

Catalogues of the REPTILES obtained during the Explorations of the Parana, Paraguay, Vermejo and Uruguay Rivers, by Capt. Thos. J. Page, U. S. N.; and of those procured by Lieut. N. Michler, U. S. Top. Eng., Commander of the Expedition conducting the Survey of the Atrato River.

BY E. D. COPE.

I. The Paraguay Collection.

The expedition commanded by Captain Page, was sent out by the United States Government, during the administration of President Fillmore, in the year 1853. It ascended the Parana river, to the mouth of the Paraguay; which stream it explored as far north as Curumba, in Brazil, lat. 19° S. Among the most important points at which observations and collections were made, were La Paz, Corrientes, Abulquerque, and Fort Coimbra, in the Argentine Confederation, and Assuncion and Salvador, in Paraguay. On the return voyage, an expedition ascended the Vermejo River, one hundred and twenty miles. A land expedition across the Paraguayan territory was also made, which reached the banks of the Parana near the island of Iquibe.

Capt. Page subsequently left Buenos Ayres for Santiago and Tucuman, by an overland route; from which point he descended the Salado, to Monte de la Cueva de Lobo. Previous to this, he had ascended the Uruguay River to the Salto Grande, lat. 31° 15' S. In 1858, another and less extensive expedition left the United States for the La Plata and confluent waters. On this occasion, the vessel commanded by Capt. Page, was the *Argentina*, vice the *Water Witch*, which had conveyed the first expeditions.

The zoological collections made by the naturalists accompanying the expeditions, are extensive and valuable. Partial investigations among them have been made, and recorded in appendices to Capt. Page's narrative and statistical work, "*La Plata, the Argentine Confederation and Paraguay*," New York, 1859. Attention is called to some remarks by Dr. Girard, of Washington, on the fish and reptiles, at p. 602.

Fifty-nine species of reptiles were obtained; with these and others, we know about seventy species, a sufficient number from which to deduce most of the distinctive features of the reptile fauna of the Paraguay and Parana basins: as yet we can obtain but little clue to the extent of its zoological limits.

Of the seventy species, eighteen (marked (Braz.) in the catalogue) are identical with those of the regions drained by the tributaries of the Amazon, and by the eastern Brazilian coast streams. But three are found in the Chilian district. At least forty have not been discovered out of the region in question. Of these, nineteen are represented by nearly allied species in the Brazilian district; five find their closest representatives west of the Andes. The following genera, so far as is known, are peculiar: *Phyllosira*, *Phimophis*; *Teius*, *Scartiscus*; *Lysapsus*, *Pyxicephalus*, *Phryniscus*, *Scytotis*. *Heterodon* does not occur in any other section of the regio neotropica. We miss the more æquatorial types *Catostoma*, *Rhinostoma*, *Tantilla*, *Spilotes*, *Herpetodryas*, *Dryophis*, *Dipsas*, *Olisthenes*, *Brachyrhynchum*, etc.

Of the species brought home by the expedition, twenty-five had not been previously known to zoologists. Four of these represent types of genera new to the system, viz.: one ophidian, one lacertilian and two batrachian.

The preservation of the specimens composing the collections, was under the immediate care of Mr. Christopher Wood of Philadelphia.

TESTUDINATA.

Hydraspis hilairii Gray. Dum. Bibr., Erp. Gen., ii. 429. (Braz.)

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OPHIDIA.

Caudisona terrifica Laur. Cope in Mitchell's Resear. on Venom of Rattlesnake, p. 120. No. 5783. (Braz.)

Bothrops alternatus Dum. Bibr., Erp. Gen., vii. p. 1512. No. 5822.

Bothrops diporus Cope.

Second superior labial as in *B. alternatus*, not forming the anterior boundary of the fossette, and in contact with small scales below and behind the nasals. Superior labials eight; suture between third and fourth, a little behind anterior margin of orbit. Scales of vertex strongly keeled; lowest row of temporals smooth. Superior margin of rostral one-third the length of inferior; superolateral margins very concave. Muzzle a little depressed in profile; canthus rostralis strongly pronounced, not acute. Scales in twenty-five rows, strongly biporous. Caudal horn elongate. Gastrosteges 168, urosteges 50. Length of head and body 36 inches; of tail, 5 inches 6 lines. Ground-color yellowish brown, with numerous deep brown black-bordered triangular spots, sometimes alternating, sometimes confluent at their apices. On the sides their bases appear as though cut off by a longitudinal band of the ground-color, and the middle portions of them obliterated; a general cruciform outline often results when the confluence of the apices is complete. A longitudinal spot on each side of the nape and occiput, a round one on each parietal region, and one on the muzzle; all obscured in old specimens. A black band from orbit crossing upper parts of posterior superior labials. Beneath yellowish, punctulated with brown. Dark brown spots on the ends of the gastrosteges. From the Vermejo River region. No. 5401.

Elaps frontalis Dum. Bibr., l. c. vii. p. 1223.

Frontals pale bordered, or a pale band across postfrontals (var. *balicoryphus*.) (Braz.)

Elaps altirostris Cope, Pr. A. N. S. Philada., 1859, p. 345.

The native country of this species is now first ascertained. It is readily distinguishable by its rather elevated front and elevated labial shield. The gular region is almost entirely black. No. 5346.

Elaps pyrrhocryptus Cope.

Rings in threes—six triads on the body and one on the tail in the specimen described; the red interspaces are a little longer than the middle black ring; the scales which they involve are so broadly tipped with black as to obscure (in one place completely) the red ground. Middle black ring twice as wide as outer black ring; the latter twice as wide as the inclosed yellow ring. Neck to occipital plates covered by a red space. Head black, the frontals narrowly, the labials broadly margined with yellow or red. Gular region light, inferior labials margined with black. Rings complete on the belly. Head depressed; muzzle obtuse, short. Rostral plate broader than high; postnasal smaller than prenasal, well in contact with preocular. Lateral, occipital and frontal borders of vertical equal. Total length. No. 5395.

This species is allied to *E. melanogenys* and *marcgravi*.

Cochliophagus inaequifasciatus Dum. Bibr., Erp. Gen., vii. p. 480.

The genus *Cochliophagus* differs from *Dipsas* (*Leptognathus*, Gthr.) in the absence of a larger vertebral series of scales, and in the compression of the head posteriorly. The maxillary bones exhibit a rudiment of the horizontal wing, so developed in *Dipsas*. The native country of the only species has been supposed to be Brazil, by Duméril and Bibron. No. 5815.

