A. M. N. H. No. 18230, collected near the Quesada River, Atrato region, Colombia, by R. D. O. Johnson) shows the following characteristics: fingers four; toes three; longitudinal ventrals in six series, transverse ventrals in about 39 series; dorsal segments from occipital region to the base of the tail, 44 or 45; about 21 scales in a segment at the middle of the body; preanal pores absent; prefrontals present, reduced in size, not in contact with each other; supraoculars two; superciliaries two.

Scolecosaurus trinitatis Barbour

Scolecosaurus trinitatis BARBOUR, 1914, Mem. Mus. Comp. Zoöl., XLIV, No. 2, p. 316, (type locality, Caparo, Trinidad).

As indicated above under *cuvieri* and maintained by Barbour (1914) in the original description, *trinitatis* from the island of Trinidad is apparently distinct from *cuvieri* of the northern island of Grenada. In the evolutionary sense, the genera *Scolecosaurus*, *Bachia* and *Ophiognomon* present an interesting and significant series of modifications.

In *Scolecosaurus* the tendency toward loss of head plates and decrease in the number of digits is carried forward. Beginning with *cuvieri*, which in this way is the least specialized, we find the prefrontals present, enlarged and in contact medially, thus separating a large frontal plate from a well developed frontonasal shield. Also, the toes are four on all four limbs. Next, in the geographically adjacent *trinitatus*, the prefrontals are reduced in size, thus losing their median contact with each other and allowing the frontal and frontonasal plates to form a common suture. Then, in the remaining form in the series, *pallidiceps*, the prefrontals are still smaller and the number of digits is reduced to three on the hind feet. The evolution this suggests may be diagrammatically outlined as follows:

cuvieri ——→ *trinitatis* ——→ *pallidiceps*

In *Bachia*, the prefrontals are lost altogether and the frontonasal begins to decrease in size. Likewise, the number of digits is decreased from the condition found in *Scolecosaurus pallidiceps* (four front, three rear) to that exhibited by *Bachia barbouri* in which only two digits are present anteriorly, and none are to be found posteriorly.

In *Ophiognomon*, the frontonasal, the plate so prominent of *Scolecosaurus* and the less specialized forms of *Bachia*, drops out entirely so that the frontal is in direct contact with the rostral. Likewise, the digital specialization shown equals that found in *Bachia* and probably is carried forward in *O. vermiforme* in which there is no trace of the hind limb. Unfortunately, the condition of the fore limb in this species has not been described.

The phylogenetic series suggested by the variations of the three genera just discussed may be diagrammatically shown as follows:

Scolecosaurus ——→ *Bachia* ——→ *Ophiognomon*

All of the specimens of *trinitatis* seen are listed below.

TRINIDAD.—Ten specimens: A. M. N. H. Nos. 1608 and 38815; M. C. Z. Nos. 8947 (type) and 8950–52, 8956–57 (paratypes) from Caparo; and M. C. Z. Nos. 22367–68 from Port of Spain.

The variation shown by the above examples may be summarized as follows: digits four on all four feet, the inner toe on the hind foot much reduced in size; longitudinal rows of ventral plates about six, possibly eight; transverse ventral plates in 29 to 38 series; dorsal segments from the occiput to the base of the tail about 40; 26 to 31 scales in a segment at the middle of the body; supraoculars three or four; superciliaries three; two prefrontals, these sometimes almost touching medially, but usually more widely separated; frontal in contact with the frontonasal; two pairs of chin-shields, only the anterior pair in contact medially; preanal pores absent.

TEIUS Merrem

SYNOPSIS OF THE SPECIES

Abdominal region white or nearly so (Paraguay, southeastern Brazil, eastern and central Argentina)..... *T. teyou teyou* (Daudin).
Abdominal region bluish or black (Bolivia and northern Argentina).
T. teyou cyanogaster (Müller).

Teius teyou cyanogaster Müller

Teius tejou cyanogaster MÜLLER, 1928, Zool. Anz., LXXVII, p. 69, (type locality, San José de Chiquiros, Bolivia).

Adults of this subspecies appear to be larger than those of *teyou*. This, no doubt, accounts for their stronger appearance and comparatively short leg length.

ARGENTINA.—Seven specimens: A. M. N. H. Nos. 21093–98 and M. C. Z. No. 7436, from Cruz del Eje.

The writers have also seen a specimen from Bolivia, M. C. Z. No. 38635, from Villa Montes.

The largest specimens have a body length (snout to anus) of between 120 and 130 mm.

TRETIOSCINCUS Cope

The genus *Calliscincopus* Ruthven (1916, Occas. Pap. Mus. Zoöl. Univ. Mich., XXII, p. 1) is now differentiated from *Tretioscincus* Cope (1862, Proc. Acad. Nat. Sci. Phila., p. 184) by the separation of the prefrontal plates and the possession of smooth dorsal scales. Since the coloration is practically identical and the ranges are geographically adjacent, a very close relationship between the two genera is at once evident.

Calliscincopus agilis Ruthven, the type species of its genus, was described from the sand ridges on the Demerara River, near Dunoon, British Guiana, in 1916.

