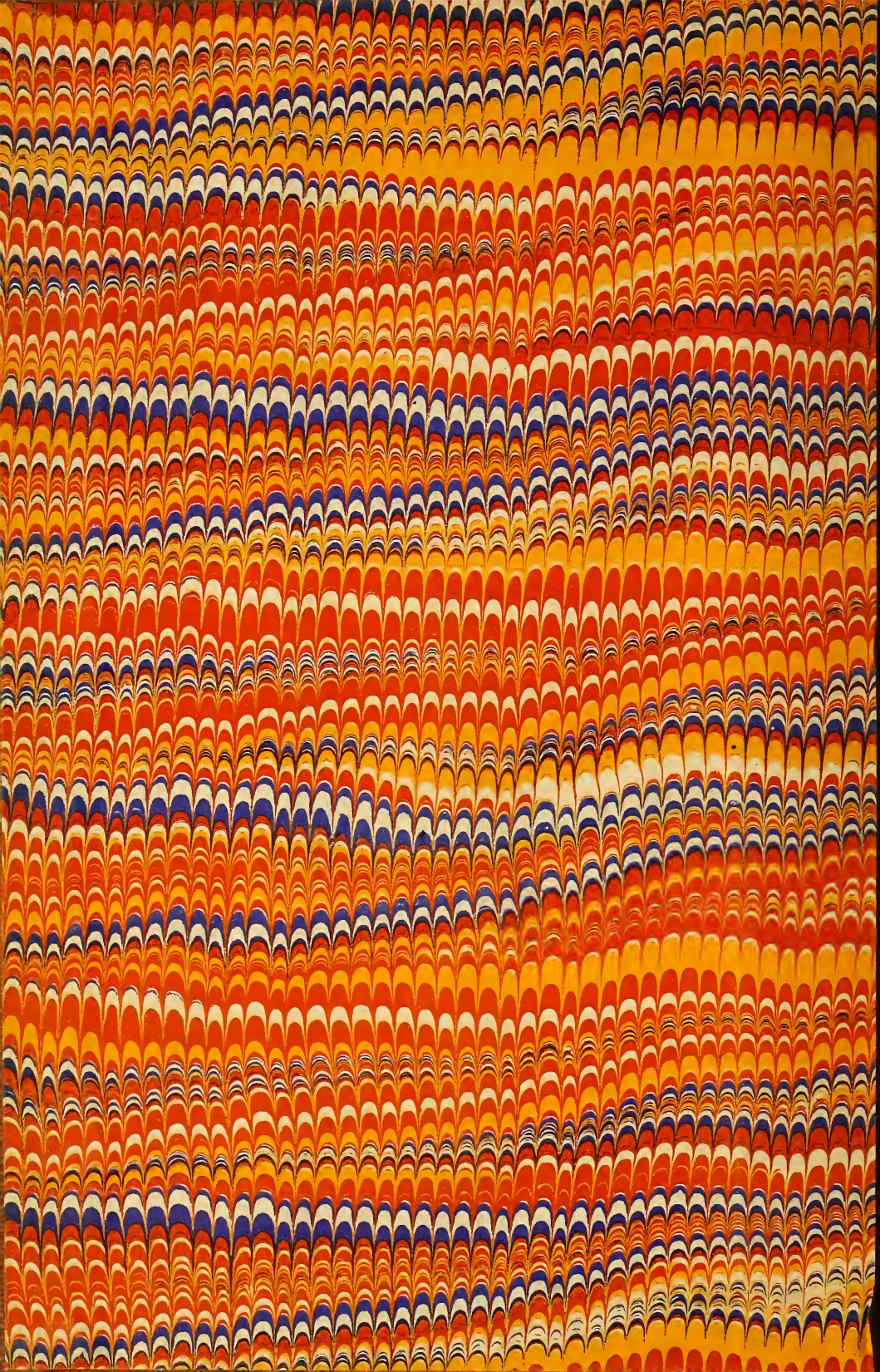

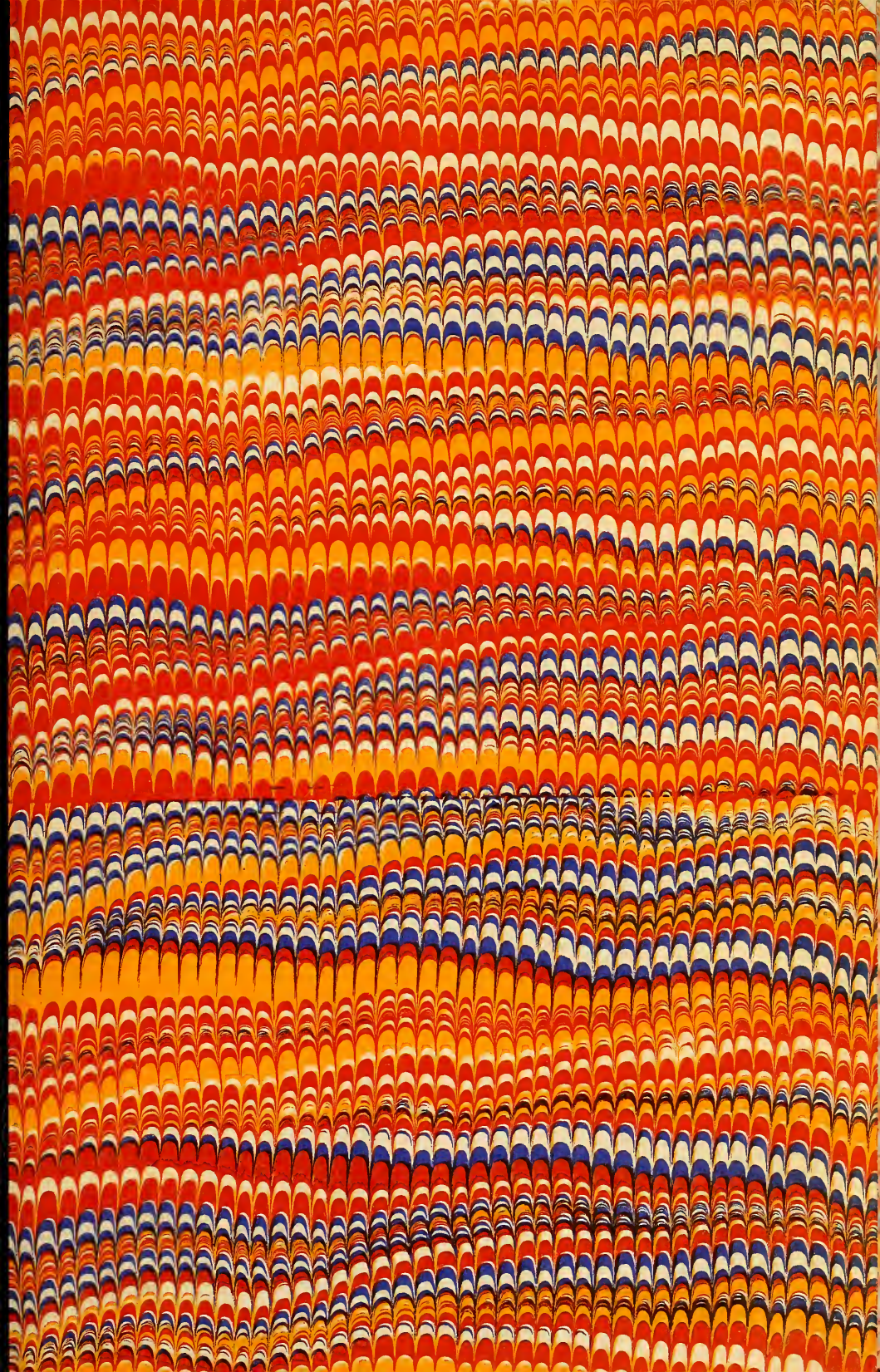

PROCEEDINGS

OF THE

Biological Society of Washington

VOLUME 40
1927

WASHINGTON
PRINTED FOR THE SOCIETY

COMMITTEE ON PUBLICATIONS

CHAS. W. RICHMOND, *Chairman*

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PUBLICATION NOTE

By a change in the By-Laws of the Biological Society of Washington, effective March 27, 1926, the fiscal year now begins in May, and the officers will henceforth hold office from May to May. This, however, will make no change in the volumes of the Proceedings, which will continue to coincide with the calendar year. In order to furnish desired information, the title page of the current volume and the list of newly elected officers and committees will hereafter be published soon after the annual election in May.

PRESS OF
H. L. & J. B. McQUEEN, INC.
WASHINGTON, D. C.

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The Committee on Publications declares that each paper of this volume was distributed on the date indicated on its initial page. The index and minutes of proceedings for 1927 (pp. vii–xi; 211–215) were issued on March 16, 1928. The title and lists of officers and committees for 1927–1928 (pp. i-iv) were issued on June 30, 1927.

ERRATA.

Page 195, line 18, for Sundu Lal Hova read Sunder Lal Hora.
Page 195, line 20, for Hova read Hora.
Page 195, line 23, for Hova read Hora.
Page 195, line 26, for Hova read Hora.

PLATES.

Vol. 40, pp. vii-xi

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

PROCEEDINGS.

The Society meets from October to May, on alternate Saturdays, at 8 P. M. All meetings during 1927 were held in the new assembly hall of the Cosmos Club.

January 15, 1927—700th Meeting.[1]

President Oberholser in the chair; 51 persons present.

Informal communications: T. Ulke, Exhibition of plants from Norway; C. W. Stiles, Note on the question of the parasitic origin of cancer in the intestinal canal; F. Thone, Note on the newspaper report of the Scopes trial.

Formal communications: Symposium on The Biological Society of Washington, past, present, and future: T. S. Palmer, Early days of the Society; L. O. Howard, High lights in our history; F. C. Lincoln, Our present membership; P. Bartsch, Plans for the future.

January 29, 1927—701st Meeting.[2]

President Oberholser in the chair; 73 persons present.

New members elected: F. W. Alderson, G. Aronson, Margaret Boswell, C. W. Cole, W. L. Hall, W. C. Johnson, H. Lepman, H. A. Lindsley, P. H. Lowrey, B. McBride, P. Simmons, Virginia J. Storck, J. Suter, D. M. Taylor, R. E. Wester, M. Frances Willoughby, Elsie S. Wright.

Informal communications: V. Bailey, Evidence that the opossum does not hibernate; A. S. Hitchcock, Report of the action of the International Congress of Plant Sciences at Ithaca

[1] Abstract in Journ. Washington Acad. Sci., vol. 17, p. 347, July 19, 1927.
[2] Abstract in Journ. Washington Acad. Sci., vol. 17, p. 348–349, July 19, 1927.

in 1926 in regard to nomenclature; J. N. Rose, Exhibition of a photograph of a woodpecker nest in a giant cactus.

Formal communications: C. W. Stiles, Personal experiences with Elias Metchnikov; V. Bailey, Mouse plagues and how they happen; J. N. Rose, The distribution of the Cacti.

February 12, 1927—702d Meeting.[1]

President Oberholser in the chair; 300 persons present.

New member elected: R. K. Beattie.

Informal communications: H. C. Oberholser, Notice of the death of C. D. Walcott; A. A. Doolittle, Exhibition of hermetically sealed jars containing growing plants.

Formal communications: T. S. Palmer, The personality of Thomas Nuttall; E. P. Walker, The present status of wild life in Alaska; W. M. Mann, The Smithsonian-Chrysler Expedition to Tanganyika.

February 26, 1927—703d Meeting.[2]

President Oberholser in the chair; 102 persons present.

Informal communications: C. W. Stiles, Inquiry about the hermetically sealed jars containing growing plants exhibited at the previous meeting; J. M. Aldrich, Notice of the death of Dr. Mario Bezzi.

Formal communications: J. M. Aldrich, Thomas Say, naturalist; A. S. Hitchcock, A recent botanical trip to Cuba; E. A. Goldman, Conditions affecting migratory waterfowl in Mexico.

March 12, 1927—704th Meeting.[3]

President Oberholser in the chair; 101 persons present.

New members elected: Penelope Graham, Pearl Hicks, K. E. Hobbs, Miss E. W. Scott, Lillian T. Smith.

Informal communications: A. Wetmore, Notice of Oligocene bird fossils from Colorado; P. Bartsch, Note on mimicry in a mockingbird; A. S. Hitchcock, Notice of a discussion in the Journal of Economic Biology on the place of the systematist in biology.

[1] Abstract in Journ. Washington Acad. Sci., vol. 17, p. 349, July 19, 1927.
[2] Abstract in Journ. Washington Acad. Sci., vol. 17, p. 349–350, July 19, 1927.
[3] Abstract in Journ. Washington Acad. Sci., vol. 17, p. 350–352, July 19, 1927.

Formal communications: S. F. Blake, Frederick Pursh, an early American botanist; W. B. Bell, Some biological relationships and their significance; C. F. M. Swynnerton, The tsetse fly problem in Tanganyika.

March 24, 1927—705th Meeting.[1]

President Oberholser in the chair; 95 persons present.

Formal communications: L. O. Howard, An anecdote concerning a famous pathologist and an equally famous parasitologist; C. D. Marsh, Coyotillo, a peculiarly dangerous stock-poisoning plant; P. H. Dorsett, Plant hunting with the camera in North China, Ceylon, and Java.

April 9, 1927—706th Meeting.[2]

President Oberholser in the chair; 92 persons present.

New member elected: J. J. Carroll.

Informal communications: S. F. Blake, Roosting of purple grackles in the Trinity College grounds; A. S. Hitchcock, A case of synonymy in grasses.

Formal communications: C. W. Stiles, Rudolph Leuckart, the greatest teacher I have ever known; A. S. Hitchcock, The typification of Linnaean plant genera; A. do Amaral, Snakes, venoms and antivenins.

April 23, 1927—707th Meeting.[3]

President Oberholser in the chair; 65 persons present.

New members elected: Clarabel R. Barnett, W. T. Cox, Annie L. Davis, D. W. Slauson, G. H. White.

Informal communications: H. C. Oberholser, Mrs. L. D. Miner, I. Hoffman, M. K. Brady, May T. Cooke, V. Bailey, W. B. Bell, and R. M. Libbey, Brief notes on birds.

Formal communications: F. C. Lincoln, Flight lines of ducks; T. S. Palmer, Intensive bird study in the suburbs of large cities; A. H. Howell, Some recent bird notes from Florida.

[1] Abstract in Journ. Washington Acad. Sci., vol. 17, p. 352, July 19, 1927.
[2] Abstract in Journ. Washington Acad. Sci., vol. 17, p. 352–353, July 19, 1927.
[3] Abstract in Journ. Washington Acad. Sci., vol. 17, p. 353–354, July 19, 1927.

May 7, 1927—708th Meeting.[1]

48th Annual Meeting.

President Oberholser in the chair; 18 persons present.

The annual reports of the Recording Secretary, Corresponding Secretary, and Committee on Publications were presented.

The following officers and members of the council were elected: *President*, E. A. Goldman; *Vice-Presidents*, A. Wetmore, C. E. Chambliss, H. H. T. Jackson, C. W. Stiles; *Recording Secretary*, S. F. Blake; *Corresponding Secretary*, T. E. Snyder; *Treasurer*, F. C. Lincoln; *Council*, H. C. Fuller, W. R. Maxon, A. A. Doolittle, B. H. Swales, I. Hoffman.

October 22, 1927—709th Meeting.[2]

Vice-President Wetmore in the chair; 63 persons present.

New member elected: W. H. White. New *Corresponding Secretary* elected: W. H. White.

Informal communications: T. S. Palmer, Notice of the coming meeting of the American Ornithologists' Union; A. Wetmore, Occurrence of *Sorex fontinalis* near Washington.

Formal communications: J. M. Aldrich, Collecting flies in the West; H. C. Oberholser, The lure of the waterfowl.

November 5, 1927—710th Meeting.[3]

Vice-President Wetmore in the chair; 75 persons present.

New members elected: J. G. Carlson, Mrs. David J. Rumbough, H. H. Shamel.

Informal communication: F. Thone, Note on Dr. E. F. Smith's collection of photographs of plant pathologists; J. M. Aldrich, Query regarding certain locality names near Washington; A. Wetmore, Observation of Bronzed grackles at Widewater, Virginia.

Formal communications: L. O. Howard and C. W. Stiles, Reports on the International Congress of Zoology at Budapest.

November 19, 1927—711th Meeting.[4]

Vice-President Wetmore in the chair; 65 persons present.

[1]Abstract in Journ. Washington Acad. Sci., vol. 17, p. 354, July 19, 1927.
[2]Abstract in Journ. Washington Acad. Sci., vol. 18, pp. 79–80, February 4, 1928.
[3]Abstract in Journ. Washington Acad. Sci., vol. 18, pp. 105–107, February 19, 1928.
[4]Abstract in Journ. Washington Acad. Sci., vol. 18, pp. 107–108, February 19, 1928.

New members elected: C. L. Baker, W. H. Reese.

Informal communications: P. B. Johnson, Note on a bird picking insects from the hair of a yak at the Zoo; F. C. Lincoln, Recent recoveries of banded birds; A. Wetmore and others, Notes on the 45th Annual Meeting of the American Ornithologists' Union; H. Ball, Birds observed on the field trip of the American Ornithologists' Union.

Formal communications: A. J. van Rossem, Faunal associations of Salvador; E. Francis, Tularaemia in rabbits and other animals as related to human health.

December 3, 1927—712th Meeting.[1]

President Goldman in the chair; 82 persons present.

New member elected: F. C. Bishop.

Formal communications: T. Ulke, Flora of Yoho Park; G. F. Simmons, Natural history notes from the cruise of the "Blossom" in the South Atlantic.

December 17, 1927—713th Meeting.[2]

President Goldman in the chair; 115 persons present.

New members elected: E. Higgins, G. F. Simmons, R. O. Smith.

Informal communications: F. C. Lincoln, Recovery of a banded Arctic tern in France; S. F. Blake, A newspaper account of the recovery of a banded Japanese swallow in the Philippine Islands.

Formal communications: P. G. Redington, Informal discussion of some biological problems; J. M. Holzworth, Motion pictures of mountain sheep, mountain goats, caribou, and other big game from Alaska and Idaho.

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[1]Abstract to appear in Journ. Washington Acad. Sci.

[2]Abstract to appear in Journ. Washington Acad. Sci.

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OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

(FOR 1927-1928)

(ELECTED MAY 7, 1927)

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Vernon Bailey, 1922
A. S. Hitchcock, 1923
J. W. Gidley, 1924
S. A. Rohwer, 1925
H. C. Oberholser, 1926-1927

*Deceased.

Vol. 40, pp. 1–8 January 8, 1927

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

SEVEN NEW BIRDS FROM SALVADOR.[1]

BY DONALD R. DICKEY AND A. J. VAN ROSSEM.

Further work with the material collected in Salvador during 1925 and 1926 indicates the need of recognizing certain additional geographic races, which appear not to have been described heretofore. Seven of these forms may be known as follows:

Balanosphyra formicivora lineata, subsp. nov.

SALVADOR ACORN WOODPECKER.

Type.—Male adult; No. 16,281, Collection of Donald R. Dickey; Mt. Cacaguatique, Department San Miguel, El Salvador, C. A.; altitude 3,800 feet; "oak-pine association"; November 24, 1925; collected by A. J. van Rossem; original No. 9,355.

Subspecific characters.—Resembles *Balanosphyra formicivora formicivora* (Swainson) of Mexico in the greenish sheen of upper parts, pale yellowish white throat, and extensive white area on the proximal portion of the remiges, but differs in having the entire pectoral region narrowly striped with black and white.

The bluish sheen of the upper parts, the darker yellow throat patch, and the reduced white area on the primaries of *Balanosphyra formicivora striatipectus* (Ridgway) of Panama, Costa Rica, and the Atlantic slope of Nicaragua and Honduras, obviate the necessity of close comparison with that form. In fact, it is only in the completely streaked chest that *lineata* can be at all compared to *striatipectus*. Even in this character, however, there is a marked difference, for the black and white lines in *lineata* are of about equal width, while in *striatipectus* the central black area of the individual feathers is usually very broad and lanceolate or sagittate in shape.

Range.—Oak-pine association on Mt. Cacaguatique, Department San Miguel, Salvador, at altitudes ranging from 3,000 to 4,000 feet.

Remarks.—This species was found in Salvador only along the western slope of the Cordillera, and was not noted on the isolated volcanic mountains toward the coast. The absence of oaks would perhaps explain why none were found on Volcan Conchagua. However, acorn woodpeckers

[1]Contribution from the California Institute of Technology.

were also entirely absent from Volcan San Miguel and Volcan San Salvador, on both of which oaks are plentiful. No evidence of the acorn-storing habit, which is so characteristic of the species further north, was observed in Salvador. It may be of interest to note here that the color of the iris in Salvador birds undergoes marked change with age. It is ivory, or pure cream white in fully adult birds, and pale grayish blue in juveniles. This bluish cast is retained in some degree even after the birds are in complete post-juvenal plumage, and therefore constitutes a valuable field character for judging immaturity.

Specimens examined.—Balanosphyra formicivora formicivora: Mexico: Hidalgo, 1; Mexico, D. F., 1; Morelos, 1; Zacatecas, 1; Guerrero, 1; Puebla, 1. *Balanosphyra formicivora striatipectus:* Costa Rica: Cartago (Monte Redondo, 1; Volcan Irazu, 4). *Balanosphyra formicivora lineata:* Salvador: San Miguel (Mt. Cacaguatique, 20).

Large series of *Balanosphyra formicivora aculeata* (Mearns), *Balanosphyra formicivora angustifrons* (Baird), and *Balanosphyra formicivora bairdi* (Ridgway) have also been examined. Close comparison with these forms is not necessary. We have not seen *Balanosphyra formicivora albeola* (Todd), but the characters ascribed to that form would seem to make direct comparison unnecessary.

Mitrephanes phaeocercus quercinus, subsp. nov.

SALVADOR DUSKY-TAILED FLYCATCHER.

Type.—Male adult; No. 16,384, Collection of Donald R. Dickey; Mt. Cacaguatique, Department San Miguel, El Salvador, C. A.; altitude 3,500 feet; "oak-pine association"; November 30, 1925; collected by A. J. van Rossem; original No. 9,459.

Subspecific characters.—The darkest and most richly colored race of *Mitrephanes phaeocercus.* Similar in size to *Mitrephanes phaeocercus phaeocercus* (Sclater) of southern Mexico, but dorsally darker and greener; pileum comparatively even darker, and in more decided contrast to rest of upper parts; under parts darker and more tawny (less ochraceous), particularly on posterior under parts and under tail coverts; edgings of wing coverts and secondaries darker brown (less buffy), and webs of remiges and rectrices dusky blackish instead of dark grayish brown.

Similar to *Mitrephanes phaeocercus nicaraguae* Miller & Griscom, but larger and darker, particularly on the abdominal region. In our opinion, size alone seems sufficient to validate *nicaraguae* as a race.

Range.—The Sonoran oak-pine association on Mt. Cacaguatique, Department San Miguel, Salvador, north probably to adjacent parts of Guatemala.

Remarks.—In view of Mr. Ridgway's remarks (Birds of North and Middle America, pt. 4, 1907, p. 499, footnote) it is evident that some Guatemalan examples of this species resemble *quercinus* more or less closely. Miller and Griscom, in their description of *nicaraguae* (American Museum Novitates, No. 159, Feb. 16, 1925, p. 4), make no mention of differences between Guatemalan and Mexican specimens. However, the material examined in these two instances may well have come from entirely different sections of Guatemala. Like *Balanosphyra formicivora,* this

species was not found on Volcan San Miguel nor on Volcan Conchagua, and is therefore probably confined to the Cordillera and its spurs.

Specimens examined.—Mitrephanes phaeocercus phaeocercus: Mexico: Vera Cruz, 1; Morelos, 2; Durango, 1 (not typical); Guerrero, 2 (not typical). *Mitrephanes phaeocercus nicaraguae:* Nicaragua: Segovia (San Rafael del Norte, 2; Ocotal, 1). *Mitrephanes phaeocercus quercinus:* Salvador: San Miguel (Mt. Cacaguatique, altitude 3,000 to 4,000 feet, 7).

Thryophilus pleurostictus lateralis, subsp. nov.

SALVADOR BANDED WREN.

Type.—Male adult ("breeding condition"); No. 15,302, Collection of Donald R. Dickey; Lake Olomega, Department San Miguel, El Salvador, C. A.; altitude 200 feet; "dense forest undergrowth"; July 31, 1925; collected by A. J. van Rossem; original No. 8,369.

Measurements of type.—Wing 63.5; tail 51.0; exposed culmen 15.7; tarsus 21.5; middle toe (without claw) 14.9.

Subspecific characters.—Similar to *Thryophilus pleurostictus ravus* Ridgway in coloration, but lateral under parts more extensively and evenly barred; general size very slightly smaller; bill decidedly smaller. Similar to *Thryophilus pleurostictus pleurostictus* (Sclater), but dorsal coloration more rufescent, and size smaller.

Range.—Southeastern Salvador.

Remarks.—Although the new form is intermediate between *ravus* and *pleurostictus* in that it combines the dorsal coloration of the former with the under parts of the latter, nevertheless the size, particularly of the bill, is smaller than in either, and therefore it can not be considered as an intergrade between those forms. This wren seems to be confined in Salvador to the extreme southeastern corner of the country. It is common throughout the lowlands and on Volcan Conchagua, but is apparently absent on Volcan San Miguel, and in the northern and western highlands.

Measurements.—

	Wing.	*Tail.*	*Exposed Culmen.*	*Tarsus.*	*Middle Toe Without Claw.*
	MALES.				
T. p. pleurostictus (4):	63.0–67.5 (65.7)	54.0–56.5 (55.1)	16.3–16.7 (16.5)	21.5–23.0 (22.2)	14.8–15.6 (15.2)
T. p. ravus (5):	62.5–65.0 (63.5)	48.5–51.0 (49.5)	16.5–18.3 (17.4)	21.0–22.2 (21.5)	14.3–15.2 (14.9)
T. p. lateralis (9):	61.5–64.5 (62.7)	46.0–51.5 (49.2)	15.4–16.2 (15.8)	20.0–21.5 (20.9)	14.0–15.2 (14.7)
	FEMALES.				
T. p. pleurostictus (3):	57.0–63.0 (59.8)	48.0–51.5 (49.3)	15.0–16.2 (15.7)	20.0–21.9 (20.8)	14.3–15.9 (14.9)
T. p. ravus (5):	59.0–63.0 (60.6)	44.5–48.0 (46.6)	15.7–17.5 (16.5)	20.2–22.2 (20.8)	13.3–15.2 (14.4)
T. p. lateralis (5):	53.5–57.5 (56.1)	40.5–44.5 (43.2)	14.6–15.1 (14.9)	19.5–20.3 (19.9)	13.0–14.3 (13.7)

Specimens examined.—Thryophilus pleurostictus pleurostictus: Mexico: Oaxaca (Santa Efigenia, 1); Chiapas (Mountains near Tonala, 2; San Bartolome, 2; San Benito, 1; Tuxtla, 1). *Thryophilus pleurostictus ravus:* Nicaragua: Leon (Leon, 2); Chinandega (Volcan El Viejo, 2; Chinandega, 2). Costa Rica: Guanacaste (Punta Piedra, 3; Las Cañas, 1). *Thryophilus pleurostictus lateralis:* Salvador: Morazan (Divisadero, 2); San Miguel (Lake Olomega, 9); Usulutan (Puerto del Triunfo, 1); La Union (Volcan Conchagua, 4; Rio Goascoran, 13° 30′ N., 1).

Pachysylvia decurtata pallida, subsp. nov.

SALVADOR FOREST VIREO.

Type.—Male; No. 16,886, Collection of Donald R. Dickey; Puerto del Triunfo, Department Usulutan, El Salvador, C. A.; altitude, sea level; "tropical forest"; January 9, 1926; collected by A. J. van Rossem; original No. 9,960.

Subspecific characters.—Similar to *Pachysylvia decurtata decurtata* (Bonaparte), but lighter colored throughout; pileum purer and paler gray; upper parts lighter and more yellowish green; sides, flanks, and under tail coverts lighter and more yellowish green; chin and throat conspicuously paler; chest and median under parts whiter, the greenish of sides and flanks being confined to a comparatively restricted lateral area.

Range.—Lowlands of southeastern Salvador.

Remarks.—A specimen from the town of Volcan, Canton de Oso, Puntarenas, Costa Rica, we are unable to distinguish from Mexican specimens. It seems likely that *pallida* will be found to occupy only a limited area on the Pacific coast.

Specimens examined.—Pachysylvia decurtata decurtata: Mexico: Tabasco (Frontera, 1; Teapa, 3); Chiapas (Palenque, 1); Campeche (near Yohaltun, 1). Costa Rica: Puntarenas (Volcan, Canton de Oso, 1). *Pachysylvia decurtata pallida:* Salvador: San Miguel (Lake Olomega, 6); Usulutan (Puerto del Triunfo, 1, the type).

Habia rubica salvadorensis, subsp. nov.

SALVADOR ANT TANAGER.

Type.—Male adult; No. 16,583, Collection of Donald R. Dickey; Mt. Cacaguatique, Department San Miguel, El Salvador, C. A.; altitude 3,500 feet; "subtropical undergrowth"; December 14, 1925; collected by A. J. van Rossem; original No. 9,657.

Subspecific characters.—Dorsally, the adult males approximate *Habia rubica confinis* (Bangs) of eastern Honduras, being darker than *Habia rubica affinis* (Nelson) of southwestern Mexico, and with less brownish suffusion than in *Habia rubica rubicoides* (Lafresnaye) of southeastern Mexico. Posterior under parts paler and less brownish than in *rubicoides,*—about intermediate between that form and *affinis;* throat and breast more rosy (less orange) red than in *rubicoides;* throat very brilliantly colored, and in more decided contrast to chest than in any other Central American

or Mexican form of *rubica* we have examined, with the possible exception of *confinis*.

Females similar to *rubicoides* dorsally, but paler and more buffy (less brownish) below; the throat, particularly, is paler and brighter, and in much more decided contrast to chest. Compared to *confinis*, coloration throughout more buffy (less greenish); flanks and upper parts darker.

Range.—Salvador, from sea level to at least 4,000 feet on Mt. Cacaguatique.