Oxyrhopus trigeminus Dum. Bibr., viii. p. 1013, No. 5818. (Braz.)

Phimophis guerini Cope, Pr. A. N. S. Philada., 1860, p. 79, Dum. Bibr., vii. p. 991.

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Thamnodynastes nattereri Wagler, Dum. Bibr., vii. p. 1149. (Braz.)

This species was taken swimming in the river, near Assuncion. Its aspect is not very dipsadine; perhaps it should be removed, with the *Phrynonax lunulatus*,* to the neighborhood of *Hypsirhynchus* and *Tomodon*. Boie more nearly expressed its affinities in calling it a *Tropidonotus* than others have who denominate it *Dipsas*.

Xenodon severus Boie, Erp. Gen., vii. 756. Nos. 5798-9. (Braz.)

Heterodon d'orbignyi Dum. Bibr., l. c. vii. 772. No. 5808.

Helicops lepriurii Dum. Bibr., l. c. vii. 750. Günther, Ann. M. N. H., 1861, p. 427. No. 5400. (Braz.)

Dimades plicatilis Gray, Dum. Bibr., l. c. vii. 344. No. 5802. (Braz.)

Opheomorphus meremii Fitz.

Var. *semiaureus* Cope, of a yellowish brown, the scales and head plates without black borders. Abdomen yellow, gastrosteges dark-bordered posteriorly; gular and labial regions bright yellow. No. 4665.

Opheomorphus doliatus Cope, Synopsis Holcosus and Ameiva, &c. 15.

Liophis doliatus Reinhardt, Herpetologische Mittheilungen, p. 14.

Scales in nineteen rows. Var. *sublineatus* Cope, Proc. Acad. Nat. Sci. Philada., 1860, 252. No. 4666. Var. *cæsius* Cope. Light leaden brown, the scales black bordered; temporal regions black; head plates black bordered. Short irregular transverse brown lines on the dirty white abdomen. Superior labials white. Trace of a lateral black band on posterior part of body and tail. Santa Fe. No. 5393.

This serpent looks as though intermediate between the var. *sublineatus* and *O. meremii* of Brazil, and *Liophis subfasciatus*. Close resemblance may be traced between the var. *sublineatus* and *Lygophis rutilus*. These species of the genus *Liophis* as formerly understood, are in a very interesting condition—somewhat better defined than the forms of *Herpetodryas*, and more as in *Xenodon*, *Thamnophis* and *Oxyrhopus*. Careful observation of such species must be of the greatest value in the demonstration of the more difficult problems of natural science.

Liophis subfasciatus Cope, Synopsis Holcosus and Ameiva, &c., p. 17. No. 6310, 5809-4-3.

Lygophis rutilus Cope, l. c. p. 20. Buenos Ayres. No. 5397.

Lygophis flavifrenatus Cope, l. c. p. 20. No. 5398.

Lygophis dilepis Cope, l. c. p. 21. No. 5861.

Lygophis lineatus Fitz, Dum. Bibr., Erp. Gen., vii. p. 655. Nos. 5810, 6088. (Braz.)

Pseudophis schottii Fitz, Dum. Bibr., l. c. vii. p. 1118. (Braz.)

A large specimen of this species (No. 5801) measures sixty-seven English inches. A second species of *Pseudophis* is the *P. patagoniensis*—*Callirhinus* of Girard.

Philodryas aestivus Gthr., Dum. Bibr., vii. p. 1111. No. 5812. (Braz.)

Philodryas latirostris Cope, Synopsis of Holcosus and Ameiva, &c., p. 13.

The preocular plates do not always reach the vertical in this species. Scale pores single Nos. 5364, 5811.

* *Tropidodipsas lunulata* Cope, Pr. A. N. S. Philada., 1860, p. 517, exhibits a union of the peculiarities of tree and water snakes, and is the type of the genus *Phrynonax*, Cope. The body is rather short, much compressed; a few median rows of scales weakly keeled. Anal plate entire. Scales biporous. Head distinct, broad, muzzle rounded. Two nasals, one loreal, one preocular. Eye large, pupil round. Dentition isodont. Allied to *Hypsirhynchus*. Differs from *Spilotes* in the long slender tail and broad depressed muzzle.

Phyllosira flavescens Cope.

Char. gen.—Subfam. Athætullinæ. Dentition syncranterian. Two nasals, one loreal and preocular. Body cylindrical. Scales in subtransverse series, with two larger median dorsal rows, which alone are keeled. *Postabdominal scutellum entire*. Pupil round.

Char. specif.—Scales in ten longitudinal series. Eight superior labials, eye over fourth and fifth; two postoculars. Two large, one small temporal. Lateral borders of vertical slightly concave, not touching preocular; prefrontals as long as postfrontals; rostral as high as broad. Front slightly convex. Length of head 9 lines; of body 17 inches 5 lines; tail mutilated. Color yellowish brown anteriorly, posteriorly brownish yellow. Below yellow. No. 5813.

This genus is nearly allied to *Athætulla*. The species seems to bear some resemblance to Schlegel's *Dendrophis auratus*.

Thrasops marginatus Cope.

Eight superior labials, eye over the fourth and fifth. Three large temporals. Preocular sometimes in contact with vertical. Two postoculars; loreal none; postnasal no longer than prenasal; its posterior border vertical, as long as its frontal. Scales in fifteen longitudinal rows, all keeled but the inferior; tail scales smooth. Angulation of abdominal shields weak. Length of rictus 1 inch; of head and body 33 inches 9 lines; of tail 16 inches 9 lines.

General color greenish straw color; the scales with their margins and keels brown. Median dorsal region bluish green; head dark green, the plates margined with black; labials pale, not margined. No. 4667.

This species resembles the *occidentalis* in the scutellation of the head; that species differs in its uniform bright green color, and fewer keeled scales. The *athætulla* exhibits two longitudinal blue bands, more numerous superior labials, and a more elongate nasal shield.

Pseudoëlaps pantherinus Fitz., Dum. Bibr., vii. p. 181. No. 5796. (Braz.)

Erythrolamprus venustissimus Boie, Dum. Bibr., vii. p. 851. No. 5862. (Braz.)