Tretioscincus romani Andersson (Arkiv. f. Zool., XI, No. 16, p. 5) was described from "Amazonas, Manáos, Bosque Municipal," Brazil, in 1918, and was found to differ from *T. bifasciatus* in the wide separation of the prefrontals and the possession of smooth dorsal scales. A distinction from the then recently described *Calliscincopus agilis* was not advanced.

Tretioscincus brasiliensis Müller (Zool. Anz., LVII, p. 49) was described from "Unterer Tocantins, Staat Pará, Brasilien," in 1923. It was also found to differ from *T. bifasciatus* in the separation of the prefrontals and the possession of smooth dorsal scales. Differences between *T. brasiliensis* and *Calliscincopus agilis* and *Tretioscincus romani* were not given, however.

Thus, it is seen that three forms, each described independently from northeastern South America between 1916 and 1923, were found to have the same relationship to the then long-known *Tretioscincus bifasciatus* of northwestern South America.

A charting of the characters given in the excellent original descriptions of the three entities being considered here shows that they agree in the following important details of scutellation and coloration: prefrontals small, widely separated; two small frontoparietals present; an anterior mental, followed by three pairs of chin-shields, the latter forming common median sutures or with the posterior pair separated; four or five femoral pores on each thigh; 26 or 27 scales in a longitudinal series from the occiput to the base of the tail; 16 scale-rows around the middle of the body; scales smooth first finger rudimentary; a light dorso-lateral stripe on each side of the body.

Therefore, since differences are not apparent and since the resemblances are so marked, *Tretioscincus romani* and *T. brasiliensis* may be placed in the synonymy of *Calliscincopus agilis*.

Since the *Tretioscincus lævicauda*, recognized by Boulenger in 1885, has been transferred to the genus *Gymnophthalmus* by Cope (1887), this leaves only one species in the genus *Tretioscincus*.

Tretioscincus bifasciatus (Duméril)

Heteropus bifasciatus Duméril, 1851, 'Cat. Méth. Coll. Reptiles,' Paris, Mus., p. 182, (type locality, "Vallée de la Madeleine, Nouvelle-Grenada," northeastern Colombia).

Tretioscincus bifasciatus Cope, 1864, Proc. Acad. Nat. Sci. Phila., p. 229.

The longitudinal dorso-lateral stripes are blue-green in the representative from Medellin, Colombia, listed below. Also, the general ground color of the body is moderate blackish brown above and below,

and very intense blackish brown on the sides. Some of the dorsal scales, particularly the anterior ones, and all of the ventral rows, show blue-green or grayish-blue emarginations. The tail, which is regenerated, is bright purple.

COLOMBIA.—One A. M. N. H. specimen: No. 32632, secured at Medellin by Nicéforo Maria. This example has 16 scale-rows around the body and shows no femoral pores. In addition, three M. C. Z. specimens have been examined: Nos. 21973–74, secured at Honda by Nicéforo Maria; and No. 11302, found in the region of the Santa Marta Mountains by A. S. Pearse.

TUPINAMBIS Daudin

Tupinambis nigropunctatus Spix

Tupinambis nigropunctatus SPIX, 1825, 'Spec. Novæ Lacert. Brasil.,' p. 18, (type locality, Brazil).

This species is distinguished by its possession of only one large loreal plate.

SOUTH AMERICA.—Sixteen specimens: Nos. 1930–31, 1933–34, 2620, 2641, 5003, 28666, 29945, 29947, 29956, 21739, 31831, 32339, 32343, and 32809, from the New York Zoölogical Park.

BRAZIL.—Two specimens: No. 37404, collected at Frechal by G. H. H. Tate and T. D. Carter; and No. 37446, taken at Limão, in the valley of the Rio Cotinga, by the same collectors.

BRITISH GUIANA.—Four specimens: Nos. 628–29, collected by Maximillan; No. 25039, from Kamakusa; and No. 18190 from Kartabo, the latter collected by William Beebe.

TRINIDAD.—Five specimens: Nos. 1639–41 and 1649–50, secured at Princetown by F. M. Chapman.

Tupinambis rufescens (Günther)

Tejus rufescens GÜNTHER, 1871, Proc. Zool. Soc. London, p. 541, (type locality, Mendoza, Argentina).

Tupinambis rufescens BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 335.

This form is distinguished from *nigropunctatus* by its possession of two large loreal plates, and from *teguixin* by its high number of longitudinal rows of ventral plates (more than 42). It is, however, not easily separable from *Tupinambis duséni* Loennberg (1910), with which it is likely to be confused. In fact, the latter species seems to be based upon but a slight variation of *rufescens*, differing chiefly in the size and proportionate length of the digits and their claws.

ARGENTINA.—One specimen, No. 17661, from the Cope Collection.

Tupinambis teguixin (Linnæus)

Lacerta teguixin LINNÆUS, 1758, 'Syst. Nat.,' X, p. 208, (type locality, Indiis).
Tupinambis teguixin BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 335.

This lizard is distinguished from *nigropunctatus* by its possession of two loreal plates, and from *rufescens* by its low number of longitudinal rows of ventral plates (less than 42).

SOUTH AMERICA.—Two specimens: Nos. 1897 and 20352, from the New York Zoölogical Park.

BRAZIL.—Two specimens: No. 37544, taken at Bahia by R. H. Beck; and No. 23043, found at Monte Serrat, Serro do Itatyia, by E. G. Holt.

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