Remarks.—While *confinis* is clearly intermediate between *rubicoides* of southeastern Mexico and *Habia rubica vinacea* (Lawrence) of Costa Rica and Panama, the same thing can not be said of *salvadorensis*. The males, particularly in the posterior under parts of worn specimens, show a strong tendency, in certain characters, toward the pale rosy coloration of *affinis* from southwestern Mexico. On the other hand, the orange red tone of the throat and breast of many examples is more like *rubicoides*. The absence of the greenish tinge in the coloration of the females, which is so characteristic a feature of *vinacea*, and to a lesser degree of *confinis*, would seem to preclude the possibility of any close relationship in that direction. Unfortunately no females of *affinis* are available.

Specimens examined.—Habia rubica rubicoides: Mexico: Vera Cruz (Precedio, 7; Motzorango, 3; Papanita, 1); Tabasco (Teapa, 4); Oaxaca (Mts. near Santo Domingo, 1). *Habia rubica confinis:* Honduras: Yaruca, 6 (including the type). *Habia rubica vinacea:* Costa Rica: Puntarenas (Buenos Aires, 3; Boruca, 1); Cartago (Monte Redondo, 2); San Jose (Guaitil, 1). Panama: Chiriqui (Boquete, 2; El Banco, 1). *Habia rubica affinis:* Mexico: Oaxaca (Pinotepa, 1, the type). *Habia rubica salvadorensis:* Salvador: Usulutan (Puerto del Triunfo, 4); La Union (Volcan Conchagua, 2); San Miguel (Volcan San Miguel, 1; Lake Olomega, 4; Mt. Cacaguatique, 10); Morazan (Volcan Sociedad, 1).

Habia salvini wetmorei, subsp. nov.

WETMORE ANT TANAGER.

Type.—Male adult; No. 16,889, Collection of Donald R. Dickey; Puerto del Triunfo, Department Usulutan, El Salvador, C. A.; altitude, sea level; "coyol palm association"; January 9, 1926; collected by A. J. van Rossem; original No. 9,963.

Subspecific characters.—Adult males almost exactly similar to *Habia salvini peninsularis* (Ridgway), but under parts slightly darker, particularly on flanks and under tail coverts. Females darker and richer than *peninsularis;* very close to *Habia salvini salvini* (Berlepsch), but throat more richly colored, being orange rather than lemon yellow. In one of the six females and in three of the four young males examined, in which the sex determinations were unquestionable, the orange of the throat is replaced by dull salmon pink. One additional female of this type was collected, but accidentally destroyed. Sexing was done with extreme caution in all these cases. Two phases are indicated. Close comparison with *Habia salvini littoralis* (Nelson) does not appear necessary.

Range.—The "coyol" palm association of the lowland districts of Salvador; occasionally straggling to higher altitudes with wandering flocks of *Habia rubica salvadorensis*, as on Volcan San Miguel at 2,500 feet.

Remarks.—It is indeed remarkable that while the females of the new race so closely resemble the geographically adjacent *salvini*, the males are equally close to the very distant *peninsularis*. No comparison with the chocolate-backed *Habia salvini discolor* (Ridgway) of the Atlantic slope of southern Honduras and Nicaragua has been deemed necessary.

Specimens examined.—Habia salvini salvini: Mexico: Chiapas (Guichicovi, 2); Oaxaca (Mountains near Santo Domingo, 3; Tuxtepec, 1). *Habia salvini littoralis:* Mexico: Tabasco (Frontera, 6). *Habia salvini peninsularis:* Mexico: Yucatan (Puerto Morelos, 4; La Vega, 1); Campeche Canasoyat, 1). *Habia salvini wetmorei:* Salvador: Usulutan (Puerto del Triunfo, 12); San Miguel (Rio San Miguel, 6; Lake Olomega, 1; Volcan San Miguel, 2); Santa Ana (Zapotitan, 1).

Aimophila rufescens pectoralis, subsp. nov.

SAN MIGUEL RUSTY SPARROW.

Type.—Male adult; No. 17,584, Collection of Donald R. Dickey; Volcan San Miguel, Department San Miguel, El Salvador, C. A.; altitude 3,500 feet; "bunch grass—lava ravine"; March 17, 1926; collected by A. J. van Rossem; original No. 10,659.

Measurements of type.—Wing 79.0; tail 84.0; exposed culmen 16.5; tarsus 26.1; middle toe (without claw) 19.0.

Subspecific characters.—Similar to *Aimophila rufescens rufescens* (Swainson) of southern Mexico, but coloration of under parts grayer (less rusty), particularly on chest, flanks, and under tail coverts; throat and median under parts whiter (less creamy); pectoral band darker and much more pronounced. Wing and tail slightly but definitely longer.

Range.—Grass and lava slopes of Volcan San Miguel, Salvador, above 3,000 feet.

Remarks.—The new form apparently approximates *Aimophila rufescens sinaloa* Ridgway of Sinaloa in length, but has the larger bill, tarsi and feet of *rufescens*, so that aside from color differences the two need not be confused.

It is with some hesitation that we refer our birds from western and northern Salvador to *rufescens*. They are apparently identical with that form in size and in one case in coloration, but average decidedly grayer on the breast. Possibly more material might make it necessary to distinguish still another form, but for the present we prefer to treat these birds as representing the southern extension of *rufescens*, with certain slight and inconstant local differences.

Specimens examined.—Aimophila rufescens rufescens: Mexico: San Luis Potosi, 1; Vera Cruz, 2; Oaxaca, 2; Morelos, 1; Puebla, 1. Salvador: San Salvador (Volcan San Salvador, about 4,500 feet, 1; San Salvador, 3); San Miguel (Mt. Cacaguatique, 1). *Aimophila rufescens pectoralis:* Salvador: San Miguel (Volcan San Miguel, 9).

Measurements.—

		Wing.	*Tail.*
Aimophila rufescens rufescens:	4 ♂♂	72.0–75.0 (73.4)	74.5–82.0 (77.9)
	7 ♀♀	67.0–71.0 (69.8)	70.5–77.5 (73.7)
Aimophila rufescens pectoralis:	4 ♂♂	77.5–79.5 (78.4)	84.0–87.0 (85.0)
	4 ♀♀	72.0–74.0 (73.4)	78.0–78.5 (78.4)

One specimen of *pectoralis* retains part of its juvenal plumage and was therefore not used in the table of measurements. It will be noted that while our measurements for *rufescens* are very close to those given by Mr. Ridgway (Birds of North and Middle America, pt. 1, 1901, p. 244) for the male series at his command, our measurements for seven females are decidedly smaller than those given by him for four females. We believe that our measurements more nearly reflect the differences between the sexes.

For their courteous cooperation in furnishing us with comparative series of specimens essential to the determination of the above material, and for other assistance, our sincere thanks are due to Mr. Ludlow Griscom of the American Museum, Dr. E. W. Nelson of the Bureau of Biological Survey, Mr. W. E. Clyde Todd of the Carnegie Museum, Mr. Outram Bangs of the Museum of Comparative Zoology, and Dr. Charles W. Richmond of the United States National Museum.

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PROCEEDINGS
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DESCRIPTIONS OF TWELVE NEW SPECIES OF MIRIDAE FROM THE DISTRICT OF COLUMBIA AND VICINITY (HEMIPTERA).[1]

BY HARRY H. KNIGHT.

It was the writer's good fortune to spend the summer of 1926 in Washington, D. C., working over and arranging the collection of Miridae in the United States National Museum. During week ends some opportunity was had for collecting Hemiptera in that vicinity. It may be of interest to note that the season of 1926 proved to be the poorest year I have ever experienced for collecting Hemiptera. This opinion was gained after driving across the country and collecting in Iowa, Illinois, New York, Pennsylvania, Maryland, District of Columbia, and Virginia. In spite of the adverse season a few good things were taken but only by hard work in sweeping and beating. Many species, however, appeared to be entirely absent from their normal host plants, this being particularly true of those breeding on trees and shrubs. Mr. W. L. McAtee and Mr. H. G. Barber also are of the same opinion that collecting was very poor during 1926.

In working up a list of Miridae for the District of Columbia and vicinity, a few unnamed species have come to notice with the result that the following descriptions are offered now.

Sthenarus mcateei, n. sp.

Distinguished by the small size and bright red color, with pale antennae and legs.

♀. Length 2.7 mm., width 1.5 mm. Head: width .59 mm., vertex .37 mm. Rostrum: length 1.33 mm., extending slightly behind posterior coxae, bright red, paler on the apical half. Antennae: segment I, length

[1]Contribution from the Department of Zoology and Entomology, Iowa State College, Ames, Iowa.

.24 mm.; II, 1.06 mm., slender, slightly thicker apically, length slightly greater than width of pronotum at base; III, .71 mm.; IV, .47 mm.; uniformly pale. Pronotum: length .47 mm., width at base 1.02 mm.

Clothed with simple yellowish pubescence; uniformly bright red, in paler specimens light red, antennae and legs including tibial spines uniformly pale or yellowish; membrane pale to dusky, veins red.

Holotype: ♀ July 29, 1917, Odenton, Maryland (W. L. McAtee); collection of W. L. McAtee. *Paratypes:* 4 ♀ July 12, 1914, Odenton, Maryland (W. L. McAtee), collected on wild grapevine (*Vitus* sp.). ♀ June 12, 1926, Carthage, Mississippi (H. G. Johnston).

This species is referred to the genus *Sthenarus* which at present is a repository for small forms having pale, impunctate tibiae, and clothed with simple pubescence.

Microphylellus minuendus, n. sp.

Runs in my key (Hem. Conn., 1923, p. 454) to *maculipennis* Kngt., but differs in the smaller size and uniformly light yellowish brown color.

♀. Length 2.6 mm., width 1.3 mm. Head: width .59 mm., vertex .32 mm. Rostrum imbedded although apparently reaching to near posterior margins of hind coxae. Antennae: segment I, length .18 mm.; II, .71 mm.; III, .44 mm.; IV, .31 mm.; uniformly yellowish, last segment scarcely dusky. Pronotum: length .53 mm., width at base 1.06 mm.

Pubescence simple and rather abundant as in *Plagiognathus*. Dorsum uniformly light yellowish brown; sides of thorax and venter, sternum, and lower half of face, fusco-brownish to fuscous. Membrane pale to dusky, somewhat darker across apical half of areoles. Legs pale yellowish, tibial spines brownish black, without distinct spots at base; hind femora with two rows of fuscous spots, the dorsal row larger and darker.

Holotype: ♀ June 21, 1914, Plum Point, Maryland (W. L. McAtee); collection of W. L. McAtee. *Paratype:* ♀ June 20, 1914, Plum Point, Maryland (W. L. McAtee); author's collection.

Plagiognathus carneolus, n. sp.

Distinguished by the impunctate tibiae and pale tibial spines; general coloration pale to yellowish, scutellum, corium, and cuneus yellowish brown with a tinge of flesh color; becoming dusky in the male.

♂. Length 4.2 mm., width 1.48 mm. Head: width .80 mm., vertex .32 mm. Rostrum: length 1.54 mm., surpassing the middle coxae but not attaining posterior margins of hind coxae. Antennae: segment I, length .24 mm., pale to dusky; II, 1.09 mm., cylindrical, equal in thickness to segment I, light brown to dusky; III, .68 mm., fuscous; IV, .38 mm., fuscous. Pronotum: length .59 mm., width at base 1.2 mm.

Pubescence yellowish brown to dusky. General coloration pale to yellowish brown; head, scutellum and sternum darker brown, tinged with fuscous, pronotum more or less dusky. Corium except along claval suture, and cuneus except base, light brown with a tinge of flesh color. Membrane rather uniformly fuscous, veins yellowish, a white callous mark

bordering distal margin of larger areole. Legs pale to yellowish, impunctate, tibiae sometimes dusky, spines pale to brownish without spots at base; tarsi fuscous.

♀. Length 3.7 mm., width 1.7 mm. Head: width .82 mm., vertex .40 mm. Rostrum: length 1.6 mm., scarcely attaining posterior margins of hind coxae. Antennae: segment I, length .21 mm.; II, 1 mm., more slender than segment I; III, .58 mm.; IV, .35 mm. Pronotum: length .59 mm., width at base 1.3 mm. Very similar to the male in pubescence and coloration, but the scutellum and corium more reddish brown.

Holotype: ♂ May 5, 1918, Odenton, Maryland (W. L. McAtee); collection of W. L. McAtee. *Allotype:* topotypic; author's collection. *Paratypes:* 3 ♂ 3 ♀, taken with the types. ♂ May 13, 1901, Falls Church, Virginia (S. A. Rohwer). Mr. McAtee found this species breeding on *Pinus virginiana*, where it is one of the first to mature of the several species of Mirids breeding on that host.

Plagiognathus albifacies, n. sp.

Runs to *blatchleyi* Reut. in my key (Hem. Conn., 1923, p. 432), but distinguished by the pale antennal segment I, black sternum, longer head, and differently formed male genital claspers.

♂. Length 4.4 mm., width 1.5 mm. Head: width .81 mm., vertex .35 mm.; pale yellowish, tylus blackish. Rostrum: length 1.85 mm., just attaining posterior margins of hind coxae, chiefly pale. Antennae: segment I, length .39 mm., pale, annulus at base and spot on apical half black; II, 1.55 mm., black; III, 1.14 mm., blackish; IV, broken. Pronotum: length .74 mm., width at base 1.28 mm.; pale yellowish, tinged with greenish in fresh specimens, basal angles dusky to brownish. Scutellum yellowish, somewhat brownish on middle of base and on mesoscutum.

Clothed with pale to yellowish pubescence, sometimes a few hairs dusky on the darker areas. Hemelytra pale yellowish, inner half of clavus and apical half of corium dusky to pale fuscous, usually paler along radial vein, claval suture, and commissure. Cuneus pale to dusky, in dark specimens rather uniformly fusco-brownish, translucent. Membrane fuscous, veins and bordering apex of cuneus paler. Legs pale, femora with two rows of blackish spots on anterior face, hind femora with the antero-dorsal row composed of six larger black spots. Tibial spines black with prominent black spots at base of each, tibial knees black, tarsi fuscous to black. Genital claspers distinctive, the left clasper with lateral or basal lobe much larger than in *blatchleyi*.

♀. Length 4.7 mm., width 1.68 mm. Head: width .83 mm., vertex .39 mm. Antennae: segment I, length .41 mm.; II, 1.51 mm., blackish, more or less pale on basal half; III, 1.2 mm.; IV, .58 mm. Pronotum: length .78 mm., width at base 1.45 mm. Very similar to the male in coloration and pubescence.

Holotype: ♂ July 14, 1922, Urbana, Illinois (P. A. Glick); author's collection. *Allotype:* same data as the type. *Paratypes:* DISTRICT OF COLUMBIA—♂ July 6, 1884, ♂ Aug. 20, 1886, Washington (O. Heide-

mann). MARYLAND—Plummers Island: ♀ July 24, 1905, ♂ July 27, 1913, ♂ 2 ♀ Aug. 1, 1906, ♀ Aug. 11, ♂ Aug. 25, 1907 (W. L. McAtee); ♂ Aug. 9, 1902 (Barber & Schwarz); 2 ♀ Aug. 23, 1903 (O. Heidemann); ♀ Sept. 10, 1905 (D. H. Clemons); ♂ Sept. 15, 1907 (A. K. Fisher).

Plagiognathus crocinus, n. sp.

Runs to *albatus* Van D. in my key (Hem. Conn., 1923, p. 431), but differs in the light orange yellow color and with fuscous along innner margins of clavus only.

♀. Length 3.5 mm., width 1.36 mm. Head: width .68 mm., vertex .35 mm.; eyes minutely pubescent. Rostrum: length 1.43 mm., slightly surpassing the hind coxae. Antennae: segment I, length .26 mm., yellow, a fuscous spot on apical half from which arise two dark hairs; II, 1 mm., yellow; III, .69 mm., yellow to dusky; IV, .38 mm., yellow to dusky. Pronotum: length .56 mm., width at base 1.09 mm.

Clothed with simple pale yellowish pubescence. Coloration light yellow to orange yellow; clavus fuscous along commissure and bordering cuneus. Membrane pale, areoles pale fuscous, a dark ray on outer margin behind cuneus, its width nearly equal to width of cuneus, veins yellow. Legs yellow, tibial spines dark with small fuscous point at base of each; hind femora with a row of small fuscous points near antero-dorsal margin, also three or four other points near apex.

♂. Length 3.8 mm., width 1.4 mm. Head: width .71 mm., vertex .32 mm. Antennae: segment I, length .26 mm.; II, 1.45 mm.; III, .69 mm.; IV, .35 mm. Pronotum: length .59 mm., width at base 1.17 mm. Pubescence and coloration similar to the female, although apical area of corium with faint fuscous cloud apparent.

Holotype: ♀ July 1, 1914, Bluemont, Virginia (W. L. McAtee); collection of W. L. McAtee. *Allotype:* ♂, taken with type; author's collection.

Plagiognathus similis furvus, n. var.

Runs to *annulatus* var. *cuneatus* Kngt. in my key (Hem. Conn., 1923, p. 431), but distinguished by the smaller size and shorter second antennal segment which is not equal to width of pronotum at base.

♂. Length 3.8 mm., width 1.24 mm. Head: width .71 mm., vertex .28 mm. Antennae: segment I, length .24 mm.; II, .98 mm.; III, .66 mm.; IV, .37 mm.; black, last two segments yellowish to dusky. Pronotum: length .53 mm., width at base 1.05 mm.

Not differing in structure from *similis* Kngt., but runs in a different section of the key due to the black antennae. Black, vertex, base of cuneus and sides of mesoscutum pale or yellowish. Legs pale with blackish spots similar to the typical form.

Type: ♂ July 20, 1926, Plummers Island, Maryland (H. H. Knight); author's collection. *Paratype:* ♂, taken with the type on birch (*Betula* sp.), probably yellow birch. ♂ June 20, 1916, Swannanoa, North Carolina (R. W. Leiby).

Plagiognathus similis Kngt. was originally described as a variety of *albatus* Van D. (Hem. Conn., 1923, p. 445), but with the collection of the

present material the writer is of the opinion that we are dealing with a valid species. The type of *similis* was collected on alder (*Alnus*), Berrien County, Michigan (R. F. Hussey), while the writer has taken a pair of typical specimens on birch (*Betula*) along with the above described color variety.

Psallus clavicornis, n. sp.

Allied to *piceicola* Kngt., and very similar in form and color although smaller; distinguished by the short and strongly thickened second antennal segment.

♀. Length 2 mm., width .92 mm. Head: width .50 mm., vertex .31 mm. Rostrum: length 1 mm., reaching upon base of ovipositor. Antennae: segment I, length .18 mm., strongly thickened, more slender toward base; II, .38 mm., fusiform, equal to thickness (.60 mm.) of segment I; III, .27 mm., slender, yellowish, fuscous on apical half; IV, .19 mm., slender, dusky; first two segments dark reddish brown. Pronotum: length .38 mm., width at base .81 mm. Coloration and pubescence nearly identical with *piceicola* Kngt. except legs dark reddish brown, the tibiae paler.

Holotype: ♀ June 27, 1926, Drury, Maryland, swept from *Pinus virginiana* found growing on the sandy area near the Patuxent River and handed to me in the net by Dr. H. E. Ewing; author's collection. *Paratypes:* ♂ ♀ March 3, 1880, Washington, D. C. (Pergande), "found feeding upon mealy bug." The male is mutilated and unfit for description.

Diaphnidia heidemanni, n. sp.

Distinguished from others of the genus by the short, transverse pronotum, with distinct transverse impression behind calli; membrane pale with veins and areoles green.

♀. Length 4.4 mm., width 1.36 mm. Head: width .80 mm., vertex .38 mm.; vertex much flattened, eyes prominent. Rostrum, length .74 mm., only reaching to middle of sternum. Antennae: segment I, length .52 mm., thickness .13 mm., clothed with recumbent, stiff pubescence and bearing six or seven erect bristles which in length about equal thickness of segment; II, 1.43 mm., cylindrical, thickness .06 mm.; III, 1.57 mm., longer and more slender than II; IV, .60 mm.; pale, tinged with green, scarcely dusky apically. Pronotum: length .41 mm., width at base 1 mm., width apically .71 mm., lateral margins straight, basal margin gently arcuate anteriorly, disk flat, a distinct transverse impression delimiting posterior margins of calli; mesoscutum broadly exposed, scutellum moderately convex.

Clothed with simple, rather prominent pale pubescence; head, pronotum, and margins of hemelytra set with prominent, longer pubescent hairs. Hemelytra uniformly bluish green, areoles and veins of the same color, membrane otherwise pale. Legs pale to greenish, pale pubescent, tibial spinules brownish.

♂. Length 4.3 mm., width 1.36 mm. Head: width .86 mm., vertex .34 mm. Antennae: segment I, length .53 mm.; II, 1.45 mm.; III, 1.58 mm.; IV, .60 mm. Pronotum: length .41 mm., width at base .98 mm. Very similar to the female in form, pubescence and coloration.

Holotype: ♀ June 20, 1887, Washington, D. C. (O. Heidemann); U. S. National Museum collection. *Allotype:* collected with the type; Cornell University collection. ♂ 3 ♀ taken with the types. *Paratypes:* DISTRICT OF COLUMBIA—♀ July 4, ♀ Oct. 15, 1886, ♀ June 15, 1887, ♀ May 7, ♀ May 10, 2 ♀ June 20, 1888, 2 ♂ 2 ♀ June 20, 2 ♂ 9 ♀ June 23, 1890, ♂ June 18, ♀ June 19, 2 ♀ July 2, 1891, 4 ♀ July 6, 2 ♂ 2 ♀ July 8, 3 ♀ July 10, 2 ♀ July 12, 1893, ♀ June 25, 1904, Washington (O. Heidemann). MARYLAND—2 ♀ July 4, 1887, Henson Creek, Prince Georges Co. (O. Heidemann). Heidemann gave the host plant as *Fraxinus excelsior*.

Xenoborus chionanthi, n. sp.

Runs to *neglectus* Kngt. in my key (Hem. Conn., 1923, p. 567), but easily distinguished by the pale antennae, and smaller and more ovate form; coloration and form more suggestive of *Neoborus vittiscutis* Kngt., but easily separated by the generic characters.

♀. Length 4.5 mm., width 2 mm. Head: width 1.06 mm., vertex .47 mm.; yellowish, tylus and median line of vertex blackish. Rostrum: length 1.23 mm., reaching upon middle of intermediate coxae. Antennae: segment I, length .56 mm.; II, 1.4 mm.; III, .80 mm.; IV, .54 mm.; pale yellowish, scarcely dusky on apex. Pronotum: length .94 mm., width at base 1.68 mm.; lateral margins ecarinate, calli prominent, blackish on disk of each; yellowish, propleura and a ray-like cloud behind each callus fuscous. Scutellum pale yellowish, mesoscutum dark brown or fuscous. Sternum brownish, sides of thorax blackish.

Pubescence prominent, pale yellowish. Coloration pale yellowish, hemelytra subtranslucent; clavus bordering scutellum and commissure, embolium except apex, corium exterior to radial vein although curving inward across apex, dark brownish black. Cuneus uniformly pale translucent. Membrane uniformly dark fuscous, pale bordering cuneus and anal area. Legs uniformly pale yellowish, tips of tarsi and claws brownish. Venter brownish yellow, sides somewhat darker.

♂. Length 4 mm., width 1.7 mm. Head: width 1 mm., vertex .38 mm. Antennae: segment I, length .53 mm.; II, 1.33 mm.; III, .62 mm.; IV, .44 mm. Pronotum: length .83 mm., width at base 1.45 mm. Pubescence and coloration similar to female.

Holotype: ♀ July 20, 1926, Plummers Island, Maryland (H. H. Knight); author's collection. *Allotype:* same data as the type. *Paratypes:* 6 ♀, collected with the types on fringe tree (*Chionanthus virginica*); two nymphs were also taken and feeding spots noted on the leaves. MARYLAND—Plummers Island: ♀ July 4, 1908 (O. Heidemann). ♀ July 8, 1906, ♀ Aug. 8, 1907, 2 ♀ July 20, 1926 (W. L. McAtee). ♀ June 6, 1905 (D. H. Clemons). ♂ 5 ♀ July, 1907 (Wm. Palmer). ♀ July 8 (E. A. Schwarz). ♀ Aug. 25, 1904 (R. P. Currie). VIRGINIA—♀ June 13,

1908, Great Falls (O. Heidemann). ♀ Aug. 30, 1916, Dunn-Loring (W. L. McAtee).

Xenoborus chionanthi nigrellus, n. var.

Similar in structure to the typical form but differing in the black color. Hemelytra and pronotum except median line of disk, black; mesoscutum, base of scutellum and vitta on median line extending to middle, black; head brown with median line and tylus black; legs and antennae uniformly pale.

Type: ♂ July 20, 1926, Plummers Island, Maryland (H. H. Knight); author's collection.

Dichrooscytus tinctipennis, n. sp.

†*Dichrooscytus elegans* Knight, Hemiptera Conn., 1923, p. 597.

Allied to *viridicans* Kngt., but distinguished by the broader vertex and reddish hemelytra.

♂. Length 3.7 mm., width 1.5 mm. Head: width .83 mm., vertex .355 mm. Rostrum: length 1.18 mm., scarcely attaining posterior margins of hind coxae, yellowish brown, darker on apex. Antennae: segment I, length .326 mm., not equal to width of vertex; II, 1.36 mm.; III, .50 mm.; IV, .42 mm. Pronotum: length .64 mm., width at base 1.18 mm.

Clothed with soft brownish, simple pubescence, pale or yellowish on embolium and legs. General coloration yellowish green, more distinctly green on pronotum and tibiae; corium, clavus, and inner apical half of cuneus, reddish; base and outer margin of cuneus paler. Membrane uniformly light fuscous, veins reddish, an opaque white callous mark bordering apical angle of larger areole.

♀. Length 3.6 mm., width 1.6 mm. Head: width .89 mm., vertex .43 mm. Antennae: segment I, length .326 mm.; II, 1.27 mm.; III, .59 mm.; IV, .43 mm. Pronotum: length .66 mm., width at base 1.3 mm. Slightly more robust than the male but very similar in pubescence and coloration.

Holotype: ♂ June 19, 1915, Batavia, New York (H. H. Knight); author's collection. *Allotype:* same data as the type. *Paratypes:* 100 ♂ ♀ taken with the types on white cedar (*Thuja occidentalis* L.). 29 ♂ ♀ June 27, 1915, Portageville, New York (H. H. Knight), breeding on *Juniperus virginiana.* DISTRICT OF COLUMBIA—8 ♂ ♀ June 15, 1891, ♀ June 18, 1897, Washington (O. Heidemann). GEORGIA—♀ June 8, 1917, Stone Mountain (H. H. Knight). KANSAS—♀, Riley County (Marlatt). MARYLAND—♀ May 24, 1914, Plummers Island (W. L. McAtee). MINNESOTA—♀ July 20, 1920, Gray Cloud Island (H. H. Knight). NEW JERSEY—♀ May, ♂ May 29, Lakehurst (Wm. T. Davis). VIRGINIA—♀ June 2, 1917, Soudan (H. H. Knight). ♂ ♀ Fairfax County (O. Heidemann).

Both *tinctipennis* and *viridicans* Kngt. breed on red cedar, the latter species being distinguished by the green color and narrow vertex; width of vertex not greater than length of the first antennal segment. This

eastern species has usually been identified as *elegans* Uhler, a species described from New Mexico. During the past summer (1926) I have examined the types in the U. S. National Museum and find *elegans* Uhler to be entirely different, in fact more closely allied to *vittatus* Van D.

Phytocoris junipericola, n. sp.

Allied to *angustulus* Reut., but smaller and more uniformly yellowish; distinguished by the shorter first antennal segment which is not equal to width of head.

♂. Length 4.1 mm., width 1.5 mm. Head: width .81 mm., vertex .24 mm. Rostrum: length 1.54 mm., reaching upon eighth ventral segment. Antennae: segment I, length .72 mm., greenish yellow, set with several brownish setae which in length exceed thickness of segment; II, 1.74 mm., yellowish brown, apical half becoming infuscated; III, .89 mm., blackish; IV, .42 mm., blackish. Pronotum: length .65 mm., width at base 1.45 mm.

Clothed with golden brown to dusky, simple pubescence. General coloration brownish yellow and tinged with greenish; head, pronotum, and scutellum without infuscations; corium with an oblique fuscous mark just before middle and a second one across inner apical angle, both directed obliquely mesad; apex of cuneus, and two spots along membrane margin, one at base and one near middle, black. Membrane and veins uniformly dark fuscous with vein at apex of larger areole pale. Legs yellowish, dorsal aspect of femora shaded with light fuscous, leaving a few small yellow dots on apical half; hind tibiae pale, impunctate, set with brown spines. Genital segment fuscous on base; claspers distinctive although exhibiting a close relationship with *angustulus* Reut.

♀. Length 4.3 mm., width 1.6 mm. Head: width .83 mm., vertex .34 mm. Antennae: segment I, length .77 mm.; II, 1.8 mm.; III, .92 mm.; IV, .74 mm. Pronotum: length .74 mm., width at base 1.33 mm. Similar to the male in pubescence and coloration.

Holotype: ♂ July 25, 1926, Washington, D. C. (H. H. Knight); author's collection. *Allotype:* same data as type. *Paratypes:* 3 ♂ 11 ♀, taken with the types on *Juniperus virginiana;* collected on the large red cedars which grow in the triangle of land between Massachusetts and Cathedral Avenues west of Wisconsin Avenue. 2 ♂ July 19, topotypic; ♂ Aug. 6, collected at light, Washington, D. C.; ♂ July 17, 1926, Glen Echo, Maryland (H. H. Knight). 2 ♂ Aug. 3, 1915, Plummers Island, Maryland (R. C. Shannon and V. A. Roberts).

Junipericola runs to group III in my key to *Phytocoris* (Hem. Conn., 1923, p. 615), placing it with a group of conifer inhabiting species. On the basis of genitalia this species is most closely allied to *angustulus* Reut., which form is placed in group II of my key due to the longer antennae. *P. angustulus* Reut. occurs on hemlock (*Tsuga canadensis*), and thus it is interesting to note that its nearest relative breeds on Juniper. Both species appear to be plant feeding forms as they occur among the terminal twigs and have the same pigments in the hypodermis as the sap feeding *Parthenicus juniperi* (Heid.).

Phytocoris purvus, n. sp.

Allied to *minutulus* Reut., but differs in the shorter antennal segment I, the uniformly black segment II with narrow pale annulus only at base, in the larger eyes and narrow vertex, subapical black marks on scutellum, and in structure of the genital claspers.