Phalotris tricolor Cope, Pr. A. N. S. Philada., 1861, p. 524, Dum. Bibr., vii. p. 837. No. 5816.

Epicrates crassus Cope.

Scales in thirty-nine longitudinal rows. Head short, wedge-shaped, muzzle rather narrow; superior labials twelve, sixth and seventh entering orbit. Head plates as in *E. cenchria*. General form thick and short. Tail less than one-eighth of total length; the latter 36 inches 6 lines; length of head 1 inch 5 lines.

General color leather brown; three rows of darker spots on each side, the inferior broken up, the superior bordered with whitish above on the thirteenth row of scales. These borders uniting form a band on the anterior third of the body, immediately above a brown band formed by the confluent spots. About thirty-four distinct pale oval spots on each side the vertebral line, sometimes confluent with those of the opposite side; they form a longitudinal band on the nape. A median and two temporal brown bands on the head. Cadosa, Parana River. (Sm. No. 5409.)

The number of species of *Epicrates* without subocular plates is perhaps a matter of uncertainty. The specimens of *E. cenchria* (as figured by Prince Neuwied), which I have seen, have the seventh and eighth superior labials entering the orbital rim. So has the *E. maurus*, according to Dr. Gray, who states that it is further characterized by a very elongate ninth. There is a common brown species, of which I have seen none but adult specimens, procured in Trinidad, Venezuela, and Panama, in which the eye rests upon the sixth and seventh superior labials; occasional traces of lateral and dorsal
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spots may be observed on some of them. These agree in all points of squamation with the specimens often seen, which exhibit pale dorsal and numerous lateral spots and a lateral stripe. This is var. A of *Ep. cenchria* of Dr. Gray. I have seen only young specimens of this, though the author just mentioned enumerates "an adult stuffed." Can it to be the young of the brown species above mentioned? Perhaps it is the *Boa lateristriga* of Boie, but that species does not appear to have been described. No doubt there are other names applicable to it. The *E. crassus* resembles it in point of labial plates and coloration, but differs from it and the *cenchria* in having ten rows of scales fewer. This is the most important peculiarity, it may be noted, which characterizes the *Eunectes notaeus* of the same region.

Eunectes notaeus Cope, Synopsis Holcosus and Ameiva, &c., p. 10. No. 4707. Taken in the Paraguay River about thirty miles south of Fort Coimbra, Brazil, near lat. 20° S.

Stenostoma melanotermia Cope.

Scales in fourteen rows. Tail five or six times the breadth of the head in length; anal plate large. Eye large; postnasal elevated to its line of position, widely separate from the comparatively broad superciliary. Rostral narrow; prenasal and fronto-nasal separate. Parietals and postparietals well developed, narrow. General color pale reddish white, with fourteen longitudinal chestnut brown bands, one on each series of scales. Head and tip of tail black.

I have compared this species with *S. albifrons*, from Trinidad, where the nasal and superciliary are in contact. If d'Orbigny's figure is correct, the *S. albifrons* from Buenos Ayres is another species, having a broad rostral plate and separate postnasal and superciliary.

The *melanotermia* was taken at Corrientes. No. 5406.

AMPHISBÆNIA.

Amphisbæna camura Cope.

Body thick, short; tail short, obtuse, with sixteen rings. Preanal plates ten, longer than broad; preanal pores four. Muzzle abruptly contracted, short, higher than broad; swollen arched in profile. Rostral plate five-sided; naso-rostrals nearly transversely parallelogrammic; frontonaso-rostrals nearly as broad as long; occipitals rounded anteriorly and posteriorly. Labials four, three; high. Eye in the superior angle of the ocular, which is acute anteriorly, and bounded behind by three segments of the first annulus. Mental plate nearly as broad as long. Length of head and body 15 inches; of tail, 2 inches 6 lines. Head and upper parts of body and tail brown; below, and a broad collar, yellow. No. 5860.

This species is most nearly related to *A. angustifrons*, from Buenos Ayres. The head and plates are relatively much shorter and more obtuse; there is one more labial; the yellow collar is not seen in the latter.

LACERTILIA.

Ophiodes striatus Wagl., Dum. Bibr., v. 789.

Ophiodes exhibits the peculiar structure of the scales and tongue characteristic of the *Diploglossinæ*, as stated to exist in *Panolopus*, &c., by the author in a previous memoir.* It evidently succeeds the latter genus in the system. No. 5819. (Braz.)

Emœa frenata Cope, Pr. A. N. S. Philada., 1862, p. 187.

Mabuia dorsivittata Cope.

A species to be contrasted with the *surinamensis* in the author's table

* Pr. A. N. S. Philada., 1862, p. 188.

of species of *Mabuia*.* The size is much less. Eight superior labials, eye over sixth; seven inferior. Supranasals separating rostral from internasal; the latter is nearly twice as broad as long, and is extensively in contact with the frontal. Fronto-nasals small, transverse. Frontal pentagonal cuneiform; its longest side bounded by first supraorbital only; of the latter there are three. Fronto parietals large, interparietals broad; postoccipitals present. Ear without lobes; thirty longitudinal rows of scales; six preanal scales. A few calcaneal tubercles. From muzzle to ear-orifice 5 lines; from ear to vent 1 inch 6 lines. Vent to end of tail 3 inches 9 lines.

Color.—Below greenish white. Sides (six and a half rows of scales wide) brownish black, traversed by two longitudinal white lines, one from the muzzle and one from the lip, two and two half rows of scales apart. Dorsal region brown for a width of only two and two half rows of scales, divided by a narrow median blackish line from nape to rump. Head brown above. Tail brown, with the lateral bands continued. (No. 5405.)

Teius viridis Merr., Dum. Bibr., Erp. Gen., v. 143. Nos. 4399–5856.

Ameiva surinamensis Gray, Cope, Synopsis Holcosus and Ameiva, &c., p. 8. (Braz.)

Tupinambis teguexin? Dum. Bibr., x. p. 85. No. 4708. (Braz.)

Ortholæmus fitzroyi Girard, U. S. Expl. Exped., p. 373. No. 5853.

Taraguira torquata Gray, Dum. Bibr., iv. p. 344. No. 5897. (Braz.)

Microlophus spinulosus Cope.

This species differs from the *peruvianus* in possessing three rows of scales anterior to that which is homologous with the internasal, instead of two; the anterior two are entirely transverse, and composed of four scales each; the posterior of two large ones. Two parietals, narrower than interparietal. Supraorbitals short, separated by two rows of scales from the superciliary series. Supraorbital margin thickened posteriorly. Two rows above the labials, and two series of loreals. Temporals spinulose. Infralabials longitudinal. A group of tubercles on anterior margin of ear; other groups on the neck folds. Scales of sides as large as the abdominal. Inguinal and axillary scales, and those of the extremities, especially of the posterior face of the femur, with their keels prolonged into recurved spines. Crest scales twice as high as long, thickened on the nape. Palatine teeth present. Length from muzzle to neck fold 1 inch 6 lines; neck fold to vent 4 inches 3 lines; vent to end of tail 6 inches 6 lines; of anterior extremity 2 inches; posterior extremity 2 inches 10 lines. General color bright olivaceous, with indistinct brown variations; extremities narrowly brown barred. (No. 5956.)

Scartiscus caducus Cope, Pr. A. N. S. Philada., 1862, p. 182. No. 5852.

Polychrus anomalus Wiegman, Dum. Bibr., iv. 69.

BATRACHIA.

Lysapsus limellum Cope, Pr. A. N. S. Philada., 1862, p. 157. From the Curumba River.

The genus *Lysapsus* is very nearly allied to *Pseudis*, and can scarcely be placed in another family. Renewed examination shows, as before, that the sacral diapophyses are dilated, and the digital expansions as large as those of *Acris*, and more developed than in *Pseudacris*. A difficulty in distinguishing between *Oxydactyl* and *Platydictyl* groups of *Opisthogloss* *Anura* has been experienced by some zoologists, and to the author it seems that such a primary division cannot be maintained. It is not impossible that certain genera

* Pr. A. N. S. Philada., 1862. *M. (Riopa) albipunctata* Gray, Am. M. N. H. xvii. 430. was omitted from the list.

may embrace species with dilated and undilated digits, *e. g.* *Lithodytes*, Fitz. In Prof. Peters' genus *Plectromantis* those of the hinder extremity only, are furnished with discs. The distinguished herpetologist, Baird, has developed* an important peculiarity of most *Platydactyla* or *Hylæformia*,† viz: the syndesmosis of the external pair of metatarsal bones (called by me l. c. basal phalanges.) This, however, exists in the *Cystignathidæ* among *Oxydactyla*. This author also employs the areolation of the abdominal integument, but Duméril has mentioned the existence of exceptions to this rule; such are species of *Hylodes*, *Elosia* and *Hylarana*; so were *Lysapsus*, if its digital expansions be regarded of primary value. Neglecting the latter point, the genus just mentioned would fall into the *Discoglossidæ* of Günther. The propriety of such a separation from *Pseudis* is very questionable, for the value of difference in the form of the sacral diapophyses is reduced to its minimum in view of the existence of a *P. mantidactyla*, from Buenos Ayres, which I describe as follows. It will be seen that it bears much resemblance to the *L. limellum*:

General form that of *P. paradoxa*. Two vocal vesicles. Tympanum nearly as large as eye. Skin of back smooth, pustulous, most so posteriorly. Skin of tibia and foot minutely roughened; several rows of acute rugosities on the former. One acute cuneiform tubercle. Skin beneath entirely smooth. Tips of toes very slightly dilated, brown. Above uniform light brown. A yellowish band from axilla to femur; another above it on the lumbar region. Femora cross-banded with brown above and with three longitudinal brown bands on their posterior face. A light band on the posterior face of the brachium. The sacral diapophyses are cylindrical. Length of head and body 1 inch 6 lines; tarsus to end of longest toe 1 inch 2 lines; tibia and femur 1 inch 5 lines. Mus. Acad., Philada.

Pyxicephalus ——— ? n. sp.

Vomerine teeth in two elevated fasciculi opposite the posterior border of the internal nares. Ostia pharyngea smaller than nares. Tongue oval, scarcely emarginate. Muzzle elevated, higher than the length of the short, approximated canthus rostrales. Palpebræ prominent, thickened, covered with transverse glands, broader than the interorbital space. Tympanum concealed. Extremities short; numerous antebrachial palmar and subdigital tubercles. Cuneiform process strongly developed. Toes half-webbed. Skin of inferior surfaces glandular, areolated. Sides and superior surfaces coarsely glandular; a series of four or five larger glands extends from each orbit, and there are two parallel rows on the occipital region. Extremities glandular. Expanse of rami mandibuli 10 lines. Muzzle to end of coccyx 2 inches 2 lines. Anterior extremity 1 inch 2 lines. Posterior 1 inch 10 lines. Tarsus 4·5 lines.

Ground-color pale brown or whitish, with a series of large dark brown pale bordered spots on the median dorsal region, and smaller spots on the sides. The former interrupt a pale vertebral vitta. Three spots on each maxillary region, and one between the orbits. Extremities brown spotted. No. 5825.

If the short descriptions of the *P. americanus* (hitherto the only species) are reliable, this animal differs in the position of the vomerine teeth and in coloration.

Pleurodema bibronii Tschudi, Dum. Bibr., viii. 410.

Pleurodema biligonigera Cope.

Liuperus biligonigerus Cope, Pr. A. N. S. Philada., 1860, p. 517.

This species was described from a specimen in which the vomerine teeth and lumbar gland were obliterated. It differs from the *bibronii*, and from the species or varieties enumerated by Mr. Bell, in the absence of dermal glandules. As compared with our specimen of *bibronii*, the head is

* Pr. A. N. S. Philada., 1854, p. 59.

† Exceptions are seen in *Hylarana*, *Potypedates* and *Rhacophorus*.

narrower and shorter, and the gape of the mouth less; the aspect is more that of *Engystoma*. The expedition specimen has the lumbar gland black. It is probably one of Günther's varieties of *bibronii*. No. 5840.

Cystignathus fuscus Gthr. Var. No. 5842. (Braz.)

Cystignathus podicipinus Cope, Pr. A. N. S. Philada., 1862, p. 156.

Phryniscus nigricans Wiegman, Dum. Bibr., viii. 723. No. 5834, et var. with very large (?) white spots on the sides, belly, and labial regions. No. 5833.

Phrynoidis agua Cope, Daud., Dum. Bibr., viii. 703. (Braz.)

Bufo diptychus Cope.