♂. Length 5.5 mm., width 1.9 mm. Head: width 1.05 mm., vertex .22 mm.; eyes large and prominent, vertex chiefly pale, front with six transverse dark lines, lower frons and tylus black, a V-shaped white mark on basal half of tylus, juga white with transverse blackish mark on dorsal half, lora black with pale on lower margin which joins the pale color on the much reduced genae and gula. Rostrum: length 2.6 mm., extending upon fifth ventral, pale yellowish, apex brownish black. Antennae: segment I, length 1.11 mm., only slightly greater than width of head, black, pale on ventral side, the black broken by several moderate white spots, a white seta arising from each spot; II, 2.8 mm., black, narrowly pale at base; III, 1.45 mm., black, narrowly pale at base; IV, 1.09 mm., black. Pronotum: length .83 mm., width at base 1.51 mm.; fuscous to black, paler on calli and central area of disk, lower margin of propleura pale. Scutellum pale, with a pair of well defined brownish black, subapical, marginal spots. Sternum pale, sides and pleura blackish.

Dorsum darker than in *minutulus*, hemelytra rather uniformly fuscous, with pale spots on embolium, and somewhat paler on middle of corium. Clothed with fuscous, simple pubescence and intermixed with white sericeous pubescence which occurs in numerous spots. Membrane pale, speckled with numerous small brownish to fuscous spots, the preapical area and margins of areoles more evenly fuscous; veins fuscous, white around apices of areoles. Legs blackish and marked with white spots much as *eximius*, spots more or less confluent, forming a well defined preapical white annulus. Genital claspers distinctive, left clasper with inner arm much flattened, broader than in *fumatus* Reut.; right clasper shaped much as in *quercicola* Kngt.

♀. Length 5.3 mm., width 2 mm. Head: width .95 mm., vertex .34 mm. Antennae: segment I, length 1.18 mm.; II, 2.6 mm.; III, 1.37 mm.; IV, .98 mm. Pronotum: length .84 mm., width at base 1.52 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂ June 14, 1912, Plummers Island, Maryland (H. Barber); U. S. N. M. collection. *Allotype:* ♀ June 30, 1926, Washington, D. C. (H. H. Knight); author's collection. *Paratypes:* MARYLAND—♂ June 18, Great Falls (H. S. Barber). ♂ June 23, 1913, Jacksons Island (Shannon & Barber). ♀ Aug. 3, 1915, Plummers Island (R. C. Shannon), at light.

Phytocoris difficilis, n. sp.

Allied to *conspurcatus* Kngt., but larger; distinguished by the dark femora with small pale spots only; propleura without pale mark across dorsal margin of coxal cleft.

♀. Length 5.6 mm., width 2.34 mm. Head: width 1.06 mm., vertex

.42 mm. Rostrum: length 2.8 mm., reaching to base of ovipositor. Antennae: segment I, length 1.36 mm.; II, 2.54 mm.; III, 1.51 mm., black, with pale band only at base; IV, 1 mm.; marked with pale as in *conspurcatus* except segment III. Pronotum: length 1 mm., width at base 1.76 mm.; propleura black, with lower margin only yellowish.

Pubescence nearly as in *conspurcatus*, but with fewer white scale-like hairs and more of the black. Coloration suggestive of *conspurcatus* but hemelytra with less fuscous, the hypodermis distinctly yellowish; the oblique fuscous mark on apical area of corium very distinct on the pale yellowish background. Femora black, although more or less pale at base, the dark color speckled with small yellowish spots which do not coalesce to form bands; suggestive of *spicatus* Kngt. in this respect.

Holotype: ♀ July 3, 1926, Beltsville, Maryland (H. H. Knight); author's collection. *Paratypes:* ♀ July 19, ♀ Sept. 15, Lakehurst, New Jersey (Wm. T. Davis). The type was collected on an isolated tree of *Pinus virginiana*, and with the Lakehurst specimens coming from a pine area, a host relationship is strongly suggested. The New Jersey specimens have been set aside for some time as an unnamed species, awaiting more material or the male sex for description. With the collecting of a perfectly preserved female the description of the species seems justified.

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PROCEEDINGS

OF THE

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ON SOME ASIATIC CLERIDAE (COL.).

BY EDWARD A. CHAPIN.

A few specimens of Asiatic Cleridae from various sources have come to hand for incorporation in the National Collection and for two species there appear to be no available names. Names are proposed for these in this paper. Notes on the Cleridae collected by T. D. A. Cockerell and David C. Graham are also included.

Opilo grahami, new species.

Form elongate-parallel; head, thorax, a sutural spot on the posterior half of the elytra and apices of the femora castaneous, elytra, abdomen and appendages other than mentioned above pale, the antennae and trophi darker. Head coarsely, densely and rather rugosely punctured. Pronotum longer than broad (34:26), sides feebly rounded, disc depressed, posterior transverse impression deep and narrow and behind this is a transverse cariniform elevation. Anteriorly there is an area which is almost impunctate, posteriorly there is a smaller impunctate and very shining area having the form of an acute triangle. These areas are connected by a very narrow carina which follows the median line of the pronotum and which is bounded by grooves formed by partially coalesced punctures. The rest of the disc is irregularly set with very coarse punctures, on the flanks the punctures are replaced by a coarse rugosity. The scutellum is dark brown and finely punctured. The elytra are testaceous and each bears nine rows of large quadrate punctures on its basal half, the normally present tenth row is only feebly indicated, and at the humeral callus the fifth to ninth rows are obsolete. On the apical half and especially at the apex the punctures become smaller, some of the rows are double and for the most part there is no regular arrangement. On the apical half there is a piceous sutural spot common to the two elytra; it is roughly pentagonal in shape, one side is perpendicular to the suture basally, the opposite angle is on the suture apically. In front of this spot there is a narrow extension of the dark which runs from the suture obliquely toward the humerus but which fails to reach the humerus by more than

its own length. Under parts of the thorax are finely and densely punctured, the abdomen more coarsely and less densely so. Coxae and apical halves of femora piceous, trochanters and basal halves of femora pale, tibiae and tarsi castaneous. The entire insect is set with long erect pale hairs.

Length: male, 13.5 mm.; female, 16.5 mm.

Locality.—Near Cheng-tu, Sze-chuan province, China.

D. C. Graham, collector, 1924.

Type.—Male, U. S. N. M., No. 40245, paratype, a female, same data.

Other than size, the most noticeable difference between the two specimens before me is in the intensity of the coloration; the elytral marking being noticeably darker in the female. The species appears to be closely related to *O. triangulus* Schklg., described from Cochinchina and may be distinguished from it by the location of the elytral spot, which, in *O. triangulus*, is on the lateral margin at the middle of the length.

Pseudoclerops sinae, new species.

Less robust than *P. dealbatus* Kr., which it closely resembles and with golden pubescence instead of white. Head, pronotum and apical three-fifths of elytra black, under parts (except prothorax) and basal two-fifths of elytra castaneous, elytra with a transverse fascia of golden hairs at apical fourth. Head moderately coarsely and densely punctured, rather sparsely pubescent with pale hairs, the occipital region densely pilose with golden hairs in the male only. Antennae castaneous, the outer segments slightly darker. Trophi castaneous. Pronotum almost equilateral (26: 27), finely, evenly and rather densely punctured, pubescence fairly dense, black with a few pale hairs on the flanks. Elytra with rows of large, deeply excavated pits on the castaneous portion, the rows are continued onto the black, the pits being replaced by quadrate punctures which diminish in size toward the apex. On the basal half the interspaces are furnished with rows of setiferous tubercles. The extreme apices of the elytra carry rather coarse round punctures which are not arranged in any regular sequence. At the junction of the castaneous and black portions there are three more or less inconspicuous patches of golden hairs, one of which is sutural and common to the two elytra, the others are on the external margins. The transverse fascia at apical fourth is composed of two parts, the hairs forming the cephalad half of the band are for the most part directed toward the suture, those forming the caudad half toward the external margin. The band is about two-fifths as wide as the length of the pronotum. The under parts of the body are finely and rather densely punctured and rather sparsely pubescent. The proximal portions of the femora and the entire tarsi are castaneous, the distal portions of the femora and the tibiae are darker.

Length: 9 mm. (type) to 11 mm.

Locality.—Yen-ping, Foo-chow province (type and three paratypes; Che-kiang province (one paratype), China.

Paratypes.—U. S. N. M., No. 40246. Type and female paratype from Yen-ping in the collection of the American Museum of Natural History,

the remaining paratypes, two males and one female, in the United States National Museum. I am indebted for the opportunity to study the Yen-ping material to the American Museum staff, notably Mr. A. J. Mutchler.

This species differs from *P. dealbatus* Kr. in the color of the pubescence, in the peculiar arrangement of the hairs in the subapical fascia (in *P. dealbatus* Kr. the hairs are all directed apically) and in the extension of the rows of elytral punctures to include the subapical fascia.

Among the insects collected during July and August, 1923, in the Maritime Province, Siberia, by T. D. A. Cockerell, are two species of Cleridae. They are (1) *Pseudoclerops dealbatus* Kraatz, a single specimen from Kongaus, August, and (2) twelve specimens of *Trichodes irkutensis* Laxmann. Six of these are from the Kudia River district at Amagu, taken in July, the rest from Kongaus in August.

The rich collections of David C. Graham have included three species of this family, one of which, an *Opilo*, is described above as new. The above species are (1) *Tillus notatus* Klug, two specimens from Sui-fu, Sze-chuan province, May, 1925, and (2) eight specimens of *Trichodes sinae* Chevr. from various localities as follows: Sui-fu, May, 1923, and Nov. 11, 1925, three specimens, Mow-chow, July 9, 1924, three specimens, Uenchuan, August, 1924, one specimen and "near Song-pan," July 12–13, 1924, one specimen. All of these specimens agree best with the description of *T. sinae* Chevr. var. *frivadszkyi* Reitter but there is so much variation displayed in the series that it is doubtful whether there is any use in trying to apply varietal names in this species.

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NOTE ON THE GENUS IRENA HORSFIELD.

BY J. H. RILEY.[1]

Oberholser[2] divided the genus *Irena* of authors into two: *Irena* Horsfield, of which he says the type is *Coracias puella* Latham (but this is debatable), and *Glauconympha* Oberholser, type *Irena cyanea* Begbie. Horsfield[3] gave only one species, *Irena puella* "mihi," and then quotes *Coracias puella* Latham. If he had stopped at this point, there is no doubt that *Coracias puella* Latham would be the type of *Irena* Horsfield, but he gave a description of his *Irena puella*, founded on a Javan specimen. This later proved not to be *Coracias puella* Latham and was named *Irena turcosa* Walden.[4] Therefore, the type of *Irena* Horsfield is *Irena puella* Horsfield (not *Coracias puella* Latham), which equals *Irena turcosa* Walden, and Sharpe[5] was right in stating the type of the genus to be the latter. This is unimportant, since I agree with Stuart Baker[6] in regarding *Irena puella* and *Irena cyanea* as not only congeneric but conspecific. Therefore, *Glauconympha* Oberholser becomes a synonym of *Irena* Horsfield.

The genus *Irena*, however, as given in Sharpe's Hand-List, vol. 3, 1901, pp. 308–309, naturally divides into two sections, for the first of which I propose

Irenella, gen. nov.

Type, *Irena cyanogastra* Vigors. Upper and under tail-coverts short, less than half the length of tail, the mantle with normal feathers, the sexes similar; and

[1] Published by permission of the Secretary of the Smithsonian Institution.
[2] Journ. Wash. Acad. Sci., vol. 7, 1917, p. 539.
[3] Trans. Linn. Soc. Lond., vol. 13, 1821, p. 153.
[4] Ann. and Mag. Nat. Hist., (4), vol. 5, 1870, p. 417.
[5] Cat. Birds Brit. Mus., vol. 6, 1881, p. 174.
[6] Fauna Brit. India, Birds, vol. 3, 2d ed., 1926, p. 1.

Irena Horsfield.

Type, *Irena puella* Horsfield (*Irena turcosa* Walden). The males with prolonged upper and under tail-coverts, more than half the length of tail, the mantle with specialized, glossy, wax-like feathers, the sexes unlike.

The first contains only the first three names in Sharpe's list, cited above, and is confined to the Philippines; the second comprises the remainder of the species, of wider distribution, from South India to the Malay Peninsula, Java, Borneo, Sumatra, Palawan, and neighboring islands. This is a more logical arrangement, both from a distributional and structural standpoint than that proposed by Dr. Oberholser.

Irena tweeddalii Sharpe, of Balabac, Palawan, and Calamianes, is a somewhat aberrant member of the genus *Irena*, as here set forth. The upper tail-coverts are shorter than half the length of the tail, but the other characters hold, and the style of coloration agrees with the type of the genus. Palawan, Balabac, and Calamianes in their faunal affinities are Bornean, rather than Philippine.

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PROCEEDINGS

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THE SPOTTED ROCK WRENS OF CENTRAL AMERICA.[1]

BY DONALD R. DICKEY AND A. J. VAN ROSSEM.

The uncertainty which has existed in regard to the relationships of the three described forms of the '*guttatus*' group of rock wrens has been largely due to the lack of typical specimens of *Salpinctes guttatus* Salvin and Godman in this country. During a recent field trip to Salvador, an adequate series of topotypes of this species was secured on Volcan San Miguel, and the writers are thus enabled to clear up some of the points involved. In this connection we have been privileged to examine practically all of the specimens of this group available in this country. Unfortunately all of these birds are not strictly comparable in age and plumage, but specimens are at hand from all the general area known to be occupied by the group. The material is as follows: one adult from Joyabaj, Quiché, Guatemala; 24 adults and 20 juveniles from Salvador; 6 juveniles from Volcan El Viejo, Nicaragua; and 5 adults and 5 juveniles from Volcan Miravalles, Costa Rica. We are indebted to the authorities of the American Museum, the Carnegie Museum, the Museum of Comparative Zoology, and the United States National Museum, for the comparative material necessary for this study.

The series of 17 adult topotypes of *guttatus* from Volcan San Miguel, Salvador, exhibits an extraordinary variation in the density and shape of the markings of the under parts. The birds vary from a lightly marked extreme, with narrow and diffused streaking on chin and throat, and with the spotting on chest and barring on flanks greatly reduced, to a type in which the bold blackish maculations almost obscure the ground color. Some individuals are prominently and conspicuously barred on

[1]Contribution from the California Institute of Technology.

the flanks, while in others the spotting extends back to the under tail coverts. There is also much variation in ground color, irrespective of density of marking. Some birds have strongly brownish flanks and a decided buffy tone in the whole posterior under parts, while others are grayish-white with only a slight pinkish tinge on the flanks. As an average thing, the females are much less heavily marked than the males. But this distinction between the sexes is only relative, for some females are more heavily marked than the average of the males. Our series of 7 adults from Volcan Conchagua, and Colinas de Jucuaran, Salvador, are slightly whiter as to ground color, with fainter markings below, as average characters. However, this difference is so slight as to be almost negligible, and every individual can be matched from the San Miguel series. The single available adult female from Quiché, Guatemala, No. 150,905, U. S. National Museum, is one of the two specimens upon which Mr. Ridgway based his *Salpinctes maculatus*. This specimen is exactly duplicated by No. 17,598 of the Dickey collection from Volcan San Miguel, Salvador, save that the latter is very slightly darker dorsally. There are, however, other San Miguel birds which are paler, and others which are darker in this respect. Dr. Alexander Wetmore has kindly compared the type of *maculatus* with selected specimens of *guttatus* from San Miguel and Conchagua, and believes them identical. We had reached the same conclusion, after comparing the above topotype of *maculatus* with our topotype series of *guttatus*. On the basis of available material it would therefore seem best to consider *maculatus* a synonym of *guttatus*. On the other hand, a fully representative series of *maculatus* might well disclose mass variation in the direction of the '*obsoletus*' group. The 5 adults we have seen from Volcan Miravalles, Costa Rica, are in such excessively abraded plumage as to be worthless for comparison purposes.

Turning now to the juveniles, it is found that 10 birds from Volcan San Miguel, Salvador, in freshly acquired plumage, are very much darker, more sooty (less brownish), and more coarsely variegated dorsally, than comparable Nicaraguan and Costa Rican juveniles. The 10 juveniles from Conchagua and Jucuaran, Salvador, are in worn, faded plumage and therefore paler than those from San Miguel, but the backs are just as coarsely variegated and, like the adults, there can be no doubt but that they are quite typical of *guttatus*. For the Nicaraguan birds the name *Salpinctes fasciatus* Salvin and Godman is, of course, available. The differences, though pronounced, are fully bridged by individual variation, and the race should therefore stand as *Salpinctes guttatus fasciatus*. In mass, the Costa Rican birds are even paler than the Nicaraguan series, but they are so close to the latter that we hesitate to give them a name.

In conclusion we wish again to emphasize that fresh, comparable specimens may not only show *maculatus* to be a valid race, but may also justify the separation of the Costa Rican bird. The above arrangement is admittedly tentative, for our present understanding of the group is based on material which is in some ways still too scanty to be entirely satisfactory.

The group nomenclature and ranges, as here revised, are as follows:

Salpinctes guttatus guttatus Salvin and Godman.

SALVADOR SPOTTED ROCK WREN.

Salpinctes obsoletus (not *Troglodytes obsoleta* Say) Salvin and Godman, Biol. Centr.-Amer., Aves, I, 1880, p. 71, part (Volcan Conchagua, Salvador, alt. 4,000 feet).

Salpinctes guttatus Salvin and Godman, Ibis, 6th ser., 3, Oct. 1891, 609 (Volcan San Miguel, Salvador, alt. 4,000 feet).—Ridgway, Bull. 50, U. S. Nat. Mus., pt. 3, 1904, p. 653, part (Volcan San Miguel; Volcan Conchagua?).

Salpinctes maculatus Ridgway, Proc. Biol. Soc. Wash., 16, Nov. 30, 1903, p. 169 (Toyabaj [=Joyabaj], Quiché, Guatemala).—Bull. 50, U. S. Nat. Mus., pt. 3, 1904, 651 (crit.).

Range.—Rocky highlands from north-central Guatemala (Joyabaj, Department of Quiché), south to Salvador (Volcan San Miguel; Colinas de Jucuaran; Volcan Conchagua).

Salpinctes guttatus fasciatus Salvin and Godman.

NICARAGUA SPOTTED ROCK WREN.

Salpinctes fasciatus Salvin and Godman, Ibis, 6th ser., 3, Oct. 1891, p. 610 (Volcan El Viejo, Nicaragua, alt. 6,500 feet).—Ridgway, Bull. 50, U. S. Nat. Mus., pt. 3, 1904, p. 653 (Volcan El Viejo).

Salpinctes guttatus (not of Salvin and Godman) Underwood, Ibis, 1896, p. 433 (Miravalles, Costa Rica).—Ridgway, Bull. 50, U. S. Nat. Mus., pt. 3, 1904, p. 653, part (Volcan Miravalles).—Carriker, Birds of Costa Rica, 1910, p. 754 (Volcan Miravalles, alt. 2,000 feet).

Range.—Northwestern Nicaragua (Volcan El Viejo, Department of Chinandega), south to northwestern Costa Rica (Volcan Miravalles, Department of Guanacaste).

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PROCEEDINGS
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NEW NAMES FOR TROPICAL AMERICAN PLANTS.[1]

BY ELLSWORTH P. KILLIP.

In the course of recent study of collections from tropical America the following new binomials have been found necessary:

Leperiza miniata (Herb.) Killip.

Pentlandia miniata Herb. in Edwards' Bot. Reg. **25:** under *pl. 68.* 1839.
Sphaerotele coccinea Link, Kl. & Otto, Icon. Pl. *pl. 38.* 1841.
Urceolina miniata Benth. & Hook. Gen. Pl. **3:** 732. 1883.

The earliest available name for the amaryllidaceous genus usually known as *Urceolina* Reichenb. (1828) is *Leperiza* Herb.[2] (1821).

Leperiza microcrater (Kränzl.) Killip.

Urceolina microcrater Kränzl. Bot. Jahrb. Engler **54:** Beibl. 117: 3. 1916.

Leperiza urceolata (R. & P.) Killip.

Crinum urceolatum R. & P. Fl. Peruv. Chil. **3:** 58. *pl. 287, f. b.* 1802.
Urceolaria pendula Herb. in Edwards' Bot. Reg. **1821:** App. 28. 1821.
Collania urceolata Roem. & Schult. Syst. Veg. **7:** 893. 1830.
Urceolina urceolata Herb. Amaryllidac. 193. 1837.
Urceolina aurea Lindl. Gard. Chron. **1864:** 627, 890. 1864.

Myriocarpa yzabalensis (Donn. Smith) Killip.

Myriocarpa longipes var. *yzabalensis* Donn. Smith, Bot. Gaz. **16:** 13. 1891.

[1] Published by permission of the Secretary of the Smithsonian Institution.
[2] In Edwards' Bot. Reg. **1821:** App. 41. 1821.

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PROCEEDINGS
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A REVISION OF THE GOLDEN WARBLERS, DENDROICA PETECHIA (LINNÉ).

BY JAMES L. PETERS.

The Yellow Warbler (*Dendroica aestiva*) of North America is represented in the West Indies, Cozumel Island, the west coast of Colombia and Ecuador, and the Galapagos Archipelago by a closely allied species (*Dendroica petechia*), differing specifically in the primary formula, length of the wing-tip, and relative proportions of the wing and tail. In other words, the structural differences are exactly those that might be expected to develop between a migratory and a sedentary species. A slight color difference also is found. In *D. petechia* the pileum varies from ochraceous to chestnut, and the extent of this color likewise varies. In *D. aestiva* the pileum is golden yellow.

The external structural differences between the two species may be seen from the following table:

Dendroica aestiva.	*Dendroica petechia.*
7th, 8th and 9th primaries equal and longest.	7th and 8th primaries longest; 9th generally shorter than (sometimes equal to) 6th.
wing-tip ¾ (or more) length of tarsus.	wing-tip less than ¾ length of tarsus.
tail not over 4/5 length of wing.	tail over 4/5 (generally about 85%) length of wing.

For convenience I call *Dendroica petechia* the Golden Warbler, reserving the familiar Yellow Warbler for *Dendroica aestiva;* Mangrove Warbler is most appropriate to *D. rufigula, D. erithachorides,* and the various races of *D. bryanti.*

Dendroica petechia occurs on nearly all the islands of the West Indies except St. Lucia, St. Vincent, and some of the Grenadines. It is replaced

on Martinique by a very distinct species (*Dendroica rufigula* Baird) whose nearest affinities are with *Dendroica erithachorides* Baird of northern Colombia, Panama, and the Pearl Islands. Indeed *rufigula* is little more than a small counterpart of its mainland relative, but its characters are so trenchant that I prefer to regard it as a species distinct from *erithachorides*.

In addition to its widespread distribution in the West Indies, *D. petechia* occurs on the islands off the north coast of Venezuela from Aruba to Margarita, on Cozumel Island off the east coast of Yucatan, on St. Andrews Island in the Caribbean Sea, in the Galapagos Archipelago, and on the west coast of Colombia and Ecuador. It is absent from the rest of the South American mainland and from the islands of Trinidad and Tobago.

Ridgway[1] recognized two species covering the distribution just outlined, with an aggregate of eleven races. In this paper I have reduced the number of species to one, since the characters separating *petechia* from *ruficapilla* are merely those of degree, wholly or partly bridged by individual variation, but I have increased the number of recognized forms to fifteen.

Some forms appear to be confined strictly to the mangroves, others frequent the dry bushy pastures as well; none of them occur in the forests.

In song, call-notes and general attitude the resemblance of all of them to *D. aestiva* is very striking.

I am indebted to the authorities of the Field Museum and the American Museum of Natural History for the loan of necessary specimens.

Dendroica petechia eoa (Gosse).

Sylvicola eoa Gosse, Bds. Jam., 1847, p. 158 (Crab Pond, Jamaica.)
Dendroeca petechia e. *jamaicensis* Sundevall, Öfv. K. Vet-Akad. Förh. Stockholm, 26, 1870, p. 608.
Dendroica auricapilla Ridgway, Proc. U. S. Nat. Mus. 10, sig. 36, 6 Aug. 1888, p. 572 (Grand Cayman).
Dendroica petechia auct. nec Linné.

Description.—Adult male. Above bright yellowish olive green, yellower on the rump; crown more or less ochraceous-orange, forehead generally clear yellow; lesser and median coverts broadly edged with yellow with dusky centers and bases; primaries, secondaries and greater coverts dusky, less broadly edged and the yellow more olive except on the inner secondaries; below sides of head, lores, superciliary and auriculars uniform brilliant yellow streaked on the breast and sides with cinnamon rufous or light reddish chestnut. Central tail feathers dusky, narrowly edged with yellowish; balance of the feathers dusky on the outer web and terminal part of the inner web; rest of inner web yellow.

Adult female. Above much darker and greener than the male and lacking the yellow forehead and rufous crown; edging to the wing and wing coverts, narrower and more greenish; below yellow less brilliant,

[1] Birds of No. and Mid. Am. 2, 1902, pp. 515–526.

and chestnut streaks usually lacking, sometimes indicated; yellow areas in the tail less extensive.

Measurements.—Male. Wing, 61–68 (64.6); tail, 51–61 (55.45); bill from base, 14–15 (14.43); tarsus, 20.5–23 (21.5). Female.—Wing, 56–63.5 (61.03); tail, 52–58 (53.75); bill from base, 13–15 (14.35); tarsus, 19–22.5 (20.5).

Range.—Jamaica and the Caymans (Little Cayman, Grand Cayman, Cayman Brac). Confined exclusively to the mangroves.

Specimens examined.—Jamaica: 8 ♂, 7 ♀; Grand Cayman: 8 ♂, 4 ♀; Cayman Brac: 2 ♂; Little Cayman: 1 ♂, 1 ♀.

For many years *Motacilla petechia* Linné has been applied to the Jamaican Golden Warbler, but this name is not applicable here, as will be shown. *Motacilla petechia* is based on two references; the first to Brisson (Orn. 3, 1760, p. 488) and the second to Edwards (Gleanings, 1, 1758, p. 99, pl. 256) and as Brisson's bird in turn is founded on Edwards, only the second of the two references need be considered.

The plate represents a male of one of the West Indian Golden Warblers, not a form of *Dendroica aestiva,* because the pileum is shown as red; the text tells us that the bird is drawn natural size, but that its origin is unknown. Edwards believed it to have come from North America, because a specimen that he considered to be a female of this species had been sent him from Pennsylvania by Bartram. Of course this has no bearing on the bird figured and described, besides I feel sure that the "female" referred to is *Dendroica palmarum hypochrysea* Ridgway. Comparing specimens from Jamaica with Edwards' plate, we are struck at once by two glaring discrepancies: in the first place the pileum of the figure is red, not orange-brown, and the size is small, wing 56 mm.; the bill, too, is longer and more slender than in Jamaican examples. That the color of the pileum is not the result of an error in coloring the plate is shown by Edwards' statement that "the top of the head is red."

There is a race of the Golden Warbler that agrees with Edwards' plate in all particulars, that is, the bird from Barbados, heretofore known as *Dendroica capitalis* Lawrence, a form characterized by its smaller size, relatively long and slender bill, and by having the pileum deep chestnut or bay, of a shade that might easily be called "red." Thus *petechia* must be transferred to the bird from Barbados, while for the Jamaican bird we must use Gosse's *Sylvicola eoa.* I have no hesitation whatever in applying this name. When Mr. Outram Bangs was in London during the spring of 1925 he made a special point of examining the type specimens of *Dendroica eoa* in the British Museum, and he tells me that there is nothing really peculiar about them. One of the two is an absolutely normal immature or female; the other has some orange feathers appearing all through the throat and sides of the neck. In other words, the latter of the types is one of those very highly colored individuals in which the yellow becomes orange, just moulting from immature into the adult plumage. Gosse appears to have been deceived by believing that the bird that he called *Sylvicola aestiva* was a Golden Warbler, while in reality it is a Palm Warbler (*Dendroica palmarum palmarum* (Gmelin). Gosse's plate

of *Sylvicola eoa*, published two years after his "Birds of Jamaica," appears to be his conception of how that bird should appear when fully adult, and does not agree with either his description or his types.

It is this highly exaggerated plate of Gosse's that, during the last seventy-five years, has deceived ornithologists as to the true identity of *Dendroica eoa*. It is of interest to note that Sundevall over fifty years ago did not believe that Edwards' plate could represent the Jamaican Golden Warbler, and on that account re-named the form from that island, not being able to connect Gosse's *Sylvicola eoa* with any form of *Dendroica petechia*.

I fully agree with the conclusions reached by Bangs[1] that Golden Warblers from the Caymans are identical with those from Jamaica.

Dendroica petechia gundlachi Baird.

Dendroica gundlachi Baird, Rev. Am. Bds. Apr. 1865, p. 197 (Cuba).
Dendroeca petechia d. *cubana* Sundevall. Öfv. k. Vet-Akad. Förh. Stockholm, 26, 1870, p. 608.

Subspecific characters.—Male. Similar to *D. p. eoa* but duller and greener above; crown-patch less extensive and more brownish, less orange; averaging less brilliantly yellow below. Females. More olive above than the corresponding sex of *eoa*, and less brilliantly yellow below.

Measurements.—Male: wing, 60.5–68 (64.08); tail, 51–59.5 (55); bill from base, 13.5–15.5 (14.33); tarsus, 19–22 (20.85). Female: wing, 59–60.5 (59.6); tail, 47.5–54 (50.9); bill from base, 12.5–14 (13.8); tarsus, 19–21.5 (19.8).

Range.—Cuba and the Isle of Pines. Confined exclusively to the Mangroves (Barbour, Todd).

Specimens examined.—Cuba: 12 ♂, 3 ♀; Isle of Pines: 4 ♂, 1 ♀.

Dendroica petechia albicollis (Gmelin).

Motacilla albicollis Gmelin, Syst. Nat. 1, pt. 2, 1789, p. 983 (Santo Domingo, ex Brisson).
Motacilla chloroleuca Gmelin, *op. cit.* p. 984 (Santo Domingo).

Subspecific characters.—Similar to *D. p. eoa* but smaller; bill shorter and more slender than in any of the other forms from the Greater Antilles and the Bahamas. Male. Upper parts, sides of head and edging of primaries, secondaries and wing-coverts brighter, more golden yellow (less olive). Female. Similar in color to the female of *D. p. eoa*, but sides of head more golden yellow; forehead with traces of ochraceous.