Cranium without longitudinal ridges. Canthus rostralis concave rounded; muzzle elevated, not protruding. Orbit as wide as length of muzzle anterior to it. Tympanum small, scarcely perceptible. Tongue elongate, subcylindrical. Internal finger slightly longer than second, shorter than third; toes one-third palmate, third longer than fifth. A tarsal cutaneous fold continuous with the inner metatarsal tubercle; outer tubercle subconical. Paratoids beginning behind upper margin of tympanum, divergent, trilateral, extending posterior to the axilla, and continuous with a lateral dermal fold. Skin above smooth, with a few scattered tubercles. Femora, sides and abdomen rugulose; the first partly bound by the integument of the sides. The extended limbs reach, the anterior to the femur, the posterior to the end of the muzzle. Muzzle to vent one inch. Above light brown, with a whitish vertebral line; there are four deep brown spots on each side of this, and a broad chevron-shaped band of the same from border to border of the upper eyelids. A brown band on canthus rostralis, and two from orbit to lip. One from orbit to shoulder on outer edge of paratoid, continuous with a blackish shade beneath the lateral fold. Abdomen brownish white, with a median series of blackish variations from sternum to abdomen. No. 5841.

This species bears some resemblance to *Phrynoidis variabilis* of Dr. Günther, a species furnished with cranial ridges and a distinct tympanum. It differs from *B. poeppigii* Tsch., as described by Girard, in the form of the muzzle, and condition of skin, and coloration. The paratoids are larger than in *B. thaul* Lesson (fide Girard) and *B. chilensis*; the skin is much smoother, and the coloration different. In *B. pantherinus* (*maculatus* Hallow., Pr. A. N. S., 1854, p. 101) and *guineensis*, the paratoids are elongate oval.

Hypsiboas raniceps Cope.

Vomerine teeth in two oblique curves, whose inner limb is very short,—the structure prevailing in *Hypsiboas*. External digits one-third webbed. Only two phalanges of the fourth toe free. Appressed femur extending five-sixths the distance to the axilla; no calcaneal appendage. Fingers reaching femur. Head longer than broad, subacuminate; loreal region oblique, not grooved; canthus rostralis slightly curved, rounded. Tympanum more than half the size of the eye. Tongue oval, entire. Skin everywhere smooth, except upon the usual regions—abdominal, thoracic, and inferior femoral. A subgular vocal sac, with very large oval openings. Expanse of rami of mandible 9 lines; muzzle to arms 2 inches 9 lines; anterior extremity 1 inch 6 lines; posterior extremity 4 inches 5 lines. Ashy, reddish, or dark brown above, with darker cross-bands or broken marblings, which are most distinct posteriorly. A dark brown band from end of muzzle through eye to posterior margin of tympanum. Brachium, whole length of sides, and all the surfaces of the posterior extremity, except postero-internal of femur and external of tarsus, vertically or transversely brown banded. A whitish band on outer face of the antebrachium, and of tarsus and foot. Subanal region paleish. Abdomen immaculate; thorax and gular region shaded and spotted with

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brown; mandibular border whitish, maxillary border brown; one specimen with a brown vertebral line.

This species resembles the *H. fasciatus* of Günther in some respects, but is more allied to *H. boans*. In the latter three phalanges of the fourth digit are free; the canthus rostralis is acute, and there are various differences in coloration. The *raniceps* was obtained on the Rio Vermejo. Nos. 5408-5036.

Hyla acuminata Cope

Head longer than wide, muzzle rather pointed, depressed, the canthus rostralis almost obsolete. Nostrils not pierced in a swelling. Eyes prominent, not large, twice as large as tympanic disc. Skin of upper surfaces warty or nearly smooth; gular region areolated. Heel reaching anterior border of orbit; two phalanges of fourth toe free. Fingers entirely free, vomerine teeth in two straight transverse series, opposite the posterior margin of internal nares. Tongue short elliptic, slightly emarginate. Muzzle to posterior border of tympanum 7 lines, do. to anus 1 in. 9 lin., anterior extremity 10 lin., posterior do. 2 in. 5 lin. No. 5843. A subgular vocal vesicle.

General color brownish gray, beneath uniform, or with a few blackish vermiculations; above with a blackish triangular spot between the eyes, and shades and streaks on the sacral and scapular regions. Hinder extremity crossbanded with blackish, most distinctly on femur; the anterior and posterior surfaces of the latter marbled with blackish.

This species resembles *Cystignathus podicipinus* in form, and *Hyla versicolor* in coloration.

Hyla nasica Cope

Head small, as long as broad, narrow anteriorly, muzzle depressed, prominent, faint. Eye rather small, twice the extent of the tympanum. Tongue elliptic, scarcely emarginate, vomerine teeth in two transverse contiguous short rows between the internal nares. Fingers free or nearly so. Skin above slightly tuberculous. Gular region faintly areolated, a vocal sac. Length of head and body 1 in. 5 l. Breadth of gular region 4.5 lines. From anus to end of fourth toe 1 in. 9. lin.

Beneath pale, uniform. Above dark rufous brown with some darker longitudinal markings on the back. A dark band from muzzle through tympanum to side. Femur and posterior lateral region varied with dark brown. No. 5835.

This animal resembles the *vauterii*, but the head is smaller, narrower and more acuminate; the tongue is more elongate and the vomerine teeth are more anterior.

Hyla vauterii Bibr. Günther, Catal. Brit. Mus., 106. No. 5407. (Braz.)

Scytopsis hebes Cope.

Char. gen.—Maxillary and vomerine teeth. Tongue slightly free posteriorly. Ear perfectly developed, tympanum not concealed. Diapophysis of sacrum dilated. Toes webbed. Large paratoids, which are confluent, covering the anterior part of the back and top of head to muzzle.

This genus, it will be seen, enters the "family" *Pelodyadidæ* of Dr. Günther, which has been heretofore represented by but one genus, established for an Australian species.

Char. spec.—Ostia pharyngea and internal nares large, the vomerine teeth in two straight transverse series behind the posterior border of the latter. Tongue broader than long, scarcely emarginate. Tympanum horizontally elliptic, overhung by the paratoid; half as large as eye. Eyelid not prominent, encroached upon by the paratoid. Skin above with a few depressed protuberances; head and body beneath everywhere coarsely areolated; the skin thick and coriaceous. Head broader than long, loreal region concave,

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canthus rostralis obtuse. Palettes of the fingers nearly as large as tympanum; digits slightly webbed; two phalanges of fourth toe free. Heel reaches to orbit when the leg is extended. No vocal pouch in the specimen (5837) examined. From angle to angle of mouth beneath, 1 in. 3 lin.; from symphysis to postgular fold 6 l.; muzzle to vent 3 in. 3 lin.; posterior extremity 5 in. 6 l.; anterior do. 1 in. 7 lin.

Above leathery brown, with deep brown shades on the back, and cross-bands on the limbs. Sides and posterior faces of femora reticulated with the same, enclosing on the former, yellowish areas. Beneath yellowish brown.

Phyllomedusa azurea Cope.

Muzzle short, elevated, truncate; canthus rostralis rounded, a little concave. External nares entirely lateral. Supra-palpebral region not prominent, the visual fissure rather restricted. Tympanic disc near the posterior canthus of the latter, equalling less than half its extent. Skin of the superior regions smooth; a narrow median band of areolations on the inferior surface of the femur. Paratoids very slightly developed. Anterior limbs extended posteriorly, reaching hinder side of femur. Heel about reaching tympanic disc. Internal nares anterior, smaller than the eustachian orifices. An acute median emargination in the premaxillary region. Two external of the anterior digits, longest, nearly equal, their basal phalanges, united by the integument: thumb shortest, almost opposable. Soles slightly tuberculous. Length of head and body one inch six lines; from end of muzzle to tympanum four lines; length of antebrachium 4.5 lines; of tibia 7 lines; of tarsus 5.5 lines; metatarsus and longest digit 5 lines.

Color of the upper surfaces of the body and extremities, except that of the brachium, milky purplish blue. Beneath white or yellowish. The edges of the jaws are margined with the same, which margins form a narrow, lateral band, which extends to the middle of the side. Posterior lateral region, with the white surfaces of the extremities, with vertical blackish-brown bands. The blue is reduced to a narrow band on the femur; it is margined with white on the anterior extremity and the tarsus. No. 5832.

I cannot find a trace of vomerine teeth in the two specimens at my disposal. Their absence may be accidental; perhaps it is a specific character—its importance is not greater than this.

This species differs from *P. hypochondrialis* of Surinam (*Hyla hyp.* Daud.) in its smaller and relatively less depressed head, shorter hinder extremities, and absence of dark spots upon the anterior lateral region.

The *hypochondrialis* is believed by Prof. Schlegel, (Abbild. Amph., Dec. i., p. 24,) to be the young of *bicolor*. The same statement is made by Dr. Tschudi, (Classif. der Batrachier, p. 27,) and by Duméril and Bibron. Drs. Burmeister and Günther apparently acquiesce in this opinion. There are no reasons to doubt the correctness of this view, other than such as a consideration of the following differences may furnish. The *hypochondrialis* is apparently destitute of the lateral, extremital, and gular yellow spots of the *bicolor*; on the contrary, the color of the back has a straight outline, and is distinctly defined upon the sides. The superior labial yellow border is not seen in the *bicolor*, nor is the bright color of the upper surfaces wanting upon the humerus, as in *azureus* and *hypochondrialis*.

II. The Darien Collection.

The objects and direction of the expedition to which we are indebted for the collection below catalogued, have been explained briefly by Mr. John Cassin, the well-known ornithologist, in these Proceedings.* He has also stated the positions of the localities at which portions of the collection were made. Thirty-two species of reptiles were obtained, of which thirteen were new to

* 1860, p. 132.

science. A brief notice of them has been given by Arthur Schott, Esq., the exploring naturalist and geologist, at p. 255 of Lieut. Michler's Report to the United States Government.

CROCODILIA.

Jacare sclerops Dum. Bibr. Turbo. No. 5253.

Crocodilus sp. young. Turbo. 4311. Vide Mr. Schott's Report, l. c.

OPHIDIA.

Elaps corallinus Wied., Dum. Bibr., vii. 1207. No. 3005.

Elaps melanogenys Cope, Pr. Ac. Nat. Science Phil., 1860, p. 72.

Var. with ten sets of rings, and the postocular cross-band interrupted by the black ground on the temporal region. It resembles the *dissoleucus** slightly, but wants the acute, prominent muzzle, and small rostral plate of that species. The labials are not so elevated as in that species, and *lemniscatus* and other allies, the fourth (subtending the orbit) being as long as high. The prefrontals are not so small, relatively, as in *dissoleucus*, but are more as in *lemniscatus*, where they are smaller than in *pyrrhocryptus*. Carthagera.

Himantodes cenchrea Dum. Bibr., vii. 1065. Nercua. No. 4300.

Sibon annulatum Fitz., Dum. Bibr., vii. 1141. No. 4301, 4353.

Oxybelis acuminatus Cope, Dum. Bibr., vii. 819, Carthagera. No. 4306.

Herpetodryas carinatus Boie, Dum. Bibr., vii. 207.

Pliocercus euryzonus Cope, Pr. Ac. N. Sc. Phila., 1862, p. 72. No. 4303.

Liophis epinephelus Cope, l. c., p. 78. No. 4305.

LACERTILIA.

Sphærodactylus casicolus Cope, Pr. A. N. S. Phila., 1861, p. 499.

Iguana tuberculata Laur., D. and B., iv. 203. No. 4314.

Iguana rhinolopha Wiegman, D. and B., l. c., 207. Truando.

Basiliscus americanus Laur., D. and B., l. c., 181 ♂ ♀. No. 4112, 4322

Anolis reticulatus Gray, Cat. Brit. Mus., 204. Truando. 4321, ♂ jr. Turbo. 4313 ♂.

Anolis radulinus Cope, Pr. A. N. S. Phil., 1862, p. 180. Truando. 4327-8.

Anolis poecilopus Cope, l. c., 179. Truando. 4320-31.

Anolis vittigerus Cope, l. c., 179. Truando. 4332.

Anolis pentaprion Cope, l. c., 178. Truando.

Cnemidophorus lemniscatus Dum. Bibr., a. 128. Carthagera. 4336.

Cnemidophorus. Carthagera. Specimens like *murinus* Dum. Bibr., v. 126, with plates on the superior and anterior faces of the humerus, and an olive band internally pale bordered on each side of the back, and otherwise similar. What is *C. festivus* Licht. et von Martius?