Measurements.—Male: wing, 61–62.5 (62.75); tail, 53–53.5 (53.25); bill from base, 13.5–14 (13.75); tarsus, 20.5. Female: wing, 60; tail, 55; bill from base, 14; tarsus, 20.

Range.—Island of Haiti. Confined to the Mangroves.[2]

Specimens examined.—2 ♂, 1 ♀, Monte Christi, Dominican Republic. The Brissonian species upon which Gmelin founded his *Motacilla albi-*

[1] Bull. M. C. Z. 60, No. 7, 1916, p. 315.
[2] cf. Peters, Bull. M. C. Z. 61, No. 11, 1917, p. 421–423.

collis and *M. chloroleuca* both appear to have been based on specimens in a condition often to be found in examples from certain localities, particularly from Jamaica, Cuba and the Bahamas, in which the amount of yellow below is reduced and replaced by white, and the olive of the upper parts interspersed with gray; a condition that does not seem to be definitely correlated with age. Todd[1] believes this state of plumage, which, in the Bahamas, at least, occurs with the greatest frequency among females, may be due to an incomplete prenuptual moult.

Dendroica petechia flaviceps Chapman.

Dendroica petechia flaviceps Chapman, Bull. Am. Mus. Nat. Hist. 4, No. 1, 29, Dec. 1892, p. 310. (Rum Cay, Bahamas).

Subspecific characters.—Similar to *D. p. gundlachi* in the restriction of the amount and extent of ochraceous in the crown of the male, but more nearly approaching *eoa* in coloration; tarsi averaging longer; wing less rounded,—ninth primary often equal to sixth.

Measurements.—Male: wing, 62–65.5 (63.6); tail, 53–56.5 (55.8); bill from base, 13.5–15 (14.2); tarsus, 21.5–23 (22.2). Female: wing, 60.75–62 (61.25); tail, 54.5–58.5 (56.3); bill from base, 15–15.5 (15.2); tarsus, 21–24 (22.5).

Range.—The Bahama Islands. This form appears to be confined to the mangroves.

Specimens examined.—6 ♂; 3 ♀. Andros, Inaugua, Elbow Cay, Rail Cay.

When Dr. Chapman described the Bahaman Golden Warbler he considered the Jamaican and Cuban birds identical, and made direct comparison with a small series from the former island. As a matter of fact, *flaviceps*, as would be expected, is much more nearly related to *gundlachi*, from which some specimens are scarcely distinguishable.

The Bahaman Golden Warbler shows a greater tendency towards the production of the gray and white individuals than do any of the other races of *Dendroica petechia*.

Dendroica petechia cruciana Sundevall.

Dendroeca petechia b. *cruciana* Sundevall, Öfv. k. Vet. Akad. Förh. Stockholm, 26, 1870, p. 608 (ex ins. St. Croix).

Subspecific characters.—Similar to *D. p. eoa*, but males with a lesser extent of ochraceous on the pileum; upper parts slightly more yellowish, especially on the rump; more heavily streaked beneath.

Measurements.—Male: wing, 62.25–67 (64.4); tail, 50–58 (54.66); bill from base, 14–16 (15.31); tarsus, 20.5–22 (21.35). Female: wing, 55–64 (59.75); tail, 49.5–53.5 (51.5); bill from base, 15–15.5 (15.25); tarsus, 19.5–20 (19.75).

Range.—Islands of Porto Rico, Vieques Culebra and St. Croix.

Specimens examined.—Porto Rico, 2 ♂, 1 ♀; Vieques, 1 ♂; St. Croix, 2 ♂, 1 ♀.

[1]Ann. Carn. Mus. 7, Nos. 3 and 4, 1911, pp. 432–433.

It has long been believed that the Golden Warblers from Porto Rico to Antigua, inclusive, belonged to one and the same form to which Sundevall's *bartholemica* was applied, and of which *cruciana* was regarded as a synonym. I was therefore somewhat astonished, after comparison of a long series from the supposed range of *cruciana*, to find that the birds from St. Croix were quite distinct from those of St. Thomas, but identical with those from Porto Rico and Vieques; in fact, it is a much simpler matter to distinguish the birds from Porto Rico and St. Croix from specimens taken on St. Thomas and islands to the southeast than it is to distinguish them from examples from Jamaica.

Wetmore[1] says that in Porto Rico this species is confined entirely to the coastal plain, coming inland along the river courses to the base of the foot-hills, and that while near the coast it is confined mainly to the mangroves, inland, where this tree does not occur, it is found in shade trees about houses, in reeds and clumps of marsh grass, or even in scanty growths of grass and weeds growing on river sand-bars. Its habitat is thus more general than that of any of the preceding forms.

Dendroica petechia bartholemica Sundevall.

Dendroeca petechia a. *bartholemica* Sundevall, Öfv. k. Vet-Akad. Förh. Stockholm, 26, 1870, p. 607, (ex insula St. Barthelemy).

Subspecific characters.—Similar to *D. p. eoa* but smaller; males with pileum browner; under parts more intensely yellow and with streakings heavier and more numerous. Females closely resembling the same sex of *cruciana*, but averaging smaller, especially the bill.

Measurements.—Male: wing, 58.5–65 (61.85); tail, 49.25–57.5 (53.22); bill from base, 13.5–16.25 (14.34); tarsus, 20–22 (20.95). Female: wing, 57–61.5 (59.44); tail, 48.5–55.25 (51.75); bill from base, 13.25–15 (13.9); tarsus, 19–22 (20.53).

Range.—St. Thomas and closely adjacent islands (except St. Croix) southward and eastward to Antigua.

Specimens examined.—St. Thomas: 5 ♂, 3 ♀; Tortola: 3 ♂; Virgin Gorda: 1 ♀; Anegada: 1 ♂, 4 ♀; Anguilla: 5 ♂, 2 ♀; St. Eustatius: 5 ♂, 5 ♀; St. Kitts: 8 ♂, 3 ♀; Nevis: 1 ♂, 2 ♀; Antigua: 2 ♀.

The series of *bartholemica* before me runs very even, the variation in measurement is small and differences of color simply do not exist. Some males show a larger crown patch than others, but this seems to be due partly to age and partly to season, as birds in fresh plumage have the feathers of the pileum tipped with greenish yellow that wears off as the season advances. Some males, too, appear to be a trifle less heavily streaked below than the average. There seems to be no tendency whatever, in this form toward the production of the gray and white individuals, a fact that Mr. Ridgway noted in 1902, and which is further substantiated in the series of over fifty specimens. Moreover, I have seen large numbers of this form in the field, on nearly every island included in the range, and have yet to observe a bird in that plumage.

[1] Birds of Porto Rico (Bull. No. 326, U. S. Dept. of Agriculture, 24 Mar. 1916), p. 105.

Like *cruciana*, this form is found outside the mangroves as well as in them; it is of course absent from the forests on the more lofty islands within its range, but is numerous in the clumps of beach grape and manchineel back of the beaches, in the acacia scrub all over the lowlands and in the vicinity of dwellings.

Dendroica petechia ruficapilla (Gmelin).

Motacilla ruficapilla Gmelin, Syst. Nat. I, pt. 2, 1789, p. 971 (Martinique, ex Brisson. Error. I designate Guadeloupe, Lesser Antilles).

Subspecific characters.—Similar to *D. p. bartholemica* but much smaller; adult male with entire crown orange-rufous or rufous-chestnut; adult female with traces of rufous in the crown.

Measurements.—Male: wing, 54–59.5 (57); tail, 44.5–52.5 (49.76); bill from base, 13–14 (13.67); tarsus, 18.75–20.25 (19.61). Female: wing, 52–56 (53.68); tail, 42.5–48.5 (46.32); bill from base, 12.5–13.75 (13.09); tarsus, 17.5–20 (18.48).

Range.—Islands of Guadeloupe and Dominica (and probably Marie Galante).

Specimens examined.—Guadeloupe: 7 ♂, 5 ♀, 3 not sexed; Dominica: 2 ♂, 2 ♀.

Gmelin's *Motacilla ruficapilla* is based on Brisson's "Figuier de la Martinique" (Orn. 3, p. 490, pl. 22, fig. 4). The description given by Brisson might apply almost equally well to an adult female of *Dendroica rufigula* except that the throat is said to be yellow, whereas in that sex of *rufigula* it is generally clouded with rufous. In view of this, and bearing in mind the frequent transposition of specimens and type-localities by early writers, it seems best to correct the original type-locality to Guadeloupe and to retain the well-established name.

In measuring birds from the two islands, I find, just as Ridgway did, that the Dominica birds average larger. I have used entirely different material from Ridgway's, all the specimens I have examined having been collected within the last twenty years. However, the four birds from Dominica are all in fresh plumage, while those from Guadeloupe are in worn summer dress. I believe that a series of comparable specimens would show no appreciable difference in size.

D. d. ruficapilla has been considered as a species distinct from the forms already discussed, but since the differences are entirely those of degree, *bartholemica* being in a sense an intermediate form connecting it with the Greater Antillean races, I see no reason for maintaining its specific distinctness.

According to Noble,[1] on Guadeloupe this bird is common about the mangroves, plantations and sparsely wooded hills up to 2000 feet.

Dendroica petechia petechia (Linné).

Motacilla petechia Linné, Syst. Nat. ed. 12, 1, 1766, p. 234 (Habitat in America septentrionali = Error. Barbados, Lesser Antilles).

[1] Bull. M. C. Z. 60, No. 10, 1916, pp. 391–392.

Dendroica capitalis Lawrence, Proc. Ac. Nat. Sci. Phila. 20, Dec. 1868, p. 359. (Barbados, Lesser Antilles).

Dendroeca petechia c. *barbadensis* Sundevall, Öfv. k. Vet. Akad. Förh. Stockholm, 26, 1870, p. 608.

Subspecific characters.—Similar to *D. p. ruficapilla*, but with longer bill; males with the crown and forehead chestnut, sharply defined from the yellow lores and superciliary stripe.

Measurements.—Male: wing, 54–59 (56.75); tail, 48.5–52 (50); bill from base, 14–14.75 (14.4); tarsus, 18.5–19.75 (19.1). Female: wing, 55–56 (55.3); tail, 46.5–52 (49); bill from base, 14–14.5 (14.2); tarsus, 17.5–18.5 (18).

Range.—Island of Barbados, West Indies.

Specimens examined.—10 ♂, 3 ♀.

As has been pointed out elsewhere in this paper, *Motacilla petechia* Linné, based on Edwards, cannot be applied to the Golden Warbler of Jamaica, but certainly belongs to the Barbados bird. While such a substitution of names is to be regretted, there is no reason why so palpable an error of nomenclature which has extended over the better part of three generations, should be perpetuated any longer.

According to Clark[1] this Warbler is common on Barbados, especially about pastures in which grow clumps of seaside grapes.

Dendroica petechia alsiosa Peters.

Dendroica petechia alsiosa Peters, Proc. N. E. Zoöl. Club, 9, 17 Feb. 1926, p. 41 (Prune Island, east of Union Id. Grenadines).

Subspecific characters.—Similar to *D. p. ruficapilla*, but slightly larger; bill stouter and more decurved; adult male with the forehead golden yellow continuous with the lores (instead of the orange-rufous of the crown extending to the base of the bill).

Measurements.—Male: wing, 60.5–63 (61.9); tail, 50.5–53.5 (52); bill from base, 14–14.75 (14.4); tarsus, 19.5–20.5 (20.2). Female: wing, 58.5; tail, 48.5; bill from base, 14; tarsus, 20.25.

Range.—Grenada and the Grenadines:—Carriacou, Union and Prune. Confined to the Mangroves.

Specimens examined.—Carriacou, Grenadines: 4 ♂, 1 ♀; Prune Id. Grenadines: 1 ♂.

Clark[2] was the first to discover the presence of a resident form of the Golden Warbler on the islands south of St. Vincent, but, because of a lack of comparable material, he did not recognize it as distinct. It is in reality an isolated colony most nearly related to *D. p. ruficapilla*, but separated from that race by three islands,—Martinique, St. Lucia and St. Vincent, on which no form of *Dendroica petechia* occurs, while the form inhabiting Barbados has its nearest affinities with representatives from the islands off the north coast of South America.

[1]Proc. Boston Soc. Nat. Hist. 32, No. 7, Oct. 1905, pp. 294–295.

[2]Proc. Boston Soc. Nat. Hist. 32, No. 7, Oct. 1905, p. 294.

Dendroica petechia rufopileata Ridgway.

Dendroica rufopileata Ridgway, Proc. U. S. Nat. Mus. 7, 29 July 1884, p. 173 (Curaçao).

Subspecific characters.—Similar to *D. p. petechia*, but averaging larger, with smaller bill; above more yellowish; wing edgings broader, paler yellow.

Measurements.—Male: wing, 58.5–61 (59.5); tail, 47–53.5 (50.1); bill from base, 13.5–14 (13.8); tarsus, 18.5–20 (19.5). Female: wing, 53–57 (55); tail, 46.5–52.5 (49.7); bill from base, 13.5–13.75 (13.6); tarsus, 17.5–19 (18.2).

Range.—Islands off the north coast of Venezuela: Aruba, Curaçao, Bonaire, Isla de Aves, Orchilla, Tortuga, Los Testigos, (Margarita Island?).

Specimens examined.—Aruba: 1 ♂; Curaçao: 2 ♂, 2 ♀; Bonaire: 1 ♂, 1 ♀.

This form bears a very close resemblance to *D. p. petechia*, and it is sometimes difficult to separate examples of one race from those of the other. Cory[1] discusses the advisability of separating the Golden Warblers from Los Testigos, Blanquilla and Tortuga, but in view of the very close similarity between the race found on Barbados and the one on the islands off the north coast of Venezuela, I do not see how an intermediate form could be maintained. Hartert[2] found *rufopileata* common on Curaçao and Bonaire where "it frequents open bushy places as well as mangroves."

Dendroica petechia obscura Cory.

Dencroica ruficapilla obscura Cory, Field Mus. Nat. Hist. Publ. Orn. Ser. I, No. 5, 25 Oct. 1909, p. 217 (Los Roques).

Subspecific characters.—Similar to *Dendroica p. petechia* but larger.

Measurements.—Male: wing, 62.5; tail, 54; bill from base, 13.75; tarsus, 19.25. Female: wing, 58; tail, 51; bill from base, 14; tarsus, 20.25.

Range.—Los Roques Island, Venezuela.

Specimens examined.—Los Roques Id., 1 ♂, 1 ♀.

This appears to be a fairly well defined form occupying a small group of cays.

Dendroica petechia flavida Cory.

Dendroica flavida Cory, Auk, 4, July 1887, p. 179. Separately paged reprints issued 28 May 1887, p. 3 (St. Andrews Id., Caribbean Sea).

Subspecific characters.—Similar to *D. p. eoa* but smaller; males more olive-green above; wing edgings narrower and more greenish; below very heavily and densely streaked.

Measurements.—Male: wing, 59–62 (60.6); tail, 55.5–58 (56.9); bill from base, 12.75–13.5 (13.1); tarsus, 19–20.25 (19.7). Female: wing, 58; tail, 57; bill, from base, 12.5; tarsus, 19.7.

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[1]Field Mus. Nat. Hist. Publ. Orn. Ser. 1, No. 5, 25 Oct. 1909, pp. 218–219.

[2]Ibis (6), 5, 1893, p. 312.

Specimens examined.—4 ♂, 1 ♀, including the type, all from the Field Museum.

Range.—St. Andrews Island, Caribbean Sea.

Remarks.—The St. Andrews Golden Warbler is a very distinct race whose nearest relationships are obscure. While I have made direct comparison with the Jamaican Golden Warbler by reason of the similarity of the coloration of the upper parts, the males differ from all other forms except *peruviana*, in having the under parts much more heavily and densely streaked with rufous. This form has a tendency toward the production of individuals in which the yellows and olive-greens become paler, in this direction approaching some of the Greater Antillean races.

Dendroica petechia rufivertex Ridgway.

Dendroica petechia rufivertex Ridgway, Proc. Biol. Soc. Wash. 3, 1885, p. 21; separately paged advance copies, 26 Feb. 1885, p. 1 (Cozumel Island, Yucatan).

Subspecific characters.—Similar to *D. p. ruficapilla*, but averaging slightly larger; male with under parts more heavily streaked.

Measurements.—(according to Ridgway, Bds. No. and Mid. Am. pt. 2, 190, p. 524). Male: wing, 56–60 (58.2); tail, 44.48 (46.6); exposed culmen, 10–11 (10.8); tarsus, 19–21 (20). Female: wing, 55–56 (55.6); tail, 45–47 (45.8); exposed culmen, 10–11 (10.5); tarsus, 18–21 (20).

Specimens examined.—Cozumel Island: 1 ♂.

Remarks.—The occurrence of a Golden Warbler on Cozumel Island, within sight of the coast of Yucatan, is correlated with the presence there of several other representative species of birds that are otherwise characteristically West Indian in their distribution.

Superficially this form appears to be more closely related to *D. p. ruficapilla* than to any of the races occupying some of the less distant islands. It is more probable, however, that its resemblance to *ruficapilla* is merely fortuitous, and is the result of parallelism or convergence.

Dendroica petechia aureola (Gould).

Sylvicola aureola Gould, Zoöl. Voy. "Beagle," 3. birds, pl. 28, July 1839; p. 86, Nov. 1839 (Galapagos Islands).

Dendroeca petechia f. *gallapagensis* Sundevall, Öfv. k. Vet-Akad. Förh. Stockholm, 26, 1870, p. 608 (James, Charles and Chatham Islands, Galapagos Archipelago).

Subspecific characters.—Similar to *D. p. eoa*, but tail shorter; darker olive-green above (approaching *gundlachi* in this respect). Males with pileum more nearly rufous chestnut, less ochraceous.

Measurements.—Male: wing, 63–68 (65.5); tail, 51–57.5 (53.7); bill from base, 14.25–15.75 (15.1); tarsus, 20.5–22 (21.1). Female: wing, 60–63 (61.3); tail, 48–54.5 (50.8); bill from base, 14.75–16 (15.3); tarsus, 20–20.5 (20.15).

Range.—The Galapagos Archipelago; Cocos Island?

Specimens examined.—Albemarle, 1 ♂, 1 ♀; Charles, 1 ♀; Chatham, 2 ♂, 1 ♀; Indefatigable, 2 ♂, 1 ♀; James, 1 ♀; Wenman, 1 ♂.

Remarks.—The series of eleven skins of the Galapagos Golden Warbler before me is rather unsatisfactory, owing to its unevenness as regards distribution and plumage: some of the birds are adults, more or less worn, some immature but fresh, while four are in the gray and white plumage. It is impossible to say whether a good representative series from all the islands in the group would show further need of subdivision. I have not seen specimens from Cocos Island.

Dendroica petechia peruviana Sundevall.

Dendroeca petechia g. *peruviana* Sundevall, Öfv. k. Vet-Akad. Förh. Stockholm, 26, 1870, p. 609 (Callao, Peru; Guayaquil, and Puna Island, Ecuador).

Dendroeca petechia h. *aequatorialis* Sundevall, *op. cit.* (Guayaquil).

Subspecific characters.—Similar to *D. p. aureola*, but yellow much more brilliant. Males heavily and densely streaked below, throat sometimes clouded with rufous brown and in such cases this color extends onto the cheeks and auricular region.

Measurements.—Male: wing, 65.5–67 (66.25); tail, 55–57 (56.25); bill from base, 14.5–15 (14.75); tarsus, 19.5–21 (20.25). Female: wing, 62–64 (63); tail, 49.5–52 (50.7); bill from base, 14–15.5 (15.8); tarsus, 20–21 (20.5).

Range.—From Tumaco, Columbia, south along the coast of Ecuador and possibly to Callao, Peru. Confined to the mangroves (Chapman).

Specimens examined.—Colombia: Narino, Tumaco, 1 ♂, 1 ♀. Ecuador: Esmereldas, 1 ♂; coast of Manavi, 1 ♀; Prov. del Oro, Isla de Jambeli, 2 ♂, 1 ♀. (All from the American Museum of Natural History.)

Remarks.—As in most of the races of *Dendroica petechia*, the males of this form offer the best diagnostic characters. It is the most heavily streaked of any of the subspecies and is recognizable almost at a glance.

As far as I can ascertain *peruviana* is the name by which specimens of the Golden Warbler from the west coast of South America must be known. Dr. Chapman has pointed out[1] the characters in which these examples differ from the form inhabiting the Galapagos Islands, listing them as *aequatorialis*, quite rightly ignoring the name *peruviana* in the absence of specimens from Peru. Still more recently, however, Count Gyldenstolpe, in an account of the types in the Royal Natural History Museum of Stockholm,[2] expresses the opinion that *Dendroica petchia aequatorialis* Sund. is identical with *Dendroica erithachorides* Baird, and synonymizes *peruviana* with *aureola*, pointing out at the same time that the type specimen of *peruviana* from Callao differs from Galapagan examples in having broader and better defined chestnut streaks on the breast. Therefore, it appears practically certain that *peruviana* is the name for the Golden Warbler occuring on the west coast of South America.

It seems strange that if the type of *aequatorialis* really came from Guayaquil that *Dendroica erithachorides* has not been met with by recent collectors in Ecuador and southwestern Colombia.

[1] Bull. Am. Mus. Nat. Hist. 36, 1917, p. 545, and 55, 1926, p. 594.

[2] Ark. för Zool. K. Sv. Vet. Akad. band 19 A. No. 1. 1926, p. 30–31.

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TWO NEW CHINESE RATS.

BY A. BRAZIER HOWELL.

Among the collections of Chinese mammals secured by Arthur deC. Sowerby that are now in the U. S. National Museum are two undescribed races of rats. These may be known as follows:

Rattus rattus exiguus, subsp. nov.

Type.—Female adult, skin and shull no. 238,185 U. S. National Museum, from 70 miles southwest of Yenpingfu, Fukien, China, at an altitude of 500 feet: December 1, 1921. Collected by Arthur deC. Sowerby; original no. 1139.

Diagnosis.—A small, pale race with tail and foot relatively small, as compared with *alexandrinus* or *sladeni*, and hairs of the underparts showing a tendency to be palely plumbeous at base.

Skin.—The dorsal coloration is pale and rather gray, about as in paler specimens of *alexandrinus* from Europe, and the black tips of the guard hairs are very little in evidence. The upper lips as far as the nares are white. The dorsum of the hind feet are whitish and not appreciably dusky, although the forefeet show some sootiness. The hairs of the underparts always show more plumbeous at base than in *alexandrinus*, but this character varies considerably. In some specimens the hairs are solidly white over most of this area, those of the middle belly and chest alone being definitely plumbeous proximad. In others, practically all the ventral hairs are of this sort. The ear is apparently somewhat shorter than in *alexandrinus* or *sladeni*. The transition from the white of the belly to the dorsal coloration is quite gradual because of the strong intermixture of gray on the sides.

Skull.—The most characteristic feature of the skull, aside from the small size, is the great development and extension rostrad of the zygomatic laminae of the infraorbital foramina. The ridging is weaker than in *alexandrinus* and *sladeni*, and the supraorbital angle of the temporal ridge is but moderately indicated. On the average the occipital region is a bit less pinched in transversely than in either of the above races.

Measurements.—Collector's measurements of the type are: head and

body, 152; tail, 158; foot, 29; and ear, 20 mm. The skull measurements are: total length, 46.5; zygomatic width, 18; and maxillary tooth row, 6.4 mm.

Material.—Twenty specimens: 70 miles southwest of Yenpingfu, 14; Foochow, 1; Kulungsu Island, 1 spirit specimen. These three localities are in Fukien. From Kiangsu, there are 4 taken near Chinkiang.

Remarks.—*Rattus humiliatus* is apparently an exceedingly rare animal, and I suspect that individuals of the present new race have at times been wrongly identified as that form. They are not so dissimilar but that such a mistake could very easily be made without specimens of both in hand. *R. humiliatus*, however, is much more chestnut, the ears and tail are shorter, and the hind foot longer. In this animal the tail is apparently never longer than the head and body, as determined by the diagnosis of the describer and of Bonhote, while in *exiguus* the tail is never the shorter measurement. The skull of *humiliatus* is more robust with larger rostrum, shorter zygomatic lamina of the infraorbital foramen, and braincase through the interparietal broader. There need be no confusion with any other form of this species from eastern China. There is, though, some lingering question of its precise affinity. A *Rattus* of this same group has been recorded as rather rare in Fukien, namely, *sladeni*, which seems to be very close to *alexandrinus*. Either these rats have been introduced, as they so often are everywhere, or if they occur in the same locality as *exiguus*, then it would be logical to presume that the latter is a distinct species and not so closely related to the *R. rattus* group as its characters lead one to believe.

Rattus humiliatus insolatus, subsp. nov.

Type.—Female adult, skin and skull no. 172,569 U. S. National Museum, from 12 miles south of Yenanfu, Shensi, China, at an altitude of 4000 feet: January 12, 1909. Collected by Arthur deC. Sowerby; original no. 413.

Diagnosis.—A rather large and excessively pale member of this soft-furred, short-tailed group of rats.

Skin.—The ground color of the dorsum is close to the pinkish buff of Ridgway (1912), the guard hairs being very little darker and totally without black. The underparts are pale buffy, the bases of the hairs not showing plumbeous. The feet are pale, almost white. The tail is unusually well covered with short, bristly hairs, these being dark brown on the upper side and whitish below, and the scales of the tail are thus less apparent than in most members of the genus.

Skull.—Much as in the typical race, but apparently the nasals are relatively longer, the molariform teeth considerably heavier, and the general size of the skull is probably slightly greater.

Measurements.—Collector's measurements of the type are: head and body, 165; tail, 163; foot, 34; and ear, 21 mm. The total length of the skull is 41; zygomatic width, 19.4; interorbital width, 5.7; nasal length, 15.5; and maxillary tooth row, 7 mm.

Material.—Four specimens; 3 from Yenanfu, and one from Yulinfu, Shensi.

Remarks.—The type is a winter example and the coloration seems to be entirely normal, without the appearance that a bleached, worn individual presents, and much what might be expected to occur in the desert type of country of northern Shensi. The two other Yenanfu specimens are large juveniles, with the darker, wooly type of pelage characteristic of such an age. They are much darker than the type, due chiefly to the shortness of the distal ends of the hairs and the degree to which the plumbeous bases show through. The Yulinfu skin is that of an immature, and is also slightly darker than the type for the reason that it has a greater number of brown-tipped guard hairs. These differences with age are of precisely the same degree as occurs in the lighter type of *Rattus rattus alexandrinus* from the Mediterranean. Even if the type of *insolatus* should prove to be paler than the average for this region, it merits separation from the typical form of eastern China, with its definite reddish tint. The type is distinguishable from the latter at a glance as it is much the palest *Rattus* in the U. S. National Museum. *R. humiliatus celsus* is a very different looking animal, its paleness being due to the ashiness of the ground color and not to the absence of blackish tips to the plentiful guard hairs of the dorsum. In skulls of the latter the molar teeth are also heavy, as in *insolatus*, but the bullae are considerably smaller.

Vol. 40, pp. 47–48 March 5, 1927

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

A NOTE CONCERNING THE DATE OF PUBLICATION OF TWO APHID GENERA.

BY F. C. HOTTES.

The following note concerning the date of publication of the genera *Pemphigus* and *Schizoneura* Hartig, fortunately makes necessary no change in the nomenclature of the family Aphididae. Nevertheless it is of interest and importance historically.

Authors have overlooked the fact that volume one of *Jahresberichte über die Fortschritte der Forstwissenschaft und forstlichen Naturkunde nebst Original-Abhandlungen aus dem Gebiete dieser Wissenschaften*, was published in four *Hefte*. *Heft* I, pp. VII+1–168, 1837; *Heft* II, pp. 169–310, 1838; *Heft* III, pp. 311–488, 1839; and *Heft* IV, pp. 489–646+II+tab. I, 1839.

The genera *Pemphigus* and *Schizoneura* were published on page 645 of *Heft* IV and should therefore date from 1839 instead of from 1837.

This mistake in dates may possibly be accounted for by the omission of the title pages of *Hefte* II, III, and IV in the majority of the bound volumes, and by the fact that the pages of the *Hefte* were numbered consecutively. The omission of the title pages which were not numbered is therefore apt to be overlooked. At the end of *Heft* IV the date $18\frac{36}{37}$ appears rather conspicuously near the top of the page listing the authors whose works have been quoted in the text. This may also have contributed to obscuring the real date of publication.

Hefte I and III contain no information on entomology. Pages 174–210 and 264–306 of *Heft* II are devoted to entomology, and a number of new species are described. Pages 246–306 are not cited by Hagen. The last seven pages of *Heft* IV are devoted to entomology. In this *Heft* nine new species and the two genera mentioned above are described.

The descriptions of the two genera as they appear near the top of page 645 are given here.

Genus **Pemphigus n.**

Flügel mit vier von der Unterrandader und dem Flügelmal auslaufenden einfachen Queradern. Hinterleib ohne Honigröhren.

Hierher *P. bursarius*, eine zweite sehr grosse Art in monströsen Stengelgallen der Esche; mit weiss bestäubten Flügeln. *P. Fraxini.* Eine dritte Art auf der Eiche *P. Quercus?*

Genus **Schizoneura n.**

Flügel mit vier von der Unterrandader und dem Flügelmal auslaufenden Queradern, die dritte Querader einfach gabelförmig getheilt. Hinterleib ohne Honigröhren.

Hierher die beiden auf Ulmenblättern in beutelförmigen Gallen lebenden Blattlausarten. *Sch. Ulmi* in der sehr grossen rundlichen Gallen, *Sch. lanuginosa n.* in den kleinen zusammengedrückten Gallen der Ulmenblätter.

Vol. 40, pp. 49–50 June 30, 1927

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

A NEW HYMENOTHRIX FROM ARIZONA

BY S. F. BLAKE.

A large collection of Asteraceae made in Arizona in 1925–6 by Dr. T. H. Kearney and his associates has recently been identified by the writer. Among other rarities it contains two species, *Laphamia gilensis* Jones and *Perityle ciliata* (L. H. Dewey) Rydb., which have hitherto been known only from the type collections, and in addition a new species of *Hymenothrix* which appears to be of hybrid origin. It may be known as

Hymenothrix loomisii, Blake, sp. nov.