Tupinambis nigropunctatus Spix, Dum. Bibr., v. 20. Turbo. 4319.

Brachypus pallidiceps.

Digits 4-3; scales in thirty-four transverse series from axilla to groin, and twenty-three longitudinal; those of the abdomen broader, rectangular, those of the upper regions hexagonal. Internasal plate longer than broad, hexago-

* Possibly this name conveys error, the supposed white spots, having, perhaps, been yellow. The species was described from an alcoholic specimen recently taken, in which the red was brilliant; the supposed white had not then the appearance of faded yellow.

nal, its nasal suture longest, the others shorter in the following order, frontal, rostral, fronto-nasal. Nostril between first upper labial and nasal: one frenal, one subocular resting on the third, fourth and fifth superior labials; of these, the sixth and last is longest. Five temporals, two supraorbitals. Frontal much longer than broad, eight-sided, as follows:—longest, occipital, then supraorbital, internasal, frontonasal, interoccipital. Five inferior labials, a small symphyseal, a mental longer than broad; three infralabials on each side, the anterior two very large, the first of each series extensively in contact; a cross row of eight gular plates, the median pair largest. One pair of sternal shields. Four preanals, the anterior subtriangular, the posterior narrow. Length of head, 3·5 lines; of body and neck, 2 inches 3 lines; of tail, ?3 inches 6 lines; total ?6 inches.

General color plumbeous, the scales margined with black; head cinereous. A light brown band extends along each side of the back, separated from its fellow by four rows of scales. Truando river region. (4324.)

This species seems to indicate a necessity for dispensing with Tschudi's name *Microdactylus* for the *Chalcides schlegelii* of Dum. Bibr. unless the latter animal can be generically distinguished by some other peculiarity than the number of its digits. While it possesses three digits on all the feet, and the *B. cuvieri* four, (usually) the *pallidiceps* has four anterior and three posterior. *Chalcis heteropus* of Lichtenstein and Von Martius, judging from the name, must exhibit a similar peculiarity. I have not been able to see their description.

BATRACHIA.

Cystignathus poecilochilus Cope, Pr. Ac. N. Sci. Phila., 1862, p. 156. No. 4347.

Craugastor hallowellii Cope, l. c., p. 153.

Craugastor pulchrigulus Cope.

Distal end of tibia reaching beyond muzzle; feet one-fourth webbed. Head elongate, muzzle subtruncate. Teeth in straight lines behind the internal nares; tongue broad oval, entire. Dark-brown, white spots on hinder face of femur. Sides and gular region shaded with dark-brown; a bright yellow band beginning on the intermaxillary region, extends to the thorax. A light spot under the eye. Length of head and body 10 lines. Truando, 4354.

?*Otilophus margaritifer*, Cuv. young, 4337—8, '40—1. Truando.

Chilophryne conifera Cope, Pr. A. N. S. Phila., 1862, p. 156. Turbo.

Phrynoidis intermedius Cope. *Bufo intermedius* Gthr., Catal. Brit. Mus., p. 140, Carthagenæ. No. 4350.

Bufo simus Schmidt, Denkschr, Acad. Wiss. Wien, 1858, p. 254. No. 4339. Truando.

In our specimen the toes are very slightly webbed, and not at all margined; there is a short acute tubercle on the inner face of the tarsus. The tympanum is visible, though indistinct. The warts on the back, nape, and head, are very numerous, especially on the latter two regions, where some are linear. There is a short reddish median line on the coccyx. The belly is pied, blackish and ? white; gular region black, with a white median vitta. A large vocal sac.

Rhæbo hæmatiticus Cope.

Bufo hæmatiticus Cope, l. c., 157.

The Dumerilian genus *Bufo* has been subdivided by Dr. Fitzinger, of Vienna, into several groups, to which he has given names. That that genus is a union of several I do not doubt, but that they are as numerous as Dr. Fitzinger indicates, I cannot perceive. The following table exhibits the relative characters of those that seem to be recognizable. *Calophrynus* is introduced on the authority of Dr. Günther:—

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Paratoids distinct, dorso-lateral.

No dermo-ossification upon the cranium.

Cranium with longitudinal ridges.

A parietal branch ridge..... Chilophryne.

No parietal branch ridge.

Orbito-tympanic ridge enormously developed... Otilophus.

Orbito-tympanic moderate, or none..... Phrynoidis.

Cranium without ridges.

Canthus rostralis and paratoids rounded; form stout..... Bufo.

Canthus rostralis and paratoids sharp angled; form slender; toes nearly free..... Rhæbo.

Cranium covered with a dermo-ossification..... Peltaphryne.

Paratoids wanting, or scarcely visible..... Schismaderma.

Paratoids confluent, covering the back..... Calophrynus.

These genera contain the following species:

Chilophryne Fitzinger.		Bufo insidiator Gird.	Mexico.
d'Orbigny Fitz. ex D. & B.	W. S. Amer.	trifolium Tsch.	W. S. Amer.
dialopha Cope	Sandwich Is.	politus Cope	Central Amer.
celebensis ex Gthr.	Celebes	cruentatus Tsch.	Java.
biporcata ex Gravenh.	Malaysia.	lamentor Girard.	Utah.
americana ex Le Conte	E. N. Amer.	debilis, Girard.	Mexico
cognata ex Say	Central N. Amer.	boreas B. & G.	W. N. Amer.
lentiginosa ex Shaw	E. N. Amer.	columbiensis B. & G.	" "
nebulifera ex Gird.	Mexico.	halophilus B. & G.	" "
conifera Cope	N. W. S. Amer.	thaul Less.	W. S. Amer.
veraguensis ex Schmidt	" "	chilensis Tsch.	S. Amer.
ocellata ex Gthr.		diptychus Cope	E. S. Amer.
lineomaculata ex Gay	W. S. Amer.	rubropunctatus Gay	W. S. Amer.
Otilophus Cuvier		poeppigii Tsch.	W. S. Amer.
margaritifer Cuvier	N. S. Amer.	speciosus Gird.	Mexico.
? pleuropterus ex Schmidt	N. W. S. Amer.	punctatus B. & G.	Centr. N. Amer.
Phrynoidis Fitz. Pseudobufo		tuberosus Gthr.	W. Africa.
Tsch. (Nomen hybridum)		guineensis Gthr.	" "
Nectes Blkr. Docidophryne		angusticeps Smith	S. Africa.
Fitz.		gariensis Smith	" "
asper Fitz. ex Grav.	Java.	pantherinus Boie	Africa.
isos ex Lesson	Bengal.	calamita Laur.	S. Europe.
melanostictus ex Schn.	S. and E. Asia.	viridis Laur.	" "
agua ex Daud.	E. S. Amer.	vulgaris Laur.	Europe, E. Asia.
molitor ex Tsch.	W. S. Amer.	kelaartii Gthr.	Ceylon.
ornatus ex Spix	E. S. Amer.	Rhæbo Cope. Phrynomorphus	
granulosus ex Spix.	" "	Fitz. (Nom. præocc.)	
gutturosus ex Latr.	" "	hæmatiticus Cope	N. W. S. Amer.
intermedius ex Gthr.	N. W. S. Amer.	gracilis ex Gird.	E. S. Amer.
alvatus ex Gthr.	Cent. N. Amer.	leschenaultii Cope ex D. & B.	N. E. S. Amer.
lugubrosus ex Gird.	W. S. Amer.	? cœruleostictus ex Gthr.	N. W. S. Amer.
Bufo Laurenti. Phryne. Adenomus Cope, (founded on a B. kelaartii, with the proximal phalanges contracted, leaving terminal dilata-tions.)		Peltaphryne Fitz.	
simus Schmidt.	N. W. S. Amer.	peltacephala Fitz.	Cuba.
anomalus Gthr.	Mexico.	empusa Cope	" "
		Schismaderma Smith	
		carens Smith	S. Africa.
		Calophrynus Tsch.	
		pleurostigma Tsch.	Borneo.