Annual (?), about 0.5 m. high; stem slender, erect-branched, greenish-white, striate, finely incurved-puberulous throughout; leaves alternate throughout; petioles naked, incurved-puberulous, 1–2 cm. long; blades broadly triangular in outline, 1–8 cm. long, the lower usually biternate (the primary lateral lobes often only 2-parted, or with the terminal sometimes 5-parted), the upper ternate, the segments linear to linear-oblanceolate, subacutely callous-pointed, entire, usually 1.2–2.5 cm. long, 0.8–2 (–4) mm. wide, thick, pale green, incurved-puberulous, obscurely glandular, not punctate; upper leaves smaller, those of the inflorescence mostly reduced to small linear bracts; heads several or numerous, discoid, about 27-flowered, in rounded or flattish cymose panicles, on slender pedicels 0.4–2 cm. long; involucre turbinate, 4–6 mm. high, 2-seriate, equal or subequal, the principal phyllaries about 10, oblong, broadly rounded or subtruncate, thin, greenish below, yellowish above or somewhat purplish-tinged, with whitish subscarious margin, 1-ribbed and about 6-nerved, thinly incurved-puberulous, short-ciliate, erose above, 2–2.8 mm. wide, the proper phyllaries subtended by 2 or 3 similar linear bracts about two-thirds as long; corollas whitish, densely stipitate-glandular on tube, papillose toward tip of teeth, zygomorphic (teeth in 3 lengths, 1 much longer than the others), 5.3–6.5 mm. long (tube 2–2.5 mm., throat funnelform, 1.6–2 mm. long, teeth 1–2 mm. long); achenes narrowly cuneate, 4-angled, multistriate, hirsute, 3–5 mm. long, 1 mm. wide; pappus of 13–15 equal 1-seriate linear-lanceolate paleae 4–6 mm. long, scarious-margined below, the strong costa hispidulous throughout and more or less abruptly excurrent as an awn about 2 mm. long.

Arizona: Peach Springs, 15 Sept. 1883, *Rusby* 647; Camp Verde to

Prescott, Aug. 1896, *B. E. Fernow;* fields, Oak Creek, Oct. 1903, *Purpus* 8296; Ashfork, Yavapai Co., 19 Sept. 1926, *Harold F. Loomis* 3241 (type no. 1,285,420, U. S. Nat. Herb.).

This plant of western Arizona is intermediate between *Hymenothrix wislizeni* A. Gray and *H. wrightii* A. Gray. The foliage and pubescence are those of *H. wislizeni,* while the discoid heads, the involucre, the corolla color, the achenes, and the pappus are those of *H. wrightii.* In the depth of lobing of the disk corollas and in the character of the style tips, *H. loomisii* is intermediate between the other two species. Its anthers contain abundant pollen grains. In Purpus' specimen the achenes show a well-developed embryo; in all the others the embryos are abortive. The blending of characters shown by *H. loomisii* is such as to leave little room for doubt that it is of hybrid origin, while its collection at several localities in the same general region (in which both the supposed parents occur), during a period of over forty years, suggests that it may now be fixed in character. It is hoped that during the coming year fresh seeds can be obtained and the behavior of the plant studied.

In his treatment of the Helenieae in the "North American Flora," Rydberg[1] restricted the name *Hymenothrix* to *H. wislizeni,* the original species, and proposed the new genus, *Trichymenia* for the other species, *H. wrightii,* chiefly on the basis of its very deeply cleft corollas. The discovery of a species completely intermediate between *H. wislizeni* and *H. wrightii,* even though it may be of hybrid origin, indicates that these differences are not of generic value and that the two species were properly included by Gray in the same genus. *Florestina,* next to which *Trichymenia* was placed by Rydberg because of its deeply cleft corollas, is fundamentally distinguished by its subulate-attenuate hispid style-appendages.

In *Hymenothrix loomisii* the corollas are decidedly zymorphic, one of the teeth being about equal to the entire part of the throat, two being about half as long, and two intermediate. The disk corollas of *H. wislizeni* are similarly but less conspicuously zygomorphic, one or sometimes two of the teeth being more deeply cleft than the others. In *H. wrightii,* also, the corollas (all of which are tubular) are zygomorphic, three of the teeth being cut nearly to the apex of the tube, while the remaining two are connate for one-third to more than half their length, the greater degree of connation occurring in the central part of the head.

Zygomorphy of the disk corollas is more common in the Helenieae than is generally realized. For instance, in Rydberg's treatment of the tribe there is no indication of its occurrence, except in *Hymenothrix* and *Trichymenia,* in the 7 genera constituting his subtribe Hymenopappanae.[2] In the Synoptical Flora, Gray mentions it (among the genera referred to) only in *Hymenothrix,* which includes Rydberg's genus *Trichymenia.* Examination by the writer of material of various species taken almost at random has shown the occurrence of zygomorphy of varying degree in the disk corollas of one or more species in all of the 7 genera recognized by Rydberg except the aberrant *Leucampyx,* where there appears to be no trace of it.

[1] N. Amer. Fl. 34:55. 1914.

[2] N. Amer. Fl. 34:43–58. 1914.

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PROCEEDINGS

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TWO NEW SPECIES OF SECURIDACA FROM SOUTH AMERICA.

BY S. F. BLAKE.

Of the two new species of Securidaca here described, one is based on specimens in the British Museum collected by Joseph Martin in French Guiana about a century ago, the other on specimens collected in Ecuador by Dr. J. N. Rose.

Securidaca cayennensis Blake, sp. nov.

Branches woody, glabrous; leaf blades large, oval-oblong, thin-coriaceous, short-acuminate, rounded at base, marginate, glabrous, lucid above, light-papillose beneath; racemes 1–1.5 cm. long, fascicled in the axils, often branched from base, densely flowered essentially from base, strigillose; bracts small, mostly deciduous; pedicels glabrous, 6 mm. long; wings obovate-suborbicular, obscurely ciliolate, 7 mm. long; keel not crested; anthers 8, hispidulous, all except the lateral one on each side sessile; fruit (somewhat immature) samaroid, glabrous, the body elliptic, 2.5 cm. long, 1.2 cm. wide, narrowly wing-margined on upper side, very broadly winged on lower, the wing oblique, subrhombic, coriaceous, about 3 cm. long, 2.5 cm. wide, surpassing the fruiting cell by about 1 cm.

Shrub or tree, not evidently scandent; branches subterete, flexuous, 2.5 mm. thick, with longitudinally wrinkled, greenish- or yellowish-brown, tough bark; internodes 1.5–3 cm. long; stipular glands depressed-coniform; petioles glabrous, stout, sulcate above, rounded beneath, 5–6 mm. long; blades 14–17 cm. long, 5–7.5 cm. wide, yellowish-green above, brownish green beneath, rather loosely prominulous-reticulate on both sides, the chief lateral veins 6–7 pairs, the costa prominent beneath, the narrow, not revolute, thickened margin yellowish-brown; racemes in axillary clusters of 3–11, straight, about 10–16-flowered, often branched at base, nodulose; bracts triangular-ovate, acute, ciliolate and strigillose, about 0.8 mm. long; pedicels slender; upper sepal suborbicular, ovate, rounded at apex, 2.5 mm. long and wide, ciliolate, glabrous dorsally; lower sepals free, orbicular, rounded at apex, ciliolate, 2.5 mm. long; wings 7 mm. long, 6 mm. wide, thickish, with about 10 principal straight nerves and many minor ones, the claw 1 mm. long; upper petals cuneate-obovate, rounded, 6 mm. long, 3 mm. wide above, puberulous inside toward base and very sparsely cilio-

late, united to staminal sheath for about ⅔ its length; keel glabrous, 7 mm. long (the claw about 2.5 mm. long), cucullate, unlobed, not crested; staminal sheath hispidulous toward base, elsewhere glabrous, the anthers 8, the lateral one on each side on a glabrous filament about its own length, the others sessile, all spreading-hispidulous nearly up to the large pore; ovary glabrous, 1-celled, 1-ovuled; style straightish, the 2 stigmatic lobes similar, symmetrically terminating the style; upper wing-margin of fruit thick, entire, 2 mm. wide; true wing obscurely repand, with numerous not prominent parallel nerves.

French Guiana: Without definite locality, *Martin* (types, 2 sheets, in Brit. Mus.; photog. in U. S. Nat. Herb.).

This remarkable species is most nearly related to *Securidaca calophylla* (*Poepp.*) Blake, n. comb. (*Corytholobium macrophyllum* Benth. Ann. Wien. Mus. 2:93. 1837–8; not *Securidaca macrophylla* Walp. Rep. 1:247. 1842. *Monnina calophylla* Poepp. Nov. Gen. & Sp. 3:66. 1845. *Securidaca corytholobium* A. W. Benn. in Mart. Fl. Bras. 13:68. 1874. *Elsota calophylla* Kuntze, Rev. Gen. Pl. 1:46. 1891.) In that species of Brazil and "Guiana" the rachis of the racemes, according to Bennett's description and figure, is much shorter than the pedicels (these 6–8 lines long), the pedicels are twice as long as the flowers, the free portions of all the filaments are several times as long as the anthers, and the wing is rather narrower than the body of the fruit. The ovary of *S. corytholobium* is figured by Bennett as 2-celled and 2-ovuled, although his generic description calls for a 1-celled, 1-ovuled ovary.

Securidaca leiocarpa Blake, sp. nov.

Branches densely spreading-pilosulous; leaves oval or ovate-oval, 1.5–2.8 cm. long, 1–2 cm. wide, broadly rounded at both ends or subemarginate at base, apiculate, subcoriaceous, above dark brownish green, shining, spreading-puberulous on costa, on surface glabrous or sparsely pilosulous especially toward basal margin, beneath light green, spreading-pilosulous with yellowish white hairs on costa and sparsely on surface; fruiting racemes short, about 1 cm. long, terminating branches and short subterminal branchlets; fruit (submature) strictly glabrous, above with a narrow decurrent wing-margin, below with a broad obovate-oblong rounded wing about 2.5 cm. long, 1.3 cm. wide.

Shrub, with short divergent branchlets; pubescence yellowish white, becoming grayish; internodes 4–12 mm. long; stipular glands blunt, roundish, about 0.4 mm. long; petioles puberulous, 2–3 mm. long; blades strongly discolorous, marginate, usually slightly revolute-margined, the principal veins 5–6 pairs, often forked near margin and anastomosing, prominulous beneath, obscure above; racemes sessile or short-peduncled, pubescent like the stem; bracts deciduous; pedicels 1–1.2 cm. long, slender, ascending-puberulous; body of fruit (not mature) borne on a stipe 1 mm. long, obliquely ovoid, 5 mm. long, 4 mm. wide, loosely reticulate, narrowly wing-margined on upper edge (margin about 0.6 mm. wide, obliquely decurrent on proper wing or subtruncate), broadly winged on lower, the wing about 7 mm. wide at base, many-nerved, shining.

Ecuador: Vicinity of Portovelo, 6–15 Oct. 1918, *J. N. & G. Rose* 23385 (type no. 1,022,888, U. S. Nat. Herb.; dupl. N. Y. Bot. Gard.).

Although the flowers of this plant are unknown, its small, subcoriaceous, discolorous, rounded leaves and quite glabrous fruit with comparatively broad-based wing indicate that it represents a species distinct from any hitherto described.

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PROCEEDINGS
OF THE
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A THRUSH NEW TO SCIENCE FROM HAITI.[1]

BY ALEXANDER WETMORE.

Investigations of the highlands of Haiti and the Dominican Republic in recent years have yielded a number of strange birds to which it is the writer's privilege to add a beautiful thrush secured in the Massif de la Selle, an area whose bird life has been heretofore unknown. The new form, which differs strikingly in color from any thrush heretofore described from the West Indies, may be known as

Haplocichla swalesi.

Characters.—Structurally similar to *Haplocichla aurantia* (Gmelin)[2] but different in coloration; above black; lower breast and sides bright brown; no white in wing.

Description.—Type, U. S. Nat. Mus. Cat. No. 264,707, adult male, collected in the Massif de la Selle (altitude 6000 feet), April 15, 1927, by A. Wetmore. Entire upper parts, including sides of head, deep black; chin white; throat and upper foreneck black streaked lightly with white; upper breast blackish slate with faintly indicated brownish edgings; sides of upper breast sepia; lower breast and sides bright hazel; abdomen white; flanks and under tail coverts blackish slate, the lower flank feathers and under tail coverts with light shaft streaks and edgings of white. Bill orange rufous, extreme base of mandibular rami and area about nostrils blackish; eye ring light orange; iris rood's brown; tarsus rood's brown with a line of honey yellow down the back; bare skin at back of tibio-tarsal joint honey yellow; toes somewhat lighter than tarsus; lower surfaces of toes honey yellow. (Colors from fresh specimen.)

Measurements (in millimeters). Males (three specimens), wing 126.7–130.8 (132.6); tail 102.5–104.2 (103.4); culmen from base 23.7–24.8 (24.4); tarsus 42.3–47.0 (44.4).

Female (one specimen), wing 123.9; tail 97.7; culmen from base 22.4; tarsus 46.0.

[1] Published by permission of the Acting Secretary of the Smithsonian Institution.
[2] *Turdus aurantius* Gmelin, Syst. Nat. vol. 1, pt. 2, 1789, p. 832. (Jamaica).

Type (adult male), wing 126.7; tail 102.5; culmen from base 24.7; tarsus 42.3.

Range.—Known only from the central portion of the Massif de la Selle in south Haiti where it was found on Morne La Visite and in the section known as Jardins Bois Pin from 6000 to 7200 feet altitude.

Remarks.—Structurally this thrush is characterized by long slender tarsus and rounded wing, the wing tip being somewhat more rounded than in *Haplocichla aurantia* which has heretofore stood alone in a monotypic genus. *Haplocichla swalesi* is so entirely different in color from *aurantia* as to preclude the idea of close association between the two other than their union in the same genus, so that the species here described is not to be considered representative of the *aurantia* stock. Male and female of the new species are similar in color.

Haplocichla swalesi is an inhabitant of dense rain forest jungle bound together with the wirelike strands of a climbing bamboo, exceedingly difficult to penetrate. The bird lives on the ground in the deepest shadows where its dark colors render it difficult to see except when movement betrays its presence.

I take pleasure in dedicating this handsome species to Mr. Bradshaw Hall Swales, Honorary Assistant Curator of Birds in the National Museum, in recognition of his long and continued interest in the avifauna of Hispaniola.

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PROCEEDINGS
OF THE
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NOTES ON SCELOPORUS MERRIAMI STEJNEGER.[1]

BY A. H. WRIGHT AND A. A. WRIGHT.

In 1904 (Feb. 5) Dr. Leonhard Stejneger described *Sceloporus merriami*, "A New Lizard from the Rio Grande Valley, Texas" (Proc. Biol. Soc. Wash., Vol. XVII, 1904, pp. 17–20). As a preface to our studies of this species, we can not do better than to quote the introductory remarks of its describer.

"During the various collecting trips made by the field naturalists of the Biological Survey into western Texas, a series of lizards belonging to the genus *Sceloporus* were collected, which clearly belong to an undescribed species. It forms part of the small section of the genus characterized by the minuteness of the lateral scales, of which, thus far, only two species have been taken within the United States, viz., *S. variabilis* and *S. couchii*. I wish to associate with this very distinct species the name of the originator and chief of the Biological Survey, who has done such an immense work in increasing our knowledge of our vertebrate fauna. * * *

"*Habitat.*—Rio Grande Valley, western Texas. Type. United States National Museum, No. 33,039; East Painted Cave, near mouth of Pecos River, Texas, September 2, 1890; W. Lloyd, collector, U. S. Biological Survey (pp. 17–18).

"*Habitat.*—Thus far only found in the Rio Grande Valley from the mouth of Pecos River to Boquillas. This species, therefore, seems restricted to the Rio Grande Canon." (—p. 19.)

Habitat and habits.—Our experiences with the habits and habitat of this form in 1925 (July 1–3) can best be given by quoting our journal notes verbatim:

"July 1, 9 A. M. Devil's R. crossing. Went over to hill on east side of crossing. On vertical walls, west exposure, now in shade, from 2–8 or 10 ft. from ground saw several lizards. Small ones running along. One male looked on belly somewhat like *S. variabilis* but on back had spotting like a *Holbrookia texana* or *H. propinqua*, not quite so prominent. Ran one in a small crack but it escaped me. Shot two, was after two amongst rocks at

[1]The investigation upon which this article is based was supported by a grant from the Heckscher Foundation for the Advancement of Research, established at Cornell University by August Heckscher. The expense of its publication was borne in part by a second grant from the same Foundation.

level of ground when I espied on a shady ledge a *Crotalus lepidus* about 3 ft. above the ground.

"* * * The lizards will pump up and down like a *Holbrookia.* * * *

"July 2.—On same cliff east of camp, now shady. *Sceloporus merriami* will rest head downward on a knob projecting out. Often about arm's length up from ground or 6 ft. Caught tail of a ♂. It ran higher under a projecting ledge. Caught a ♀. It is battered. Few lizards with original tail, toes, etc. Sensed a movement behind a ledge. Reached up with gun barrel, frightened out a ♀ which I caught. Arm's length up.

"July 2.—Devil's R. About 2:45 started on our way from camp. Stopped at the cave at Castle canyon. All around the mouth on the vertical rocks were *S. merriami* in considerable numbers.

"July 3.—Last night about 7:30 saw 1 *S. merriami* in east wall of canyon of Pecos beside the road as you approach the bridge. It was on the light colored rock. This morning * * * shot 3 *S. merriami.* Little farther on on the vertical wall usually where more or less shady were 4 or 5 little *S. merriami*—shot 1, caught 2. Went to the bridge, beautiful view. * * * Perched in the corner of a road culvert was a *S. merriami.* Shot at it—missed it—chased it through culvert—got it—Ate our lunch about 4 miles west of Comstock at a rocky ravine. On rocky walls were *S. merriami.* It is the common rock wall lizard of Devil's R. and Pecos R. Canyons (and small canyon between)."

Range.—Eleven years after the original description, Prof. John K. Strecker in his "Reptiles and Amphibians of Texas" (1915, p. 21) paraphrases Dr. Stejnger's range as follows: "This species is known from only a few localities in western Texas, from the Pecos River Canyon, 55 miles northwest of Comstock, Val Verde County, south to the mouth of the Pecos River and west along the Rio Grande River to Boquillas, near the Big Bend." No doubt, as this implies, the species is in the intervening county of Terrell, which is between Val Verde (East Painted Cave) on the east and Brewster (Boquillas) on the west. So far as we can determine, no records of this species have been made since 1904, and no positive record of it secured for Terrell County. Our collections made at Devil's River Crossing and in Devil's River Canon extends its range somewhat eastward. We firmly believe that this species extends some distance up the Devil's River from Rio Grande at Painted Cave and likewise up the Pecos River considerable distance from Rio Grande at the Painted Cave of this river. The people at Del Rio assert that there are two Painted Caves, one at the mouth of each of these two rivers. This species is also a common cave, canon wall, or rocky cliff form in the intervening areas between these two canons, Devil's and Pecos. All of our observations were made along the Del Rio-Comstock-Langtry-Alpine road. We found it between Del Rio and Langtry.

Our material is as follows:

Field No. 432, 16 adults, July 1, 1925. Devil's River Crossing west of Del Rio, Texas. Taken on east wall in shade.

No. 441. Castle Canyon west of Devil's River Crossing, July 2, 1925.

1 adult. "Species at mouth of cave, within it and on vertical walls outside."

No. 454. 3 adults. East wall of canyon in shade. July 3, 1925, Pecos River at Bridge between Comstock and Langtry. No. 451. 3 young, same place, July 3, 1925. Running in shade on east vertical wall.

No. 455. 2 adults. Rocky ravine 4 miles west of Comstock, Texas, July 3, 1925.

No. 438. Two eggs (ovarian) from one of the ♀s of No. 432 (12x7 mm., 11x6 mm.). (Plate II, Fig. 4.)

Color descriptions from life.—Adult ♂ No. 432. July 1, 1925. Devil's River Crossing (Plate I, figs. 1 and 2. Plate II, figs. 1, 2, 5). Upper parts: Either side of middle of back is a row of 10–12 small round or elliptical black spots. Under the lens, these are dark grayish olive or dusky slate violet. On each side are 7–8 irregular rows of spots, deep tilleul buff or pale cinnamon pink or pale vinaceous pink. Under the lens, these areas look light grayish olive or light olive gray. These spots remind me of those of a male Holbrookia when I see the lizard on the rocks. These spots are outlined by deep grayish olive or black. Top of the head is wood brown. Tail not spotted, but with cross bands of black or dark grayish brown, under lens dusky slate-violet. Interspaces are pale olive gray or light olive-gray, under the lens light grayish olive.

Underparts: Lower throat with two indigo blue or dull blue-green black spots. Often they meet posteriorly. Sometimes there is a smaller spot ahead of each throat spot or large and smaller unite or throat may have several indistinct bluish spots forward. Amongst these may be a little pale yellow orange or pale ochraceous-salmon. Other throat-scales white, usually with a dark spot below the eye and a short vitta back of the eye. Iris green yellow or viridine yellow pupil rim. In front of this yellow is a narrow band of orange pink or brownish vinaceous; ahead of it an area of green yellow to sulphur yellow; rest of iris black. Breast white. Vertical shoulder bar black or dull blue green black. Sometimes males have a few irregular black or dull blue-green black spots on the ventral side of femur. Some have white area down middle of belly with dark inner edge of berlin blue or azurite blue which also bounds the lateral ellipse behind and a short distance forward on dorsal edge of the ellipse. The ellipse is deep chrysolite green, absinthe green or asphodel green. This on outer and upper edge becomes pale grayish vinaceous or light grayish vinaceous. In some the middle white area is lost, being suffused with the dark blue. (Plate II, fig. 2.) Underneath tail, the dark cross bands of the upper surface become paris blue, and the light intervals persian blue. Sometimes underside of tail is merely elain blue over entire under side or entirely persian blue.

Adult ♀, No. 432, July 1, 1925. Devil's River Crossing. (Plate I, fig. 3, 4.) Upper parts: Dorsal color pale olive gray or light olive-gray or pallid mouse gray or pale mouse gray. Either side of middle line of back is a row of 10–12 spots on the body as in males. There are two parallel rows to these on the sides. These spots are smaller. All over the body are round white spots most prominent above the grenadine of the lateral

belly. The dark spots unite to form cross bands on the tail. These bands are dark olive gray. The top of the head is avellaneous or light drab or drab gray. The iris is black with narrow viridine-yellow rim. In front of the pupil this forms a forward triangle.

Underparts: Ventral parts white. In the groin is an oblique irregular spot of black, larger behind. This corresponds to the bluish rear or rear dorsal border of the ellipse of male. Forward from this black border is strawberry pink or peach red or grenadine. This makes a beautiful creature of this female. This coloration reminds me of *Holbrookia propinqua* females. There is a prominent vertical black bar across the arm insertion on to the shoulder. Most females have two black or dusky separated spots on the lower throat; these spots not indigo blue as in males. The rest of the throat is white. Rarely a high colored female will have 6–7 blackish or dusky spots in front of the two large throat spots; these two more or less separated on the middle line.

Young.—No. 451. July 4, 1925. Pecos River Bridge. (Plate II, fig. 6.) Entire belly pale king's blue or pale neropolin blue. Throat same color spotted with white areas. Sides of belly vinaceous pink or buff-pink. Vitta behind eye more prominent than in adults, so also the black bar in front of shoulder. Bands on forelegs prominent and less so on the hind legs.

Scutellation.—Plate III, fig. 1. The central axial series of scales on the top of the head are interparietal (occipital) with two of parietals on either side, the anterior pair normally meeting ahead of interparietal and between it and the posterior frontal to form frontoparietals. The frontal is transversely divided into two plates. Ahead of the frontal are a cross series of three prefrontals, these are succeeded by three cross plates, the frontonasals (prefrontals in Dr. Stejneger's terminology). Between the frontonasals and the rostral are three pairs of internasals. The nasal ring has three elements, prenasal, supranasal and postnasal portions. Below the last is a subnasal which also might be termed a third canthal scale. Strictly there are only two canthal scales. Back of the postnasal element are usually no postnasals. Above the six supralabials are two rows of scales which become one row near the rear of the subocular.

Variations in head scutellation.—Plate III, figs. 2, 3, 4. In 25 specimens, four had the parietals not meeting to form frontoparietals (fig. 2). In one specimen the parietals just meet at one point, in another the frontoparietal almost obliterated the posterior frontal. The latter in one case unites with the anterior right parietal (fig. 3). The frontal is semi-divided longitudinally in one specimen (see Stejneger). The lateral prefrontals of either side in three young were transversely divided and in one adult (fig. 4). In three adults this division was on the left side solely. Rarely the rear 3d pair of internasals is pushed from the median line. The postnasal plates are normally absent but may be from one to three.

Males have a maximum of 5 elongate pointed scales on the anterior edge of the ear opening, many of them have less, down to one or none, but accidents must have entered in these cases. The females generally have 1–3 pointed scales or merely 1–4 stubs or hardly any at all. The scales

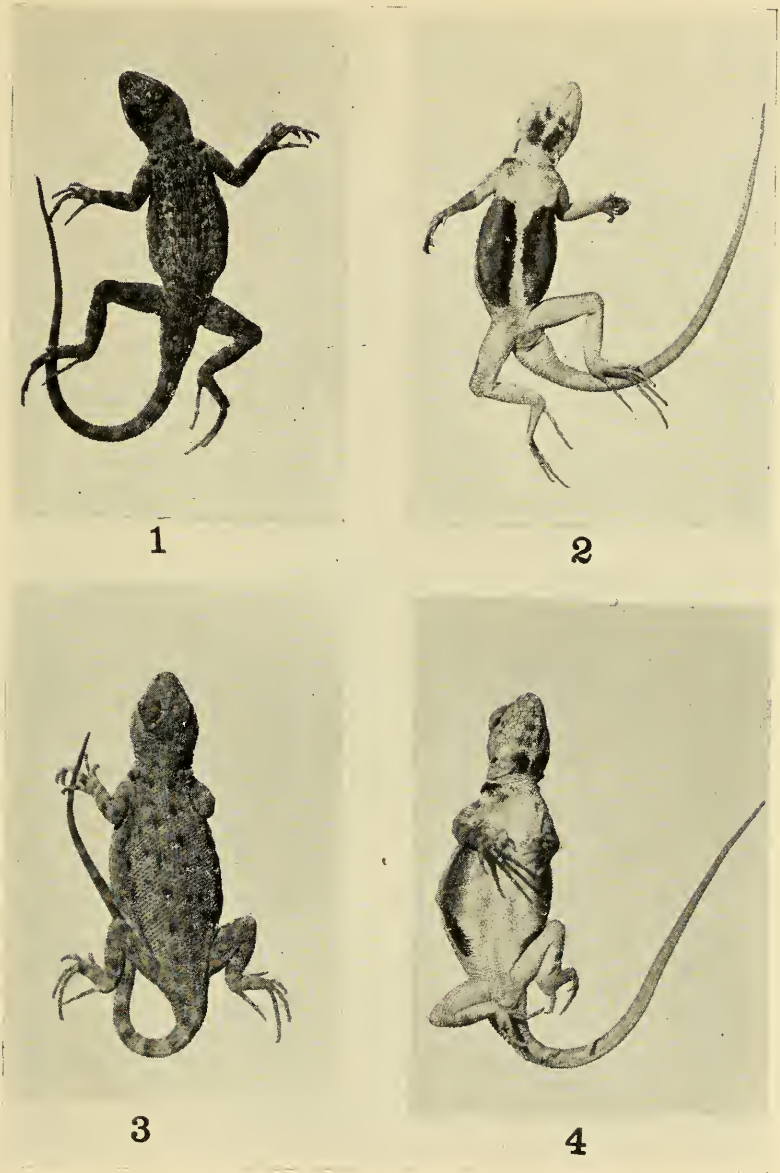
from occiput to tail varied from 56–70. A longitudinal fold runs along above shoulder until it meets the post-auricular longitudinal fold. At their junction an oblique fold goes down on either side of neck. Very seldom do these folds meet on the mid-ventral line as in Cope's *Lysophtychus* (See Dr. Stejneger's remarks.) In females the folds are not as well developed.

Measurements.—We measured 10 ♂♂ and 12 ♀♀. Although the largest and the smallest both in total length and measurement of snout to vent were females, the males averaged a little larger in both respects, the males 127 mm., total length, 50 mm., snout to vent; the females 116 mm., 49 mm. The leg and toe measurements averaged greater in the males and also the femoral pores were more numerous in that sex. The other measurements of head width, shield part of head, snout to ear opening, scales in head length, scales occiput to tail and scales around the middle are very close together in both males and females. With one exception, the tibia is in each case equal to or a little greater than the distance from tip of snout to the ear-opening. In only two respects does our material differ from Dr. Stejneger's specimens. Our specimens have femoral pores from 39–53 (44–53 in ♂♂, 33–46 in ♀♀), average 45.5., while his material ranged from 50–58, average 53. Our counts of scales around the middle range from 87–108; his specimens 106–120. Like Dr. Stejneger we experience difficulty in marking these counts and the probability of errors is great. For details of measurements see accompanying tables.

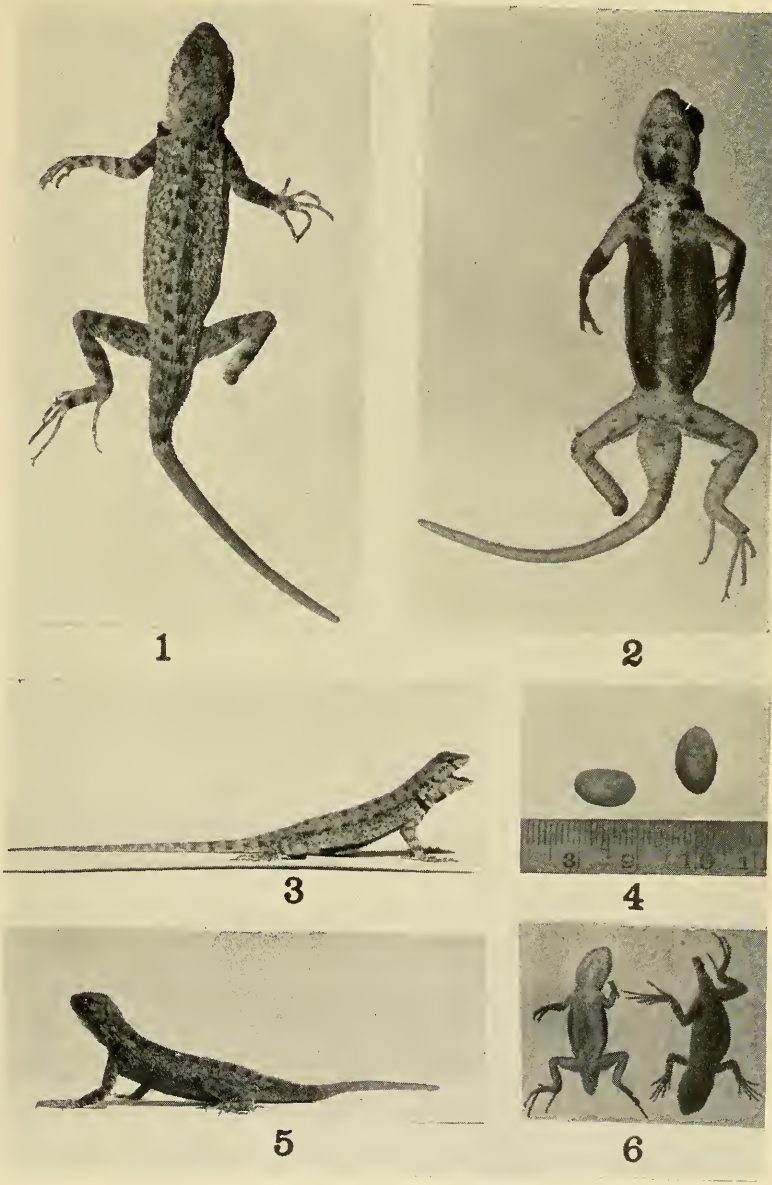
	Species range.	♂ *Range.*	♀ *Range.*	*Species average.*	*Spec. mode.*
Total length	100–142	118–140	100–142	124	120
Snout to vent	41– 58	45– 56	41– 58	47.5	46
Foreleg	19– 28	21– 28	19– 26	23.36	24–25
Hind leg	32– 50	33– 50	32– 47	39	39–40
Tibia	11– 15	13– 15	11– 12.5	12.8	12
4th toe to base 5th	13– 17	14.5– 17	13– 15	15	15
Head width	9– 12	9.5– 12	9– 11	10.6	11
Shield part of head	10– 12.5	10– 12.5	10– 12	11	11
Snout to ear opening	11– 13.5	11– 13.5	11– 12.5	11.8	12
Scales in head length	14– 19	15– 19	14– 17	16.5	16
Scales occ. to tail	56– 70	60– 69	56– 70	61.9	62
Scales around middle	87–102	88–102	87– 99	93.5	91
Femoral pores	33– 53	44– 53	33– 46	45.5	46

MEASUREMENTS OF SCELOPORUS MERRIAMI.

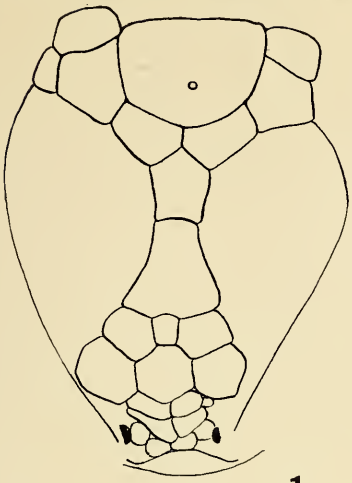
Sp. No.	Sex	Total length.	Head width.	Length foreleg.	Length hindleg.	Snout to vent.	Shield of head.	Sn. to ear op.	Tibia.	4th toe from base 5th.	Scales oc. to tail.	Scales in head length.	Scales around middle.	Fem. pores.	Remarks.
432	♀	97	11	20	38	57	10.5	11.5	12.5	14	60	17	100	23–20	Specimens twisted difficult to measure.
432	♂	.....	11	25	44										
432	♀	142	11	26	46	58	11	12	12	15.5	....	....	....	22–24	
432	♂	131	11	24	40	52	12	12.5	14	17	69	19	99	24–23	
432	♂	66	11.5	25	39	54	11.5	12.5	14.5	16.5	62	18	94	23–24	Tail lost.
432	♀	132	11	19	47	50	12	12.5	12	14	58	15	99	20–19	
432	♂	66	11	25	45	52	11	12	14	15.5	63	16	102	23–27	Tail lost.
432	♀	120	11	24	36	49	11	11.5	12.5	14.5	70	17	90	22–20	
432	♀	120	10.5	22	34	47	10.5	11.5	11.5	14.5	64	17	92	22–20	
432	♂	118	9.5	22	35	45	10	11.5	13	15	61	15	94	24–27	
432	♀	115	9	21	32	41	10.5	11	11	13	63	16	87	18–23	
432	♂	67	10.5	26	50	55.5	12.5	12.5	14	16	61	15	88	25–25	Tail lost.
432	♀	112	9.5	22.5	32	47	10.5	11	12	14	59	14	99	20–13	
432	♀	100	9.5	24	33	46	10	11	11	13	64	16	91	....–23	
432	♀	120	10.5	21	41	45	11	11.5	12	14	60	16	88	23–23	
432	♂	101	12	21	40	56	12.5	13.5	15	16	62	15	91	26–24	Tail inj.
441	♂	133	11	22.5	42	49.5	11	12	13	16	62	16	97	22–24	
454	♂	.....	11	24.5	33	46	11	11	13	15.5	60	19	96	53	Tail broken.
454	♂	.....	10.5	23	33	45	10	11.5	13	14.5	62	19	94	47	Tail broken.
454	♂	118	10	25	40	46	11.5	11.5	13	15	60	18	92	46	
455	♂	140	12	28	39	52	12	12	14	16.5	62	17	91	25–19	
455	♀	105	10	23.5	39	46	10	11	12	15	56	15	91	....–21	
451	yg.	53	5	10	17	20	6.5	6	6	8	56	19	94	....–15	
451	yg.	....	5	12	17	22	6.5	6.5	6.5	8	62	20	108	.....	Tail lost.
451	yg.	....	5	11	18	22	6.5	6	6	7.5	62	22	102	.....	Tail lost.



Sceloporus merriami Stejneger.



Sceloporus merriami Stejneger.



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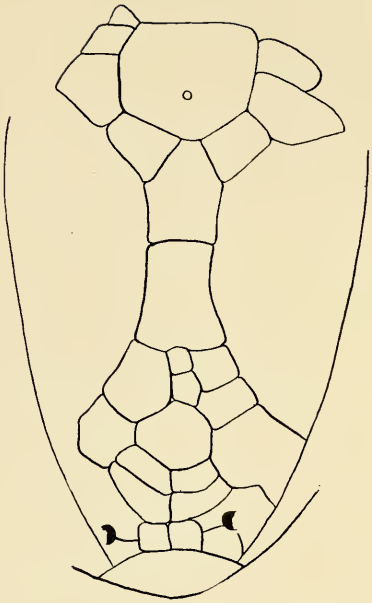

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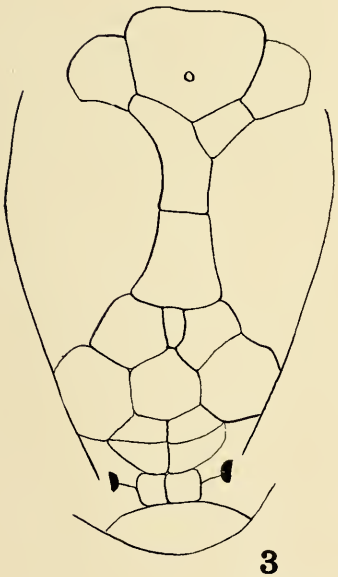

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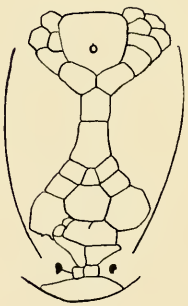

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Sceloporus merriami Stejneger.

DESCRIPTION OF PLATES.

Plate I.

Fig. 1.—Adult male, Devil's River, Texas, July 1, 1925. Dorsal aspect.
" 2.—Same. Ventral aspect.
" 3.—Adult female, Devil's River, Texas, July 1, 1925. Dorsal aspect.
" 4.—Same. Ventral aspect.

Plate II.

Fig. 1.—Old male, Devil's River, Texas, July 1, 1925. Dorsal aspect. Regenerated tail. Missing foot.
" 2.—Same. Ventral aspect. Colored ventral patches merged.
" 3.—Female. Devil's River, Texas, July 1, 1925. Lateral aspect.
" 4.—Ovarian eggs. Devil's River, Texas, July 1, 1925.
" 5.—Male. Same as 1 and 2. Lateral aspect.
" 6.—Young. Pecos River Canyon, Texas, July 3, 1925.
Photos from life by A. A. and A. H. Wright.

Plate III.

Fig. 1.—Head of male. Castle Canyon near Devil's River, July 2, 1925. (Field No. 441.)
" 2.—Head of female. Devil's River, Texas, July 1, 1925. (Field No. 432.)
" 3.—Head of female. Same data as Fig. 2.
" 4.—Head of young. East wall of Pecos River Canyon, Texas, July 3, 1925. (Field No. 451.)

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PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

FISHES FROM McKEAN, POTTER AND CAMERON COUNTIES, PENNSYLVANIA.

BY HENRY W. FOWLER AND J. GORDON CARLSON.[1]

During the summer of 1926 collections of fishes from northwestern Pennsylvania were made by Messrs. J. C. Galloway and J. Gordon Carlson. As several river basins diverge from this region, a word as to localities is necessary. In McKean County the collections are from the Allegheny River, Lillibridge Creek, Skinner Creek, Sartwell Creek, Comes Creek, and Portage Creek near Port Allegany and from Brewer Run near Colegrove. These represent the materials from the Allegheny River Basin. In Cameron County all are from the Susquehanna River basin in the Sinnamahoning-Portage Creek and Cawley Run near Sizerville and in North Creek near Emporium. The Genesee River was examined in the vicinity of Genesee from the State line to a few miles south of Genesee. According to Mr. Galloway's notes, the Genesee River at Gold was but a small brook a foot or two wide, some miles north it was four to eight, at Hickox ten to fifteen, and at the New York State line above Genesee, after four streams have united ten miles from Gold, it was almost as large as the Allegheny at Port Allegany. Altogether several hundred specimens were obtained and placed in the collection of The Academy of Natural Sciences of Philadelphia. We are indebted to Mr. Galloway for the use of his notes, freely modified and duly credited with his initial.

This paper has been prepared as little has been given of this interesting ichthyfauna. So many of the streams in the western section of the State have been polluted and the fishes either greatly reduced or exterminated, that it is hoped that the

[1]With permission of the Academy of Natural Sciences of Philadelphia.

present account may have some value even in its incomplete records.

PETROMYZONIDAE.

Entosphenus aepypterus (Abbott).

One example 165 mm. long from Skinner Creek, May, 1924.

SALMONIDAE.

Salmo fario Linné.

Two examples 76 to 92 mm. from North Creek, September 13, 1926.

Salvelinus fontinalis (Mitchill).

One example at each of the following localities: Small pond at Port Allegany, September 9, 1926, 58 mm. long; Sinnamahoning-Portage Creek, 117 mm. long; North Creek, September 13, 1926, 146 mm. long.

ICTALURIDAE.

Ameiurus nebulosus (Le Sueur).

Eight examples from cove near Port Allegany, July 30, 1926, 25 to 164 mm. long.

Noturus flavus Rafinesque.

One from Allegheny River at Port Allegany in July, 1925, 190 mm., two June 10, 1926, 113 to 155 mm., two August 28, 1926, 73 to 90 mm.; twelve July 27, 1926, from Genesee River 140 to 230 mm. In the last locality, but not in the Allegheny, it usually swims crosswise in the stream when disturbed. One floundered out on land a foot from the water's edge, though soon wriggled back. All swim rather slow.

Schilbeodes insignis (Richardson).

Sinnamahoning-Portage Creek, September 13, 1926, six examples 68 to 95 mm.; North Creek, September 13, 1926, one 97 mm.

CYPRINIDAE.

Campostoma anomalum (Rafinesque).

Lillibridge Creek, one 178 mm. long June 2, 1925, in full spawning; one 85 mm. long June 17, 1926; four 61 to 80 mm. September 16, 1926; cove at Port Allegany, July 30, 1926, one 99 mm.; from the Genesee River July 27, 1926, six 50 to 89 mm. The Genesee examples were very much darker than those from the Allegheny.

"Plump little minnows in the ripples April 29, 1926, were a bright golden color, about 50 mm. long." (G.)

"May 9, 1926, a dozen or more associated with larger chubs, 40 or more slender dace and others, apparently long nosed dace and black nosed dace, swarm among the larger ones. The stone rollers are conspicuous and

easily identified by their white lips, white fins marked with black and yellow or orange, a distinct black bar behind opercle, and the white tubercles over the head and body. They were the most active, rooting their snouts in the gravel; their bodies often turning sidewise, their tails often flapping in the air. Their heads were always up stream and the gravel thrown that way." (G.)

"May 29, 1926, spawning same place as June 2 and apparently all along the creek in favorable gravel. This time hardly any other fish were with them. They all assemble closely in the basins, eight to twelve or more. Apparently the females are only half the size of the others and they dash around at intervals. At one place there were four or five groups." (G.)

Chrosomus erythrogaster Rafinesque.

One from cove near Port Allegany, September 15, 1926, 45 mm. long.

Pimephales promelas Rafinesque.

Lillibridge Creek, two examples, June 17, 1926, 61 to 66 mm. long; cove near Port Allegany, three examples 45 to 50 mm., July 30, 1926, and 32 examples 29 to 59 mm., September 9, 1926. We find that this fish is more frequently met with in still or stagnant water than in the running streams.

Pimephales notatus (Rafinesque).

Allegheny River, one 93 mm. in full spawning June 10, 1926, three 66 to 80 mm., June 22, 1926, also in full spawning and two 52 to 65 mm., August 28, 1926; Lillibridge Creek, one 61 mm., June 17, 1926, one 57 mm., September 16, 1926; cove at Port Allegany, one 44 mm., July 30, 1926; Genesee River, one 61 mm., July 27, 1926; Sinnamahoning-Portage Creek, one 69 mm.

Semotilus atromaculatus (Mitchill).

Allegheny River, one 64 mm., July 14, 1926; Lillibridge Creek, one 111 mm., June 17, 1926, seven 53 to 91 mm., August 26, three 57 to 93 mm., September 16; small pond at Port Allegany, two 42 to 47 mm., September 9; Genesee River one 67 mm., July 27; Sinnamahoning-Portage Creek, six 41 to 79 mm., September 13; Cawley Run, one 100 mm., September 13; North Creek, two 51 to 85 mm., September 13.

"The chubs are more shy than the stone rollers, hastening to hide in deep water when approached and last to come back. They hovered in the basins but did not seem to dig gravel. They were active in chasing away the smaller fishes. They were adroit in taking advantage of the water currents in moving about. When they swim from the deep pool they merely headed up stream with pectorals expanded? and the current rapidly brought them down; then tacking they swing sidewise into their places with no apparent movement of the fins. These chubs were dusky green with no golden lines showing and their throats and lower fins were rosy or salmon color. The black spot on the dorsal showed distinctly." (G.)

Leuciscus margaritus (Cope).

Eight examples from Sinnamahoning-Portage Creek, September 13, 1926, 50 to 63 mm. These are the only examples we have secured.

Leuciscus elongatus (Kirtland).

Lillibridge Creek, 14 examples 59 to 97 mm., June 17, 1926, eight 48 to 82 mm., August 26, and one 78 mm., September 16; Comes Creek, two 71 to 91 mm., June 9. Evidently the most abundant species in Lillibridge Creek with *Poecilichthys flabellaris* a close second.

"May 9 the fish were working on three basins, often four stone rollers side by side in one. The slender dace swarmed among them and all about, flashing their sides so the red band shone in the sun. They showed the golden lines on the back. With them were a few long straight brown fishes, possibly long nosed dace." (G.)

Abramis crysoleucas (Mitchill).

Only one example obtained, 65 mm. long, from cove near Port Allegany, February 8, 1925. It was taken by sweeping a dip net through holes in the ice. Though several subsequent attempts have been made to secure specimens, both in the same cove and in neighboring ones, all have been unsuccessful.

Notropis deliciosus stramineus (Cope).

One from the Allegheny River, July 22, 1926, 71 mm. long. This is the only specimen we have ever seen. It was kindly identified for us by Mr. C. L. Hubbs.

Notropis keimi Fowler.

Allegheny River, six 57 to 60 mm., July 14, 1926, two 60 to 71 mm., July 22, one 48 mm., August 28; Lillibridge Creek, six 53 to 63 mm., August 26, eleven 46 to 60 mm., September 16; Brewer Run, one 60 mm., September 13; Genesee River, six 51 to 65 mm., July 27.

"We found this brown backed, silvery sided shiner, with a golden glint, in the deeper holes in the creek and it has lately appeared more common. At times it shows scintillating light in a line from the dorsal fin to the caudal medially on the back. It also shows the golden glow within the forward sides of the back even more than in the young of *Leuciscus elongatus*. Many 50 mm. in length appear to contain eggs." (G.)

We have examined the types of this species and compared them with cotypes of *Notropis gilberti* from the Des Moines River at Ottumwa, Iowa, and find that they differ constantly in certain respects. *N. keimi* is a more slender minnow, the depth less in proportion to the length of the body than in *N. gilberti*. *N. keimi* has one less dorsal ray, the number usually iii, 6, i, while in *N. gilberti* it is usually iii, 7, i. The eye in *N. keimi* averages slightly larger than in *N. gilberti*.

Notropis cornutus (Mitchill).

Allegheny River, five 53 to 66 mm., July 14, 1926, nine 30 to 40 mm., August 28; Lillibridge Creek, two 93 to 107 mm. in full spawning June 3, 1925, two 94 to 103 mm., in full spawning June 17, 1926, thirteen 50 to 112 mm., August 26, and two 50 to 72 mm., September 16; Brewer Run, three 47 to 58 mm., September 13; Genesee River, 46 examples 35 to 134 mm., July 27; Sinnamahoning-Portage Creek, 101 examples 45 to 122 mm., September 13; North Creek, 10 examples 42 to 90 mm., September 13.

"May 28 found a small school in one of the larger pools, in Lillibridge Creek, with the finest slender dace met with. The red fins were as usual with gold, silver and blue on the sides, a few scattered dark scales and rosy below and on the fins. In the water it appears as a green shiner with three golden lines and a black lateral stripe. The lower fins and dorsal are salmon color, shaded medially with dusky; likewise the pectorals, their forward margins solid white." (G.)

Notropis rubrifrons (Cope).

Allegheny River, four examples 48 to 70 mm., in full spawning dress June 10, 1926, nine examples 57 to 66 mm., July 14, four examples 56 to 68 mm., July 22. The first four when captured had the snout and pectoral bases rosy; largest with 23 predorsal scales; one with deformed mandible so that snout appears strongly protruded. In the second lot of specimens the predorsal scales average 19, eye 3½ to 4 in head and shorter than snout; formaline specimens show dark lateral band becoming blackish brown on tail to hind caudal peduncle.

Rhinichthys cataractae (Valenciennes).

Allegheny River, four examples 58 to 91 mm., August 28, 1926; Lillibridge Creek, two examples 57 to 89 mm., September 16; Genesee River eight examples 70 to 115 mm., July 27; Sinnamahoning-Portage Creek, nine examples 53 to 76 mm., September 13; Cawley Run, six examples 59 to 112 mm., September 13.

"One cataract dace, a female with eggs, was taken in the ripples April 29. Last September they swarmed in the ripples in narrow channels of Lillibridge Creek, where we find none at all now. The female noted showed a salmon tint on the dorsal and caudal fins, but no reddish elsewhere; dark above, white below, slightly creamy where it merged into peppered gray sides. Much of the dark color seemed to belong to the presence of immature trematode worms." (G.)

Rhinichthys atronasus (Mitchill).

Allegheny River, one example 47 mm., July 22, 1926; Lillibridge Creek, one 76 mm., June 4, 1925, eleven 49 to 74 mm., June 17, 1926, eleven 61 to 75 mm., June 23, three 44 to 60 mm., August 26, three 55 to 64 mm., September 16; Brewer Run, two 66 to 71 mm., September 13; Genesee River, seven 53 to 73 mm., July 27; Sinnamahoning-Portage Creek, 18 examples 40 to 68 mm., September 13; Cawley Run, one 65 mm., September

13; North Creek, three 59 to 62 mm., September 13. Genesee specimens were very dark and parasitized; those from the Susquehanna basin were light colored, scarcely parasitized at all.

"Several taken in Lillibridge Creek April 16 showed no breeding colors; sides creamy silver, the lateral band showing black with red; upper parts brown as usual, mottled with darker.

"Apparently spawning May 29 in the swift channels of Lillibridge Creek, where the gravel was coarse; found among the stones and constantly swimming in circles.

"Many large ones in Lillibridge Creek June 17 with the orage red lateral band. Others similarly as large and many smaller, without the red. A few were seen without either the red or black lateral stripe, the body rather pale brown. Those with red lateral band were taken in the stony shallows, the others associated as well as in the smaller pools." (G.)

Hybopsis kentuckiensis (Rafinesque).

Allegheny River, two 57 to 84 mm., July 14, one 62 mm., July 22, one 43 mm., August 28; Sinnamahoning-Portage Creek, five 64 to 114 mm., September 13; Cawley Run one 92 mm., September 13.

Exoglossum maxillingua (Le Sueur).

Allegheny River, one 76 mm., July 14, two 42 to 48 mm., August 28; Genesee River, nine 51 to 113 mm., July 27; Sinnamahoning-Portage Creek, nine 47 to 83 mm., September 13; North Creek, one 62 mm., September 13.

CATOSTOMIDAE.

Catostomus commersonnii (Lacépède).

Allegheny River, two 165 to 230 mm., July, 1925; Lillibridge Creek, one 118 mm., June 17, 1926, one 91 mm., August 26, one 48 mm., September 16; cove near Port Allegany, one 72 mm., July 30; Brewer Run, two 70 to 72 mm., September 13; Sinnamahoning-Portage Creek, 23 examples 31 to 82 mm., September 13.

"The fins pale orange. Underparts shining satiny white and the sides brassy with salmon tints. Back mottled brown and olive green." (G.)

Catostomus nigricans Le Sueur.

Allegheny River, two 74 to 180 mm., June 10; Lillibridge Creek, two 55 to 60 mm., September 16; small pond at Port Allegany, one 43 mm., September 9; Brewer Run, one 280 mm., September 13; Sinnamahoning-Portage Creek, three 41 to 82 mm., September 13.

Moxostoma aureolum Le Sueur.

Two examples were taken in the Allegheny River July 14, 1926, which measure 62 to 75 mm. They are the only ones we have for the region.

PERCOPSIDAE.

Percopsis omiscomaycus (Walbaum).

In the Allegheny River, three 35 to 45 mm., in the late summer of 1925, six July 14, 1926, 25 to 77 mm., and also six 28 to 40 mm., July 22.

GASTEROSTEIDAE.

Eucalia inconstans (Kirtland).

Six examples, 38 to 45 mm., from a small pond at Port Allegany, September 9, 1926.

CENTRARCHIDAE.

Ambloplites rupestris (Rafinesque).

One from cove near Port Allegany, July 30, 1926, 57 mm. long.

Pomotis gibbosus (Linné).

Eight from cove near Port Allegany, July 30, 1926, 18 to 97 mm. long.

Micropterus dolomieu Lacépède.

One from the Allegheny River 260 mm., July 15, 1926, and one 37 mm., July 22.

PERCIDAE.

Percina caprodes (Rafinesque).

One from the Allegheny River 124 mm., June 10, 1926, and one 131 mm., July 15; one from Portage Creek 143 mm., June 18, 1926. The first example was secured by holding a hand net below a large stone in swift water, suddenly raising and then dropping the stone. The other two were obtained by bait with hook and line.

Hadropterus aspro (Jordan).

Allegheny River, three 51 to 78 mm., August, 1925, one 47 mm., June 10, 1926, six 51 to 65 mm., June 14, one 59 mm., July 22, one 47 mm., August 28. It is usually found in pools two or more feet in depth and with less swift water than in the river generally. We have not yet obtained it in the smaller creeks. It swims rapidly, darter fashion, and it is difficult to capture with a net.

Etheostoma blennioides Rafinesque.

Allegheny River, two 77 to 80 mm., August, 1925, three 63 to 80 mm., June 10, 1926, five 52 to 67 mm., July 14, three 65 to 73 mm., July 22, six 49 to 79 mm., August 24; Genesee River, three 60 to 89 mm., July 27.

"Two large adults in full color May 5, one dark green as though soaked in dark green ink." (G.)

Boleosoma nigrum (Rafinesque).

Allegheny River, two 52 mm., May 15, 1926, 27 examples 20 to 57 mm., July 14, two 54 to 56 mm., August 28; Lillibridge Creek, six 45 to 55 mm., September, 1925, six 42 to 56 mm., June 17, 1926, two 48 to 51 mm., August 26, two 47 mm., September 16; Comes Creek, one 53 mm., June 9; Genesee River, four 32 to 73 mm., July 27.

Boleosoma nigrum olmstedi (Storer).

Sinnamahoning-Portage Creek, 18 examples 52 to 68 mm., September 13, 1926; North Creek, four 48 to 58 mm., September 13.

Poecilichthys variatus (Kirtland).

Allegheny River, two 44 to 46 mm., September, 1925, one May 15, 1926, of 76 mm., four 64 to 80 mm., August 28.

"June 2 in the river, main ripples, in gravel a darter hit the net by accident. Brown back with four brown bars and sides below lateral line flamed brilliant orange red. Second dorsal and caudal sooty black over orange dot rows, also the anal green with a splash of orange red at tip. Pectorals and ventrals dusky, latter almost black with anterior edge white. The whole fish in formaline becomes much duskier and orange sides more brilliant.

"Color in life, brown, shading to golden below; four dark cross bars on back, one predorsal, one at junction of dorsals, one at middle of second dorsal and one between second dorsal and caudal. Sides unmarked before front of second dorsal; beginning below front of second dorsal row of seven or eight green squares (broken near caudal) and separated by eight or nine rows of scarlet dots, three in first rows, two and irregular near caudal. Breast orange yellow, shading to white. First dorsal with outer edge red, then amber, finally black and white next to body. Second dorsal edge dusky blue and base lighter blue, barred between with four rows of orange spots or dots. Caudal light blue, irregularly barred with about six rows of orange dots. Anal barred light blue and orange, like caudal. Pectoral similarly light blue, with eight orange bars. Ventral streaked parallel to rays, orange and light blue." (G.)

Poecilichthys zonalis Cope.

Allegheny River, nine 36 to 53 mm., June 10, 1926, and six 42 to 51 mm., August 28. The latter lot were obtained by sweeping a hand net through small clusters of water plants. Their dark green color blended with the plants they frequented.

Poecilichthys flabellaris (Rafinesque).

Allegheny River, four 55 to 68 mm., August, 1925, eight 34 to 60 mm., June 10, 1926, four 37 to 49 mm., July 14, five 40 to 48 mm., July 22, 21 examples 33 to 52 mm., August 28; Lillibridge Creek, 15 examples 35 to 63 mm., June 17, one 48 mm., June 23, one 48 mm., August 26, six 44 to

55 mm., September 16; Comes Creek, two 58 to 60 mm., June 9; Sartwell Creek, six 46 to 62 mm., April 29, 1925; small pond at Port Allegany, three 60 to 67 mm., September 9, 1926; Brewer Run, one 58 mm., September 13; Genesee River, six 45 to 70 mm., July 27.

"April 16, in the swift waters of Lillibridge Creek, by lifting stones a number of this darter were caught in a hand net. Most were black, with the color pattern more or less distinct. Their fins were unchanged, barred as usual and the body without any bloom.

"June 17 found adults not quite so large as in the river. Apparently many females have a darker irregular mottled coloring. None were in extreme breeding dress, spawning being over. Under a large flat stone a cluster of eggs about six by two inches was found. The shape of the cluster was irregular, but the eggs laid closely joined in a single cluster and were a little smaller than hempseed. They were on the point of hatching. After scraping some into a bottle some freed young were seen." (G.)

COTTIDAE.

Cottus bairdi Girard.

Lillibridge Creek, two 81 to 87 mm., May 1, 1926, three 53 to 96 mm., June 17, seven 40 to 85 mm., June 23; Brewer Run, one 72 mm., September 13; Comes Creek, one 48 mm., June 9; Sartwell Creek, one 64 mm., April 29; Genesee River, 28 examples 48 to 80 mm., July 27.

"April 29 we tried hook and line in one pool without any sign of life. We then took the net to the ripples where we scooped two miller's thumbs from under the stones in the shallows and where the water was less rapid. They were tadpole blobs of mud but showed much brighter colors when placed in formaline.

"May 1st, took seven of all sizes, from young of an inch to adults of four inches with red edges to the dorsal fin. They were colored tan, spotted darker, much like the creek bottom. They were under stones in water so swift they could not be seen or their habits noted." (G.)

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

A NEW GENUS AND SPECIES OF STAPHYLINIDAE FROM SZE-CHUAN, CHINA.

BY EDWARD A. CHAPIN.

In rearranging the National collection of *Paederus* Fabr. a very interesting novelty was found among the numerous staphylinids collected by David C. Graham in China. As the species belongs to an apparently undescribed genus, closely related to *Paederus*, the opportunity is taken to indicate the more salient characteristics wherein it differs from the previously described genera and to assign to it a name.

Gnathopaederus, nov. gen.

Close to *Paederus* Fabr. Head oval, eyes prominent, antennae 11-segmented, second segment half as long as first, third equal in length to, but more slender than first, fourth to seventh mutually equal, each three-fourths as long as third, eighth to tenth slightly clavate, of these the tenth is the shortest, eleventh longer, acuminate. Labrum transverse, shallowly emarginate, minutely and irregularly denticulate. Mandibles asymmetrical, falcate. Left mandible with a small quadrate tooth at the middle of the internal margin, homologous with the internal double tooth of *Paederus*. Just anterior to the internal tooth is a curved dorsal tooth about two-thirds as long and similar in form to the apical half of the mandible proper. Right mandible similar in general shape to left but with the internal tooth reduced to a small rounded knob and with a much smaller dorsal tooth. Labial and maxillary palpi as in *Paederus*. Gular sutures confluent at the extreme base of the head. Prothorax globose, strongly swollen dorsally, greatest width at anterior third. Scutellum well developed. Elytra strongly constricted across the humeri, humeral angles effaced. Abdomen strongly margined. External genital characters as in *Paederus*. Legs long, fourth tarsal segment broad, bilobed.