Bufones gymnauchen Bleeker, griseus and melanogaster Hallow.,* erythronotus and quercicus Holb., B. woodhousei Gird., I have not been able to refer to any of the preceding genera.

Hyla phaeota Cope.

Head broad, depressed, canthus rostralis rounded concave; eye large, prominent, tympanum more than half its extent. Tongue round, entire; vomerine series nearly transverse, between the large internal nares; ostia pharyngea large. A vocal sac. Skin of upper surfaces entirely smooth; a

* Pr. Acad. Nat. Sci., 1860, pp. 486, 506.

strong fold from orbit over tympanum. Three outer fingers slightly webbed; nearly three phalanges of the fourth toe free, the web, however, margining its outer side. Heel of the extended hind limb reaching beyond the muzzle. Breadth of gular region from angle to angle of mandible, 9 lines; length of head and body 1 in. 10 lines; of anterior extremity 1 in.; of posterior 4 in. Color above grayish-brown, shaded with a pale plumbeous tint, like the bloom of some fruit. Abdomen, upper jaw, postorbital region, and the borders of the upper eyelid, tarsus and antebrachium, and of a brown spot near the vent, white. A dark brown line on the canthus rostralis, and band between the eyes; a longitudinal band or series of spots on the back, which bifurcates anteriorly; a spot on the coccyx. A dark brown band from angle of eye to scapular region, involving the whole of the tympanum. Femur with narrow cross-bands; posterior face reticulate or unicolor. Tibiæ more broadly cross-banded. Sides with brownish vermiculations. Gular region brown shaded.* From Turbo. No. 4347.

Additions to the Nomenclature of North American LEPIDOPTERA. No. 2.

BY AUG. R. GROTE.

On pages 59, 60, Proc. Acad. Nat. Sci., 1862, I described three species of Heterocera, under the genus *Platypterix*, Lasp., adopting the classification of Heydenreich, in his Cat. Method. Lepidop. Europ.

I have since recognized my *P. formula* to be identical with *Drepana rosea*, Walker, C. B. M. viii. and also with *Cilix Americana*, H. S. Lepidop. Exot. p. 60, fig. 470.

This species seems, however, properly classified under neither of the above genera, and for the reasons following. The genus *Cilix*, Leach, was created for such Heterocera, which, closely allied to *Platypterix*, Lasp., are aberrant from that generic type by the straight outer margin of the anterior wings. It was established upon a European species, *C. spinula*, H., formerly included and described under *Platypterix*, Lasp., as the termination of its specific name indicates. Herrich-Schaeffer is, however, evidently in error, in placing his *C. Americana* under *Cilix*, Leach, as the outer margin of the anterior wings, unlike the type of that genus, is falcate; differing, on the other hand, from *Drepana*,

*A species in the Smithsonian Museum, obtained by Dr. Chas. Sartorius at Mirador, Vera Cruz, resembles this species in most respects. It is, however, different in the following respects:

It is dark slate above, with blackish confluent spots, in two parallel series; there are no white borders or anal spot. Gular region uniform yellowish; a few warts on hinder face of antebrachium. Posterior face of femur uniform slate. No light spot under eye; broad cross-bands on femur and tibia. Heel reaching anterior border of orbit. Length from muzzle to vent 3 inches. It is allied apparently to Baird's *H. vanvlietii*. It may be called *H. muricolor*.

A beautiful species has been presented to the Academy by Capt. Field, in a collection made by him in Panama. It is *Hyla callidryas* of the author, and may be distinguished as follows:

Head elongate, maxillary outlines convergent, nearly straight; loreal region subvertical, canthus rostralis straight, rounded. Eyes not large, transparent portion of inferior palpebra reticulated with white; iris cupreous. Tympanum nearly as large as eye, obliquely elliptic. Tongue elongate elliptic, openly emarginate. Inner nares large, widely separate; vomerine teeth between them, in two oblique series, convergent posteriorly, anteriorly opposite anterior border of nares. Fingers one-fourth webbed; pallettes very large; toes one-half palmate, margined. Heel reaching end of muzzle when extended. Skin above smooth. From muzzle to vent 1 inch 9 lines; do. to angle of mouth 7 lines.

Blue purple above, greenish on the scapular region; humerus, femur, except a narrow blue stripe, and under surfaces, uniform saffron. Numerous oblique bands of a lighter yellow on the sides.

1862.]



Cope, E. D. 1862. "Catalogues of the reptiles obtained during the Explorations of the Parana, Paraguay, Vermejo and Uruguay Rivers, by Capt. Thos. J. Page, U.S.N.; and of those procured by Lieut. N. Michler, U.S. Top. Eng., Commander of the Expedition conducting the survey of the Atrato River." *Proceedings of the Academy of Natural Sciences of Philadelphia* 14, 346–359.

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