Type species: *Gnathopaederus szechuanus*, n. sp.

Differentiated from *Paederus* Fabr. by the heavy supernumerary dorsal tooth of each mandible and by the strong basal constriction of the elytra. The mandibles are reminiscent of those of certain species of *Bledius* Mannerh.

The group Paederi of the subfamily Paederinae is composed of two other genera in addition to *Gnathopaederus*. The more important differences between these genera may be tabulated in the following manner.

1. Gular sutures distinctly separated throughout their length; fourth tarsal segment broad, bilobed; mandibles without dorsal tooth.... *Paederus* Fabr.
   Gular sutures confluent or nearly so at base of head.....2
2. Fourth tarsal segment broad, bilobed, mandibles with prominent dorsal tooth, elytra constricted at base, elytral punctures coarse and sparse.....*Gnathopaederus* Chpn.
   Fourth tarsal segment narrow, emarginate at apex, mandibles without dorsal tooth, elytra not constricted at base, elytral punctures fine and dense.....*Paederidus* Rey.

It does not appear that the characters upon which the genera *Paederillus* Csy. and *Leucopaederus* Csy. are based are of generic rank.

Gnathopaederus szechuanus, new species.

Elongate; head, metathorax and apical two segments of abdomen black, elytra metallic blue, mesothorax castaneous, prothorax, basal segments of abdomen and legs reddish yellow. Head as broad as long, hind angles broadly rounded; polished; punctures sparse and coarse, vestiture reduced to a few coarse hairs. Antennae pale castaneous, long. Maxillae, maxillary palpi and labial palpi yellowish, mandibles castaneous. Pronotum longer than broad (29 : 25), highly polished with very few rather fine punctures. Vestiture sparse, composed of stiff black setae. Anterior margin simple, posterior margin with fine bead. Elytra slightly shorter than pronotum, humeral angles almost entirely obliterated, width of the two elytra across humeri about one-half width across apices and but little more than one-third width of pronotum. Punctation coarse and rather dense, a tendency to coalesce is seen in the punctures of the disc.

Abdomen fusiform, greatest width at the fifth (first black) segment, first four segments very strongly margined, basal transverse impressions moderately broad and shallow, punctation fine and sparse on tergites, much more dense on sternites especially along the median line. Sixth sternite (male) with a deep U-shaped notch, finely margined and with a minute pit at the bottom of the notch.

Length: 9.5 mm.

Locality: west of Ya-chow, Sze-chuan Province, June 16–20, 1923, David C. Graham, collector.

Type: a male, paratype a partially dissected male, U. S. N. M. No. 40486.

It is possible that *Paederus gottschei* Kolbe should also be referred to *Gnathopaederus,* but the mandibles are not mentioned in the original description and there are no specimens available for study. However, mention is made of the fact that the pronotum is narrowed behind, that the elytra are very much narrowed basally and that the greatest width of the

abdomen is near the middle. In these points the species is in accord with *G. szechuanus*. The specific characters given indicate that the species themselves are amply distinct. The relative lengths of the antennal segments, the color of the antennae and legs are quite different in the two. The color of the prothorax of *P. gottchei* is given as red and later in the following paragraph as black. It is probably red, to judge from the published figure.

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PROCEEDINGS

OF THE

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NEW SPECIES OF GRASSES FROM CENTRAL AMERICA.

BY A. S. HITCHCOCK.

During a recent study of the grasses of Central America, including Panama, several new species were noted, which are described below. A few new binomials are included.

Arundinaria viscosa Hitchc., sp. nov.

Culms erect, rather slender, 2 to 4 meters tall, mottled with purple, more or less branched below; sheaths glabrous, mottled with purple, the summit naked; ligule firm, truncate, about 1 mm. long; blades gradually narrowed from near the asymmetric rounded or truncate base to acuminate apex, 10 to 20 cm. long, 3 to 5 cm. wide, glabrous on the upper surface, scaberulous and glaucous beneath, scabrous on the margin, the petiole 2 to 3 mm. long; panicle large and diffuse, 15 to 20 cm. long and about as wide, the branches and axis viscid, the branches solitary, slender, spreading; spikelets on the branchlets of the third or fourth order; spikelets 1.5 to 2.5 cm. long, compressed, 3 to 6-flowered, mottled with purple, rather soft and papery; glumes 2, 5-nerved, broad, minutely pubescent, the first 3 to 5 mm. long, the second about 1 cm. long; lemmas faintly several-nerved, minutely pubescent, acute, awnless, 10 to 15 mm. long; palea nearly as long as the lemma.

Type in the U. S. National Herbarium, no. 577479, collected in forests at the summits of Velirla, Copey, Costa Rica, 1800 to 2700 meters, February, 1898, by A. Tonduz (Herb. Inst. Phys. Geogr. Nat. Costaric. no. 11729).

Other specimens are: Cerros de Velirla, Copey, *Tonduz*, Herb. Inst. Costaric. 11793; between la División and Lagunilla, *Pittier*, Herb. Inst. Costaric. 10526; northeast of El Copey, *Standley* 41944, all from Costa Rica; Puerta La Cruz, Venezuela, alt. 2000 meters, *Jahn* 1308.

Arundinaria standleyi Hitchc., sp. nov.

Culms glabrous, branching, slender, erect, pendent or procumbent, as much as 3 meters long, about 1.5 mm. thick; sheaths glabrous, ciliate, rather sparsely fimbriate at the throat; ligule very short, truncate; blades

flat, thin, lanceolate or oblong-lanceolate, glabrous on the upper surface, the larger ones 8 to 12 cm. long, 1 to 2 cm. wide, rounded or somewhat cuneate at the asymmetric base, the petiole 1 to 2 mm. long, the apex sparsely hispidulous beneath, scabrous on the margins, acuminate; racemes terminating short leafy branches, 5 to 8 cm. long, the rachis slender, strongly zigzag, the internodes straight, concave on one side, mostly 1 to 1.5 cm. long, diverging sharply at the base of each spikelet; spikelets on very short pedicels, slender, terete, straight, 1 to 2 cm. long, less than 1 mm. wide, 4 to 8-flowered; glumes somewhat tawny, unequal, the first 5-nerved, 3 to 4 mm. long, the second 7-nerved, 4 to 5 mm. long; lemmas minutely pubescent, 9-nerved, about 6 mm. long, narrowed to an obtuse point, awnless, the rachilla glabrous; palea nearly as long as the lemma, softly ciliate on the keels.

Type in the U. S. National Herbarium, no. 1307242, collected in wet forest at El Muñeco, on the Río Navarro, Province of Cartago, Costa Rica, altitude 1400 to 1500 meters, March 6, 1926, by Paul C. Standley and Rubén Torres (no. 51060). The only other specimen seen is *Standley & Torres* 50897 from the same locality.

Arthrostylidium maxonii Hitchc., sp. nov.

Main canes smooth, slender, mostly not more than 2 mm. in diameter, erect or climbing, as much as 4 meters long; fertile shoots very slender, 10 to 20 cm. long; sheaths densely pubescent on one side near the margin, bearing at summit several slender bristles as much as 5 mm. long; ligule very short; blades delicate, 1 to 3 cm. long, about 3 mm. wide, scaberulous on the margins and upper surface, pubescent in a line near one margin beneath and sparsely hispidulous on the remainder of the surface; racemes 1 to 1.5 cm. long, the spikelets almost sessile, divergent from the glabrous axis horizontally or nearly so; spikelets 8 to 10 mm. long, terete; first glume 1 mm. long, 1-nerved; second glume 2 to 3 mm. long, about 5-nerved, sterile lemma about 5 mm. long, 5-nerved, the glumes and sterile lemma glabrous; fertile lemmas 2 or 3, acuminate but not awned, pubescent, 5-nerved; palea nearly as long as lemma, glabrous on the keels.

Type in the U. S. National Herbarium, nos. 1180144, 1180145, and 1215531 (being three sheets of a single specimen), collected just inside thick wet forest on steep slope at Santa Clara de Cartago, Costa Rica, altitude 1950 meters, July 20, 1923, by William R. Maxon (no. 8154).

Other specimens, all from Costa Rica, are: La Estrella, *Standley* 39096, 39105, 39179, 39411; El Muñeco, *Standley* 33643, 33812, *Standley & Torres* 50981; Yerba Buena, *Standley & Valerio* 49781.

Chusquea heydei Hitchc., sp. nov.

Central culm as much as 5 mm. in diameter; fertile shoots in fascicles on the central culm, slender, 10 to 20 cm. long, the lower part with bladeless sheaths, the upper part with one or two foliage leaves; sheaths glabrous, finely ciliate on the collar and with a few long hairs at the sides of the summit; ligule very short; blades of fertile shoots lanceolate, thin, scaberu-

lous, slightly hispidulous beneath at base, 2 to 5 cm. long, 4 to 8 mm. wide, cuneate but scarcely petiolate at base, acuminate at apex, with 2 more prominent veins on each side of the midrib; panicles ovoid, open, 6 to 8 cm. long, the branches single, spreading, the rachis terete, glabrous, the spikelets on branches of second or third order, all spreading; spikelets elliptic, strongly nerved, glabrous, 8 to 9 mm. long, about 2 mm. wide; glumes rounded, unequal, the second about 1 mm. long; sterile lemmas a little less than half as long as the spikelet, acutish, thin, rather weakly 3-nerved; fertile lemma acute, prominently 9-nerved, the palea a little longer.

Type in the U. S. National Herbarium, no. 731141, collected at Santa Rosa, Guatemala, altitude 3000 to 4000 meters, May, 1892, by Heyde and Lux (no. 3566).

Other specimens are, Mexico: El Tiber, 150 meters, Michoacán or Guererro, *Langlassé* 288; Cerro Campana, 400 meters, Oaxaca, *Makrinius* 601.

Chusquea subtessellata Hitchc., sp. nov.

An erect shrub 1 to 3 meters tall, the branches erect; sheaths pubescent, becoming glabrous; ligule very short; blades appressed, firm, linear-lanceolate, as much as 10 cm. long and 1 cm. wide, glabrous, tessellate-veined especially beneath, rounded to a nearly sessile base, the apex acuminate to a firm rather rigid point, the margin indurate and scabrous; panicles narrow, condensed, but scarcely spikelike, 7 to 10 cm. long, dark purple, the rachis and appressed branches pubescent; spikelets glabrous, 5 to 6 mm. long; glumes obtuse, the first 1 mm., the second 2 mm. long; sterile lemmas apiculate, 5-nerved, nearly as long as the spikelet; fertile lemma apiculate, obscurely 5-nerved, the palea a little shorter.

Type in the U. S. National Herbarium, no. 821342, collected on Cerro de la Muerte, Costa Rica, January, 1891, by A. Tonduz (no. 3367). Also collected on Cerro de las Vueltas, on paramos, altitude 2700 to 3000 meters, by Standley and Valerio (no. 43620, sterile). A third specimen is doubtfully referred to this species, *Pittier* 3069, from El Potrero Camp, Chiriquí Volcano, Panama, altitude 2800 to 3000 meters. The panicles are less condensed, and the branches less appressed.

The species is allied to *C. tessellata* Munro, but differs in the less spicate inflorescence.

Poa guatemalensis Hitchc., sp. nov.

Perennial, apparently with creeping rhizomes; culms decumbent at base, glabrous, about 40 cm. tall, the nodes mostly 3 or 4; sheaths minutely scaberulous; ligule membranaceous, acute, about 3 mm. long; blades flat, lax, 1 to 2 mm. wide, glabrous, slightly scabrous on the upper surface; panicle open, 6 to 8 cm. long, the axis glabrous or somewhat scabrous above, the branches mostly in pairs, slender, flexuous or drooping, naked below, 2 to 3 cm. long, bearing a few spikelets on the upper half; spikelets 4 to 5 mm. long, mostly 2 or 3-flowered, the rachilla glabrous; glumes 1.5

and 2 mm. long; lemmas glabrous throughout, somewhat compressed, rather indistinctly nerved, acute, purple-tinged at summit, 3 mm. long, 1 mm. wide.

Type in the U. S. National Herbarium, no. 924985, collected in shade at medium altitude on Volcano Agua, Guatemala, December 5, 1911, by A. S. Hitchcock (no. 9115).

Trisetum irazuense (Kuntze) Hitchc.

Calamagrostis irazuensis Kuntze, Rev. Gen. Pl. 2:763. 1891.
Trisetum scabriflorum Hitchc. Contr. U. S. Nat. Herb. 24:358. 1927.

Trisetum pringlei (Scribn.) Hitchc.

Graphephorum pringlei Scribn.; Beal, Grasses N. Amer. 2:561. 1896.

Calamagrostis guatemalensis Hitchc., sp. nov.

Culms erect from a creeping base, 30 to 60 cm. tall; sheaths overlapping, glabrous or slightly scaberulous; ligule 2 to 3 mm. long; blades numerous on lower part of plant, firm, flat, becoming involute, 1 to 3 mm. wide, scabrous on both surfaces; panicles narrow, condensed, sometimes interruptedly spikelike, 7 to 12 cm. long, purplish or brownish, the branches ascending or appressed, as much as 3 cm. long, floriferous nearly to the base; glumes equal, acute, scaberulous, 4 to 5 mm. long; lemma minutely scaberulous, 4 mm. long, the narrow apex with 4 fine teeth, the callus hairs about half as long as the lemma; awn attached less than 1 mm. above base, the twisted straight part nearly as long as the lemma, the terminal part bent sharply to one side, 3 to 6 mm. long; rachilla prolongation a little more than 1 mm. long, clothed with hairs about 2 mm. long.

Type in the U. S. National Herbarium, no. 844985, collected in humus on the upper part of Volcano Agua, Guatemala, about 3000 meters altitude, December 5, 1911, by A. S. Hitchcock (no. 9120). Other specimens examined are: Volcano Agua, 2700 meters, *Kellerman* 4747; Cerro Quemado, *Kellerman* 5579; Volcano Atitlán, 3100 meters, *Kellerman* 6259.

This species differs from *C. recta* of the Andes in the rhizomatous base, the flat blades (later becoming involute) and the looser shorter panicle.

Gymnopogon aristiglumis Hitchc., sp. nov.

Perennial; culms ascending from a decumbent base, hard and wiry, glabrous, 80 to 100 cm. long, many-noded, the lower part lacking foliage, clothed with bladeless or nearly bladeless sheaths; sheaths glabrous, ciliate on the margin, mostly shorter than the internodes; ligule a very short ciliate membrane 0.2 mm. long; blades rather stiffly diverging, flat, glabrous on the surfaces, scabrous on the margin, somewhat cordate at base, contracting into a short somewhat ciliate petiole, the larger ones 5 to 8 cm. long, 5 to 10 mm. wide; panicles of several very slender soft racemes 20 to 35 cm. long, along a main axis 15 to 20 cm. long, the main axis somewhat scabrous, the branches pilose at the base, very scabrous; spikelets

mostly 2-flowered with a rudiment of a third floret, distant on the lower part of the rachis, approximate above, the pedicels slender, 1 to 2 mm. long; glumes narrow, scabrous, 2 and 3 mm. long, gradually narrowed to a slender straight scabrous awn about 1 cm. long; first lemma narrow, nearly terete, obscurely 3-nerved, ciliate, slightly lobed at the base of the awn, 2 to 2.5 mm. long, the awn 1 to 2 cm. long, the palea as long as the lemma; second lemma similar but a little smaller, the rudiment about two-thirds as long as the lemma, jointed at apex and bearing an awn nearly as long as that of the lemma.

Type in the U. S. National Herbarium, no. 1169956, collected at Rosario, El Salvador, January, 1924, by Salvador Calderón (no. 1924). Other specimens are: San Salvador, *Calderón* 949; Cerro de San Jacinto, *Calderón* 2072; Volcano San Salvador, *Hitchcock* 8941.

This species differs from *G. spicatus* (Spreng.) Kuntze in the larger blades, panicles, and spikelets, and especially in the long-awned glumes.

Leersia grandiflora (Doell) Hitchc.

Oryza monandra var. *grandiflora* Doell in Mart. Fl. Bras. 2²:9. 1871.
Homalocenchrus grandiflorus Hitchc. Contr. U. S. Nat. Herb. 17:273. 1913.

Trichachne pittieri (Hack.) Hitchc.

Panicum pittieri Hack. Oesterr. Bot. Zeitchr. 51:367. 1901.
Valota pittieri Chase, Proc. Biol. Soc. Washington 19:188. 1906.

Digitaria hirtigluma Hitchc., sp. nov.

Culms glabrous, rather robust, about 50 cm. tall (lower part wanting in specimen examined); sheaths keeled, glabrous or somewhat scabrous; ligule membranaceous, truncate, pubescent, 1 to 2 mm. long; blades flat, rounded or slightly cordate at base, scabrous, more or less pilose on upper surface especially toward base, 4 to 7 mm. wide, 10 to 15 cm. long (upper one or two only ones seen); panicle 10 to 18 cm. long, the common axis scabrous, about 7 cm. long, villous at base of racemes; racemes 8 to 10, ascending, whitish, 10 to 15 cm. long, the rachis angular, scabrous, very narrowly winged; spikelets about 2.5 mm. long (including the hairs), mostly in 4's on the rachis, 2 with pedicels about 1 mm. long, 2 with pedicels 3 to 4 mm. long, the pedicels scabrous or scabrous-hirsute, curved or flexuous; first glume wanting; second glume narrower than the fruit and two-thirds as long, pilose between the nerves and on the margins, the hairs toward the tip stiffer, somewhat rufous, extending nearly a millimeter beyond; sterile lemma as long as the fruit, densely pilose or appressed-hirsute, except along the midnerve, the hairs extending as a stiff brush beyond the tip; fruit elliptic, 2 mm. long, 0.6 mm. wide, chestnut, somewhat apiculate.

Type in the U. S. National Herbarium, no. 1152125, collected at San Salvador, El Salvador, in August, 1922, by Salvador Calderón (no. 1153).

The type is the only specimen seen. The species belongs to the *adusta* group, resembling *Syntherisma fiebrigii* (Hack.) Chase of Paraguay, based on *Panicum fiebrigii* Hack. of which Hackel cites two specimens, *Fiebrig*

5371 and 5375. The two specimens seem not to be conspecific but the type is assumed to be no. 5371. Fiebrig's no. 5375 resembles *Digitaria hirtigluma* but differs in having a broader second glume and a softer pubescence. The blades of *Panicum fiebrigii* are described as glabrous, while the blades of *Digitaria hirtigluma* are scabrous and pilose. In the U. S. National Herbarium are fragments of *Fiebrig* 5371 and 5375 from the Hackel Herbarium, only the former showing blades.

Digitaria curtigluma Hitchc., sp. nov.

Perennial; culms cespitose in large bunches, erect, slender especially at base, 1 to 1.5 meters tall; sheaths glabrous; ligule very short; blades flat, elongate, narrowed toward base, long-acuminate, glabrous, somewhat scabrous on the margins, somewhat pilose on upper surface near base, 4 to 7 mm. wide, as much as 40 cm. long; panicle 15 to 18 cm. long, the common axis scabrous, 3 to 4 cm. long; racemes 5 or 6, ascending, 10 to 15 cm. long, the rachis winged, the margins as wide as or wider than the central part, scabrous on the angles; spikelets in pairs, about 2.3 mm. long, the pedicels flat, scabrous-hirsute on the angles, the longer about 4 mm. long; first glume wanting; second glume glabrous, obtuse or somewhat notched, one-fifth to one-fourth as long as the fruit; sterile lemma as long as the fruit, 5-nerved, the lateral pair of nerves close together near the margin, appressed-pubescent on the internerves; fruit dark brown, very convex, minutely punctate in striae.

Type in the U. S. National Herbarium, no. 927689, collected on rather open cut-over hillside, El Boquete, Province of Chiriquí, Panama, about 1200 meters altitude, September 28, 1911, by A. S. Hitchcock (no. 8176).

This species belongs to the *adusta* group and is allied to *Digitaria adusta leiantha* (Hack.) Parodi which has glabrous spikelets with longer first glume.

Digitaria velutina (DC.) Hitchc.

Milium velutinum DC. Cat. Hort. Monsp. 126. 1813.
Milium filiforme Lag. Gen. & Sp. Nov. 2. 1816.
Digitaria mollissima Schrad.; Link, Hort. Berol. 1:229. 1827.
Paspalum? velutinum Kunth, Rév. Gram. 1:27. 1829.
Panicum mollissimum Kunth, Rév. Gram. 1:33. 1829.
Syntherisma velutina Chase, Proc. Biol. Soc. Washington 19:191. 1906.

Thrasya villosa Hitchc., sp. nov.

Perennial; culms erect, villous, 15 to 30 cm. tall; sheaths villous; ligule obtuse, less than 1 mm. long; blades flat, villous or velvety-pubescent, 2 to 4 mm. wide, 5 to 10 cm. long; racemes several from the main culm and the erect branches, slightly curved, 2 to 5 cm. long, long-villous at the base, the rachis less than 0.5 mm. wide, villous with long and short hairs intermixed, rounded on the outside, flat on the inside, not margined or inrolled; spikelets about 2.5 mm. long, densely pubescent; first glume minute or obsolete; second glume narrower than the fruit and somewhat

shorter; sterile lemma as long as the fruit, concave between the lateral nerves, the palea as long as the lemma; fertile lemma whitish, appressed-hirsute, acutish.

Type in the U. S. National Herbarium, no. 715585, collected in savannas, at Cerro Vaca, eastern Chiriquí, Panama, alt. 900 to 1136 meters, December 25 to 28, 1911, by H. Pittier (no. 5363).

Mesosetum pittieri Hitchc., sp. nov.

Plant apparently annual, the culms spreading, 10 to 30 cm. long, the nodes hispidulous; blades flat, glabrous, distantly setulose on the thickened margin, sparingly pilose near base, 3 to 4 mm. wide, 2 to 5 cm. long; raceme 2 to 4 cm. long; spikelets about 5 mm. long, nearly sessile; first glume a little shorter than the equal second glume and sterile lemma, laterally compressed, narrowed to the middle and then widened to a rounded crestlike tip, pilose on the lower part of the keel; second glume laterally compressed above, narrowed to a crestlike acute tip, pilose at the base, sparingly villous on the lower half of the back, 5-nerved, cross-ridged toward the apex; sterile lemma similar to the second glume, the crested tip less acute; fertile lemma acute, shorter than the second glume.

Type in the U. S. National Herbarium, no. 679914, collected at Sabana de Juan Corso, near Chepo, Province of Panama, Panama, altitude 60 to 80 meters, October, 1911, by H. Pittier (no. 4751). Other specimens are *Pittier* 4516 and 4687, both from the vicinity of Chepo.

Differs from *M. sclerochloa* (Trin.) Hitchc. in the somewhat smaller slightly pilose spikelets. In the latter the spikelets are glabrous, more indurate and the glumes and sterile lemma are irregularly toothed or notched at apex.

Axonopus blakei Hitchc., sp. nov.

Culms densely cespitose, erect, about 60 cm. tall, the nodes densely villous; sheaths villous, especially at the collar; blades folded at base, flat above, 2 to 4 mm. wide, papillose-pilose, as much as 25 cm. long; racemes mostly 3, the lower 2 to 3 cm. below the other 2, pubescent at the base, 7 to 12 cm. long; spikelets 3 mm. long, the second glume and sterile lemma pilose along the margins and apex, sparingly pilose along the back, the hairs toward the tip as much as 1 mm. long.

Type in the U. S. National Herbarium, no. 1012987, collected on an open grassy plain, at Cristina, Department of Izabal, Guatemala, May 22, 1919, by S. F. Blake (no. 7611). *Blake* 7658, collected at the same place, is the only other specimen known.

The species resembles *A. poiophyllus*, but the latter is nearly glabrous throughout, the sheaths are distinctly compressed-keeled, and the spikelets are only slightly pubescent.

Lasiacis scabrior Hitchc., sp. nov.

Culms climbing or straggling, woody, as much as 3 meters tall, pubescent or glabrescent; sheaths more or less hispidulous, densely villous on the

margin; ligule prominent, brown, mostly 3 to 5 mm. long; blades rather firm, elliptic-lanceolate, mostly 8 to 12 cm. long and 1 to 1.5 cm. wide, harshly scabrous on the upper surface, puberulent beneath; panicles not much exserted, ovoid, rather densely flowered, mostly 5 to 6 cm. long, sometimes as much as 10 cm., the branches spreading, or the lower finally reflexed, the axis and branches pubescent; spikelets ovoid, pale, about 4 mm. long.

Type in the U. S. National Herbarium, no. 725618, collected on the border of forest at Cubilquitz, Guatemala, altitude 350 meters, February, 1913, by H. von Tuerckheim (no. 4036).

Other specimens are: Costa Rica, *Herb. Inst. Phys.-Geogr.* 2247, 3245, 3365, 3646, 6540, 7465, 8527, 9213, 9492, 10946, *Standley* 37178, *Standley & Valerio* 45897, 47117, *Standley & Torres* 47507, *Jiménez* 720; Nicaragua, *Baker* 2454; Panama, *Dunlap* 406.

This species resembles *L. ligulata* in the long ligule but differs in the thick blades scabrous above, the hispid sheaths and the compact panicle.

Lasiacis standleyi Hitchc., sp. nov.

Culms branching and straggling, mostly 1 to 2 meters tall, rooting at the nodes with slender branching stilt roots; sheaths glabrous or hispidulous; ligule prominent, brown, 3 to 5 mm. or even 8 mm. long; blades narrowly elliptic-lanceolate, 10 to 15 cm. long, 1 to 2.5 cm. or rarely 3 cm. wide, somewhat falcate, scabrous on the upper surface, minutely pubescent, beneath; panicles 10 to 15 cm. long, the few branches stiffly ascending, the spikelets somewhat clustered toward the ends of the scabrous branches and branchlets; spikelets ovoid-globular, pale or finally dark, about 4 mm. long.

Type in the U. S. National Herbarium, no. 1307185, collected in moist forest, at La Tejona, north of Tilarán, Province of Guanacaste, Costa Rica, altitude 600 to 700 meters, January 25, 1926, by Paul C. Standley and Juvenal Valerio (no. 45839).

Other specimens, all from Costa Rica, are: *Standley & Valerio* 45532, 45820, 46140, 47160, 49785, 50068, *Standley & Torres* 50979.

The species has the habit and panicle of *L. rhizophora* but differs in the long ligule and narrower blades.

Olyra standleyi Hitchc., sp. nov.

An erect cespitose perennial; culms 1 to 3 meters tall, puberulent below the nodes, the nodes in dry specimens presenting one or two raised dark sharp edges, sometimes hirsutulous on these ridges; sheaths glabrous; ligule very short, shorter than the somewhat flaring border at the top of the sheath; blades oblong-elliptic, glabrous, as much as 17 cm. long and 4 cm. wide (the lower not seen), somewhat cordate at base, puberulent on the upper surface at base and on the short petiole; panicle of several fastigiate branches spreading at maturity, the axis extending above the whorl and bearing one or two ascending branches, the main branches 8 to 12 cm. long, bearing appressed spikelets, 1 to 4 pistillate spikelets on the

upper part, staminate spikelets below, the peduncle and base of the branches more or less puberulent, smaller secondary panicles from the upper sheaths; staminate spikelets about 1 cm. long, the lemma narrow, acuminate-pointed, the palea a little shorter, acute; pistillate spikelets on clavate pedicels, the glume and sterile lemma glabrous, 5-nerved, rather thin, somewhat reticulate with cross veins, gradually narrowed into an acuminate scaberulous point, the glume (including the point) about 2 cm. long, the sterile lemma a little shorter; fruit narrow, about 8 mm. long, narrowed to an obtuse apex, glabrous, minutely pitted, the pits oblong; palea nearly as long as the lemma, almost inclosed by the margins of the lemma.

Type in the U. S. National Herbarium, no. 1307238, collected in moist forest, at El Muñeco on the Río Navarro, Province of Cartago, Costa Rica, altitude 1400 to 1500 meters, March 6 to 7, 1926, by Paul C. Standley and Rubén Torres (no. 50932). It was collected in the same region in 1924 by Standley (no. 33878).

The species is allied to *O. heliconia* Lindm. and *O. fasciculata* Trin. of Brazil. The former differs in having 7-nerved glumes and sterile lemma on the pistillate spikelet. The latter has a more distinctly pitted fruit with nearly circular pits; the blades are unequally truncate at base. In both species the culms and nodes are glabrous and the panicles are much larger. In habit, because of its numerous secondary panicles, *O. standleyi* resembles *O. surinamensis* Hochst. of the Guianas. It is the only species with pitted fruit known outside of South America.

Raddia costaricensis Hitchc., sp. nov.

An erect cespitose perennial; culms stiff, sometimes bent at the nodes, glabrous, 20 to 30 cm. tall; sheaths densely hirsute; blades close together from the overlapping sheaths, rather firm and stiffly spreading, oblong-lanceolate, rounded at base, acute, 3 to 4 cm. long, 4 to 6 mm. wide, villous beneath, glabrous or sparsely hirsute on the upper surface, revolute in drying; staminate panicles narrow, terminal, pale, the spikelets 3 to 4 mm. long; pistillate panicles lateral, consisting of a few (apparently 1 or 2) pistillate spikelets and several staminate ones below, the pistillate spikelets glabrous, 7 mm. long, with an apiculation 1.5 mm. long; staminate spikelet glabrous, pale, 3 mm. long.

Type in the U. S. National Herbarium, no. 825690, collected in forests of the valley of the Río Hondo near Madre de Dios, Costa Rica, 200 meters altitude, November, 1896, by H. Pittier (no. 10352). No other specimens have been seen.

This species is well distinguished by the hirsute sheaths.

Trachypogon stenophyllus (Roem. & Schult.) Hitchc.

Andropogon angustifolius H. B. K. Nov. Gen. & Sp. 1:184. 1816. Not *A. angustifolius* Sibth. & Smith, 1806.
Andropogon stenophyllus Roem. & Schult. Syst. Veg. 2:819. 1817.
Trachypogon angustifolius Nees, Agrost. Bras. 342. 1829.

Manisurus ramosa (Fourn.) Hitchc.

Apogonia ramosa Fourn. Mex. Pl. 2:63. 1886. Not *Rottboellia ramosa* Cav. 1801.

Rottboellia aurita subsp. *stigmosa* Hack. in DC. Monogr. Phan. 6:311. 1889.

Coelorachis ramosa Nash, N. Amer. Fl. 17:86. 1909.

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A NEW FLEA FROM ALASKA

BY H. E. EWING.

Among the Siphonaptera material recently donated to the United States National Museum by Dr. E. A. Chapin is a slide containing two specimens of a very peculiar species of *Amphipsylla*, which is here described as new.

Amphipsylla hadweni, new species.

Female.—Front margin of head broadly and almost evenly rounded; frontal tubercle triangular, acuminate. Frons with two rows of setae; in the front row there are four subequal moderate setae, in the back row two very long ones, the seta nearest the eye being the longest. Occiput with three large setae near the lower angle and a marginal row of about five shorter setae on each side. Eye large, subcircular and heavily pigmented. Maxillary palpi equal in length to the five-segmented labial palpi.

Pronotum equal to the mesonotum; pronotal comb composed of about twelve very short pale teeth on each side. Metanotum distinctly smaller than either the pronotum or the mesonotum.

Abdomen long; typical tergites each with three or four rows of transverse setae, the posterior row being composed of much the largest setae. Three to four small apical spines on the first three abdominal segments. Antepygidial setae stout, spinelike; one or two on each side. Seventh abdominal tergite with a small apical process extending backward between the two sets of antepygidial setae. Receptaculum seminis with moderate, subspherical head and a sausage-shaped tail which is slightly longer than the head diameter.

Legs normal; tibiae III each with a transverse apical row of from three to four setae on the anterior margin and a transverse subapical row of three setae. First segment of tarsus III about a fourth longer than second; second about a third longer than third; third and fourth together about equal to fifth.

Length, 2.8 mm.

Type host and *type locality.*—*Xema sabini* from Puffin Island, Alaska.

Type.—Cat. No. 40349, U. S. N. M.

Described from two females taken August 6, 1920, by S. Hadwen from Sabine's gull, *Xema sabini*, at Puffin Island, Alaska. This species differs from *A. pollionis* (Rothschild), the only previously recorded species of *Amphipsylla* from North America, in the shape of the head, the number of rows of setae on the frons and in a number of other ways. In some important respects, like that of the number of antepygidal setae, it differs from all other species of the genus.

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A NEW GENUS OF ANGUID LIZARDS FROM HAITI.[1]

BY DORIS M. COCHRAN.

The island of Haiti is truly the land of surprising novelties for the zoological explorer. The latest collection to be made on that island is one by Dr. Alexander Wetmore, Assistant Secretary of the Smithsonian Institution, traveling under the Swales fund, and the value of his work is already becoming apparent in the finding of a new genus of that peculiar group of lizards, the Anguidae.

Wetmorena, new genus.

Diagnosis.—No lateral fold; limbs four, tetradactyle; no ear-opening.

This genus is similar to *Sauresia* and to *Celestus* in having four fairly well-developed limbs. It differs from both in having no external ear-opening. In some species of *Celestus* the ear-opening is quite small, and in *Wetmorena* the diminution of this ear-opening is carried to its final stage, as befits the probable burrowing habits of this creature.

I take pleasure in naming this genus for Dr. Alexander Wetmore, Assistant Secretary of the Smithsonian Institution, Washington, D. C.

Wetmorena haetiana, new species.

Type.—U. S. N. M. No. 72600, collected on Morne Cabaio, Massif de la Selle, Haiti, on April 10, 1927, by Dr. A. Wetmore, at an altitude of 7500 feet above sea level.

Description of the Type.—Head not distinct from neck; snout short and broad; canthus rostralis rounded; loreal region slightly concave; no ear-opening; an azygous prefrontal, broader than long, in contact with the entire anterior border of the frontal, separated from the rostral by two pairs of shields; frontal longer than broad; the parietal on each side separated from the frontal and supraorbitals by a row of three shields; three consecutive shields between the nasal and the preocular, the second in contact with the azygous prefrontal; infraorbital wedged in between fifth and sixth upper labials; four large chin-shields on each side, the first and second

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in contact with lower labials. Body somewhat elongate, subcylindrical; 40 scales around the body, dorsals with about 10 heavy striae (almost amounting to fine keels) to a scale; laterals less heavily striated. Limbs short but stout, the front one much shorter than the head; digits four, very short, claws retractile. Tail long, reproduced in the type, about two-thirds as thick as the body.

Dark olive-gray above, the head, particularly at the scale sutures, spotted heavily with black; about ten more or less regular black lines running from occiput to the end of the tail, made up of the darkened lateral edges of the dorsal scale-rows; sides and belly lustrous black with many small blue-white irregular marks which tend on the sides to be in rows, and which tendency is even more pronounced on the sides of the neck and on the chin, where the anterior portions of the chin-shields become blue-white. The sides of the head and temporal region are black, with an occasional lighter area on the labials.

Paratypes.—There are four other specimens taken at the same time and place as the type. These range in size from the very young up to the partly grown, while the type itself is apparently fully adult. This series offers a remarkably complete picture of the various stages of growth. The scalation of the paratypes resembles that of the type, while the coloration is likewise very similar, only varying slightly in the strength of pigment of the dorsal dark lines.

MEASUREMENTS.

	72600 (Type)	72601	72602	72603	72604
Head and body	90 mm.	82 mm.	61 mm.	58 mm.	38 mm.
Tail	60 " (reproduced)	80 " (reproduced)	58 "	----	36 "
Width of head	12 mm.	11.5 mm.	8 "	7.5 "	5 "
Fore limb	13 "	12 "	9 "	8 "	6 "
Hind limb	19 "	17 "	13 "	12 "	8 "
Axil to groin	55 "	53 "	38 "	35 "	33 "

Remarks.—The Haitian *Sauresia sepsoides* is most similar to *Wetmorena haetiana*. The head scalation in the two species is very much alike, the absence of an external ear-opening in *haetiana* being the only striking feature of the head structure itself by which they may be told apart.

But in bodily proportions a considerable difference may be noted at once; *Sauresia sepsoides*, while a much smaller lizard, is much more elongate in body and has more delicate legs than the larger and stockier species which I am just describing. The number of scale-rows around the body, and the degree of striation in the dorsal scales, are likewise other differences which can not be overlooked.

In coloration a vast difference is apparent at once. In *sepsoides*, the ventral surface is immaculate yellowish, while in *haetiana* this surface is black, spotted with irregularly shaped blue-white markings. In *sepsoides*, the slight amounts of dark pigment appearing in the dorsal scales are found in the central region of each scale, but in *haetiana* all the dark pigment is concentrated at the lateral regions of each scale, leaving the central portion conspicuously paler.

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DESCRIPTION OF A NEW OWL FROM ENGANO ISLAND.

BY J. H. RILEY.[1]

In working on the birds of the Mentawi Islands, off the west coast of Sumatra, it became necessary for the writer to compare specimens from the other islands in the chain, stretching from Simalur in the north to Engano in the south, a distance of several hundred miles. Among the specimens examined was a female screech owl from Engano, related to *Otus umbra* of Simalur. The bird is quite distinct, however, and may be known as:

Otus umbra enganensis, subsp. nov.

Type.—Adult female, U. S. National Museum, No. 180,711, Engano Island, November 12, 1904; collected by Dr. W. L. Abbott.

Similar to *Otus umbra* (Richmond) of Simalur, but bill and feet larger; darker on the back; feathers of the throat and jugulum with much white basally, making these parts lighter; much more white on the supraloral region and lores; cheeks much lighter; scapular spots suffused with cinnamon-buff and the blackish scapular terminal spot reduced almost to the vanishing point and dark brown rather than blackish. Wing, 142; tail, 64; culmen from cere, 13; tarsus, 28; middle toe, 24.5 mm.

Remarks.—The type of *Pisorhina umbra* Richmond[2] is a male and some of the differences pointed out above may be sexual, but Simalur and Engano are at the extremes of the chain of islands off the west coast of Sumatra and it is very unlikely that they will prove to be the same form. *Otus umbra* represents a different type of owl from the *Otus bakkamoena* group; it has less black in the plumage, the lower part of the tarsus is bare and the ear-tufts are poorly developed. Judging from descriptions, it belongs in the same group as *Otus luciae* (Borneo and Sumatra), *Otus alfredi* (Flores), *Otus angelinae* (Java), *Otus vulpes* (Gunong Tahan, Malay Peninsula), and *Otus vandewateri* (Korinchi Peak, Sumatra). According

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[2] Proc. U. S. National Museum, vol. 26, 1903, 494.

to Robinson and Kloss (Journ. Fed. Malay States Mus., vol. 8, 1918, p. 126), *Otus vulpes* is a synonym of *Otus luciae;* this would make the latter quite wide-ranging for this tropical type of owl. Sharpe proposed the generic name *Heteroscops* for *luciae*, but it has not been generally recognized as a distinct genus. *Otus vandewateri* is described as having a nuchal collar, while *Otus umbra* has no indication of one. As a matter of fact, *Otus umbra enganensis* should probably be given full specific rank, but for the present it is introduced as above.

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SPOLIA MENTAWIENSIA—THREE NEW BIRDS FROM THE MENTAWI ISLANDS.

BY J. H. RILEY.[1]

In the fall of 1924, Mr. C. Boden Kloss and a party from the Raffles Museum visited Siberut and Sipora of the Mentawi Islands and made a general natural history collection. Dr. W. L. Abbott, who contributed to the support of the expedition, presented a series of the birds to the U. S. National Museum, and the Raffles Museum has forwarded the remainder of the ornithological material to Washington with the request that the combined series be compared with the rich material earlier collected by Dr. Abbott on other islands off the west coast of Sumatra. A preliminary account of the birds, in which eleven new forms were described, has been published by Chasen and Kloss.[2] In reworking the collection the present writer finds three additional forms from the islands that appear to require naming. These are described in advance of a report to appear later.

Muscadivores aeneus vicinus, subsp. nov.

Type.—Adult female, U. S. National Museum, No. 279,710, Sipora Island, Mentawi Islands, October 11, 1924; collected by C. B. Kloss.

Similar to *Muscadivores aeneus consobrinus*, of Nias, but breast and hindneck washed with much deeper vinaceous-lilac and averaging somewhat smaller. Wing, 233; tail, 125; culmen from cere, 14.5 mm.

Remarks.—Either the various forms described from the islands off the west coast of Sumatra, except Engano, will have to be merged into one variable race, or the above additional form recognized. It is believed the following forms may be discriminated:

1. *Muscadivores aeneus mistus* Oberholser, Simalur Island.
2. *Muscadivores aeneus babiensis* Richmond, Pulo Babi and Pulo Lasia.

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[2] Ibis, 1926, pp. 269–306.

3. *Muscadivores aeneus consobrinus* (Salvadori), Nias, and Pulo Tuanku, Banjak Islands.
4. *Muscadivores aeneus vicinus* Riley, Batu and Mentawi Islands.

Microtarsus melanoleucos proximus, subsp. nov.

Type.—Adult male, U. S. National Museum, No. 279,830, Siberut Island, Mentawi Islands, September 27, 1924; collected by C. B. Kloss.

Similar to *Microtarsus melanoleucos melanoleucos*, from the Malay Peninsula, but of a deeper, less brownish, black. Wing, 82; tail, 70.5; culmen, 15 mm.

Remarks.—The female of this species only differs from the male in slightly smaller dimensions, and in the more brownish, less black, plumage. Four males from Siberut are blacker, less brownish, than one male from Malacca and two from Borneo. Three females from Siberut resemble the males from Malacca and Borneo; three females from Borneo are much more brownish than the same sex from Siberut; in fact, they can hardly be called blackish at all, but seal brown. The writer can detect no differences between the Malaccan and Bornean specimens. Four males from Siberut measure: wing, 82–88 (84.6); culmen, 14–15 (14.6). One male from Malacca and two from Borneo measure: wing, 84.5–85.5 (84.8); culmen, 15–15.5 (15.2) mm.

Orthotomus sepium concinnus, subsp. nov.

Type.—Adult male, U. S. National Museum, No. 279,856, Sipora Island, Mentawi Islands, October 15, 1924; collected by C. B. Kloss.

Similar to *Orthotomus sepium ochrommatus* of the Pagi Islands, but of a lighter, purer gray above and below; the head, cheeks, and chin, orange-cinnamon, instead of mikado brown. Wing, 48; tail, 42; culmen, 14 mm.

Remarks.—*Orthotomus sepium baeus* of Nias Island is darker and nearer *cineraceus* than the Pagi Island form. Apparently there is no difference worthy of recognition between Sipora and Siberut birds. Eight males from Sipora measure: wing, 43.5–50 (47.2); culmen, 14.5–15.5 (14.9) mm.

Three males from Siberut show the following dimensions: wing, 46–51 (48.7); culmen, 15–15.5 (15.2) mm. Five females from Sipora are: wing, 44–47.5 (45.9); culmen, 14–15 (14.4) mm. Three females from Siberut are: wing, 43–46.5 (45); culmen, 14.5–15 (14.8) mm.

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TWO PREOCCUPIED GENERIC NAMES FOR BIRDS.[1]

BY CHARLES W. RICHMOND.

In hastily glancing over some recent papers on neotropical birds by M. Jean Stolzmann, of Warsaw, I noticed he had proposed two new generic names, both of them unfortunately preoccupied, and wrote him at once suggesting that he provide substitute terms for them. M. Stolzmann has now replied, asking me to make the changes, which I do herewith.

Phrenotriccus Stolzmann, MS, new name.

This is to replace *Taczanowskia* Stolzmann (Annales Zoologici Musei Polonici Historiae Naturalis, V, Fasc. 3, Nov. 1, 1926, p. 167), preoccupied by *Taczanowskia* Keyserling, 1879, for a genus of arachnida. *Phrenotriccus* is a member of the Tyrannidae, allied to *Serpophaga* Gould. Its type is *Sylvia nigricans* Vieillot, and the genus also includes, according to M. Stolzmann, *Phrenotriccus cinerea cinerea* (Strickland), *P. c. cana* (Bangs), *P. pallida* (Snethlage), and *P. inornata* (Salvadori).

Neohellmayria Stolzmann, MS, new name.

Neohellmayria is proposed to replace *Hellmayrea* Stolzmann (Annales Zoologici Musei Polonici Historiae Naturalis, V, Fasc. 4, Dec. 31, 1926, p. 219), antedated by *Hellmayria* Poche, 1904, for a genus of Corvidae. *Neohellmayria* is a genus of Dendrocolaptidae, allied to *Synallaxis* Vieillot, and has for its type and only species *Synallaxis gularis* Lafresnaye.

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PROCEEDINGS
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DESCRIPTIONS OF NEW GENERA AND SPECIES BELONGING TO THE COCCID FAMILY MARGARODIDAE.

BY HAROLD MORRISON.

The very brief characterizations offered below are presented now in order to make the units established conveniently available for detailed discussion in an extended paper on the classification of these coccids. There is every reason to believe that this paper, which has been completed, will appear within a reasonable time.

Since Professor G. F. Ferris has recently undertaken to elevate the old family Coccidae to a superfamily through the establishment within it of several families based on old subfamilies or on anomalous groups or genera, it is necessary, in order to maintain a proper balance in the new and more nearly adequate coccid classification that is very gradually developing, to erect another new family for the insects here considered, although very much better knowledge of both the coccids and related Homoptera must be acquired before such family units can be certainly accepted as satisfactory zoological units.

Family **Margarodidae**, new family.

This new family is created for the reception of the subfamilies and genera included in the subfamilies Monophlebinae and Margarodinae of the Fernald Catalogue of the Coccidae, 1903, plus the genera newly described since that date as belonging in these two subfamilies, plus those that have been shown to be properly assignable to one of the two, plus certain new groups and genera characterized below. The name is based on the genus *Margarodes*, the earliest genus erected within its limits. From our present knowledge, it is separated from all other coccids, excepting only that group of genera and species currently known as the subfamily Orthezinae, through the normal possession of abdominal spiracles in various numbers according to the genus, presumably in all stages, although their

presence has not yet been demonstrated for every stage of every species, and through the presence in the adult male stage, with very few exceptions, of well developed compound eyes.

Family **Ortheziidae,** new family.

The characters that separate the insects heretofore associated in the subfamily Ortheziinae from the Margarodidae appear to be of sufficient importance to justify the erection of a family for this compact and relatively homogeneous group of genera. This family agrees with the Margarodidae in the possession of abdominal spiracles, although their presence has not yet been demonstrated for a few species, and in the presence of very well developed compound eyes in the adult male. It differs strikingly in the possession, in all the female and in the early male stages, of a well developed flat anal ring, bearing setae, of the general type found in *Pseudococcus* and many other genera. This structure is not even approximated in the Margarodidae. In addition, the antennae of the adult male are normally 9-segmented and bear a stiff seta or spine at the tip of the apical segment; in the Margarodidae the adult male antennae are usually 10-segmented, although there are some described variations in this and there is no single stiff apical seta. In addition, the penis sheath of the Ortheziidae appears distinctly bivalved while it appears entire with species of Margarodidae.

As a result of the studies from which the present notes have been abstracted it has been considered necessary to introduce a very complete rearrangement of the genera examined, accompanied by the erection of various new subfamilies, tribes and genera. A summary review of these follows:

Subfamily **Xylococcinae** Pergande.

The subfamily Xylococcinae as here used includes only four genera. These have been arranged in three tribes as follows:

Tribe **Stigmacoccini,** new tribe.

This includes only the genus *Stigmacoccus* Hempel with its single species *S. asper* Hempel. The characters of the genus may, for the present, stand for the tribe as well.

Tribe **Xylococcini** Cockerell.

Included here are two genera, one *Xylococcus* Löw, the other previously undescribed. Through the kindness of Dr. F. Maidl of the Natural History Museum of Vienna, Austria, some of Löw's material of his *Xylococcus filiferus* has been examined. From this it appears that Löw was, in general, correct in his characterization of the condition of the adult female, which actually has very greatly reduced antennae and legs and remains enclosed in the cavity already produced by the earlier stages and within the cast preadult skin. A new genus is therefore required for the North American species previously placed in *Xylococcus.*

Genus **Xylococculus,** new genus.

Genotype.—Xylococcus betulae Pergande.

This genus differs most obviously from *Xylococcus* through the retention of well developed legs and antennae in the adult female. See Pergande's extended article (U. S. D. A. Div. Ent. Bull. 18, 1898, p. 26, et seq.) for an elaborate description of the genotype.

Tribe **Matsucoccini,** new tribe.

Here is placed only the single genus *Matsucoccus* whose genotype is *M. matsumurae* Kuwana. For the present the characters of the genus, as described by several writers, will serve for the tribe.

Subfamily **Steingeliinae,** new subfamily.

This subfamily is now based on a single tribe, Steingeliini, new tribe, which in turn is based on two genera, *Steingelia* Nassanow and *Stomacoccus* Ferris. The broader characters of the genus *Steingelia* as described by Nassanow will serve temporarily to indicate the nature of this subfamily and tribe.

Subfamily **Margarodinae** Cockerell.

The subfamily Margarodinae is here restricted to five genera which have been grouped in three tribes. All of these have been established previously. The first is Kuwaniini Handlirsch, including the genus *Kuwania* Cockerell and the following new genus:

Genus **Neosteingelia,** new genus.

A genus of margarodine coccids related to *Kuwania* Cockerell, but with the adult female lacking the capitate setae at the apex of the tibia of that genus and with six well developed and two poorly developed pairs of abdominal spiracles instead of the four (or sometimes six) pairs of *Kuwania*. Ventral cicatrices are present in the preadult female and first larval stages, while these are lacking in *Kuwania*.

Genotype.—Neosteingelia texana, new species.

The generic characters given briefly above will serve temporarily to establish this new species, which is based on several specimens of adult female, intermediate female, larval and adult male stages forwarded to the Bureau of Entomology by H. G. H. Weinert collected on bark of Hackberry (*Celtis* sp.) at San Antonio, Texas, in October, 1917 (holotype and paratypes) and on bark of *Hicoria ovata* at Pittsburgh, Pa., likewise forwarded to the Bureau, collected by S. W. Parmenter in October, 1923 (paratypes).

The types are in the U. S. National Collection of Coccidae.

The second tribe placed in this subfamily is the Margarodini of Cockerell, including two genera, *Margarodes* Guilding and *Neomargarodes* Green. A single new species of *Margarodes* is characterized below, as it has been used in part to illustrate the generic characteristics of the genus.

Margarodes meridionalis, new species.

The adult female of this species is closely related to the genotype, *M. formicarum,* differing from it in having the multilocular disk derm pores oval with bilocular center and a single encircling row of loculi. It also seems related to *M. papillosus* Green but differs in lacking any cluster of spines along the body margin anterior to the first abdominal spiracles.

This species is based on a few specimens of adult and preadult females from Southern United States collected as follows: On ground at Fort Myers, Fla., collected by Geo. M. Lummis, Jan. 1918 (holotype and paratypes) and from Chula, Georgia, forwarded by A. C. Lewis, May, 1918 (paratypes).

The types are in the U. S. National Collection of Coccidae.

The third tribe placed here is Callipappini Handlirsch which includes only one genus *Callipappus* Guerin-Meneville.

Subfamily **Coelostomidiinae,** new subfamily.

This subfamily is erected for the reception of genera that have been assigned previously to both Monophlebinae and Margarodinae. Seven genera distributed in three tribes are included. The assignment of the first two tribes and genera is tentative as their various stages are only incompletely known.

Tribe **Platycoelostomini,** new tribe.

Established to include one genus, *Platycoelostoma* Morrison, this tribe may be recognized from the generic characters described when the genus was published as new.

Tribe **Marchalinini,** new tribe.

This tribe is erected for the single genus *Marchalina* Vayssiere. The tribal characters may be derived temporarily from Vayssiere's discussions of this genus.

Tribe **Coelostomidiini,** new tribe.

In this tribe are included five genera, *Coelostomidia* Cockerell (*Coelostoma* of Maskell), *Ultracoelostoma* Cockerell, *Cryptokermes* Hempel, *Mimosicerya* Cockerell (*Clypeacoccus* of Newstead) and another, undescribed genus. To facilitate the later detailed discussion of this tribe and its components, first the new genus and then a new species are very briefly characterized.

Genus **Paracoelostoma,** new genus.

A genus related to the New Zealand *Coelostomidia* and *Ultracoelostoma* and the Neotropical *Cryptokermes* and *Mimosicerya.* The adult female has the posterior apex, around anal opening, somewhat chitinized, antennae short conical, with broadly rounded apices; openings of abdominal spiracles nearly as large as those of thoracic, claw digitules acute, not attaining

apex of claw and derm bearing spines. The preadult female has antennae and legs reduced to short conical protuberances, body enclosed within a stout test, and anal tube short, with band of wax pores at inner end, but without a band or circle of multilocular disk pores in the wall of the tube near the wax pores. The larva has the posterior apex of the body strongly chitinized as does *Ultracoelostoma,* but is conspicuously differentiated from all closely related genera in that the ventral cicatrices are arranged in two longitudinal rows of several each, rather than in a single transverse row of three.

Genotype.—Paracoelostoma peruviana, new species.

For the present the generic characters given above will give a sufficient basis for the recognition of this species. It is based on several specimens of different female stages from two lots of material, one lot (holotype and paratypes) from Despo Blado near Samán, Piura, Peru, collected by E. W. Rust, Apr. 24, 1912, the other (paratypes) from the same locality (Samán), collected by C. H. T. Townsend, May 21, 1910 (#228).

The types are in the U. S. National Collection of Coccidae.

Cryptokermes mexicanus, new species.

References.—Cryptokermes brasiliensis Hempel, Cockerell, Ann. Mag. Nat. Hist. (7) vol. 10, 1902, p. 469; Ferris, Can. Ent. vol. 50, 1918, p. 221.

This species is very similar to *brasiliensis,* but differs in the adult female stage in that the legs are represented merely by a cluster of setae and a wrinkling and thickening of the derm; the intermediate female differs in that it possesses relatively numerous stout spines, quite distinctly 6-segmented antennae, and much more fully developed legs; the larva differs in having the curious disks over the body flattened, or at most only slightly convex.

This species is based on several specimens of the various female stages from larva to adult obtained at Zapotlan, Jalisco, Mexico, on *Mimosa* sp., 1903, collected by C. H. T. Townsend (T. & B. Cy. #22) (holotype and paratypes) and from Cuautla, Morelos, Mexico, on *Mimosa* sp., July, 1897, collected by A. Koebele (#1609—Div. Ent. #7894—and #1672—Div. Ent. #7918) (paratypes).

The types are in the U. S. National Collection of Coccidae.

Subfamily **Monophlebinae** Maskell.

Except for the three genera removed to the subfamily Coelostomidinae this subfamily as here recognized includes all of the genera currently assigned to it. These are grouped into five tribes and several new genera are described.

Tribe **Monophlebini** Cockerell.

This tribe, originally including only the genus *Monophlebus,* has been expanded to accommodate several additional genera.

Genus **Monophleboides,** new genus.

The adult female of the genus is characterized by lack of cylindrical or other stout derm spines, although these are numerous in the preadult, by lack of any marsupium or other specialized reproductive structure, by the absence of large tubular bilocular pores along body margin, by the presence of a single ventral cicatrix, and by lack of disk pores within atrium of abdominal spiracles. The larva lacks large marginal bilocular tubular pores, has only a single apical pair of elongated marginal setae, a single ventral cicatrix and short and stout antennae with second and third segments nearly equal in length.

The genotype is *Monophlebus gymnocarpi* Hall.

Genus **Monophlebidus,** new genus.

This new genus is characterized by having in the adult female stage seven pairs of abdominal spiracles each of which possesses a conspicuous collar of disk pores within atrium and very numerous small circular ventral cicatrices grouped into clusters, these forming two broad longitudinal bands one on each side of body ventrally. In addition, there is no evidence that a marsupium, ovisac or other specialized arrangement for caring for the eggs is developed. The adult male has antennae with cylindrical segments, having no traces of nodes or of distinct whorls of setae, a slender penis sheath and a single pair of very elongate apical fleshy tassels.

Genotype.—Monophlebidus indicus, new species.

This species is sufficiently characterized for the present in the statements given under the genus.

It is based on specimens collected by Mr. S. Mahdihassan on *Shorea talura* (Dipterocarpaceae) at Bangalore, India.

The holotype female is in the U. S. National Collection of Coccidae. Paratypes, including a paratype adult male, are in the collection of Mr. E. E. Green. The specific name *indicus* is taken from a manuscript one originally assigned to this insect by Mr. Green.

Genus **Pseudaspidoproctus,** new genus.

This genus may be characterized as follows: Adult female with the abdominal spiracles simple, that is without disk pores within atrium, ventral cicatrices three, elongate, grouped close together, no elongate tubular bilocular pores at body margin, derm with cylindrical spines, and with a ventral marsupium having a U- or V-shaped opening; larva without marginal elongate tubular bilocular pores, with elongate lateral marginal setae in addition to the apical pair, and antennae with the third segment much elongated, nearly twice length of second.

The genotype is *Aspidoproctus hypheniacus* Hall described from Egypt.

Genus **Hemaspidoproctus,** new genus.

This genus is characterized by having the adult female with the abdominal spiracles small and inconspicuous, without pores within atrium,

with not over about seven ventral cicatrices arranged in a transverse row, with the ventral surface of the abdomen with a complete band of pores around the margin similar to the ovisac band of *Icerya*, this band forming a pad of secretion over the enclosed area, and the enclosed derm invaginating towards the dorsal surface forming a half-marsupium. The larva has large marginal bilocular tubular pores, elongate marginal setae in addition to the apical pair, a single median ventral cicatrix, the dorsal spines in longitudinal bands, not split up into separate clusters and only a few (4–6) multilocular disk pores within anal tube.

The genus is based on two species from Ceylon and India. The genotype is *Walkeriana cinerea* Green. The other included species is *W. euphorbiae* Green.

Tribe **Drosichini,** new tribe.

This tribe is based on the genus *Drosicha* Walker, together with two new genera described below. Members of the tribe may be recognized by this combination of characters: Adult female without spines on the derm, antennae not more than 9-segmented, thoracic spiracles without a band or cluster of disk pores at opening, with seven pairs of abdominal spiracles, with three large oval ventral cicatrices placed close together; hairs on body mostly very abundant and closely crowded; larva with 5-segmented antennae and no spines but many hairs over body; adult male with the antennal segments beyond the second trinodose, with each bearing three whorls of setae, abdomen with at least two and sometimes with as many as five pairs of fleshy tassels developed; basal diagonal vein elongate, somewhat curved, tip approaching closely to wing margin, costal margin of wing blackish and apical antennal segment about as long as preapical, or costal margin bright red, but apical antennal segment perhaps twice length of preapical.

Genus **Drosichiella,** new genus.

This genus is established for the reception of two described species, *Monophlebus tamarindus* Green, and *M. phyllanthi* Green. A third species is described below. The members of the genus are rather closely related to *Drosicha* Walker, differing in the adult female stage, the only one known definitely, in the possession of a conspicuous collar of multilocular disk pores, within the atrium of each abdominal spiracle and in the rather pronounced tendency towards the chitinization of the derm at maturity. The species *Monophlebus tamarindus* Green is designated as the genotype.

Drosichiella tectonae, new species.

Adult female.—Character of external secretion not known, body elliptical, length around 15 mm., width a little less than two-thirds of length; derm at maturity relatively heavily chitinized, dark yellow brown in color, with innumerable small areolations around the seta and hair bases and the pores; antennae normally 8-segmented, similar to the antennae of related species; legs also similar; abdominal spiracles with the collar of disk pores within atrium averaging around 25 to 30 in number; derm disk pores mostly

quadrilocular; body hairs of moderate length, mid-dorsal averaging around 36μ in length, mid-ventral around 55μ, the ratio between the two 1 to 1.6; other structures very similar to those found in known congeneric species.

The species has been described from three mounted specimens. The holotype was collected on *Tectona* sp. (teak) at Berar, India, by E. P. Stebbing and was received from Mr. E. E. Green in April, 1926. One paratype was also received from Mr. Green at the same time, and was labeled as having been found "on ground" in the Ganjam District, Madras, India, collected by J. Burkill. The other paratype is an early adult from the Maskell collection where it had been placed as *Monophlebus* (*Drosicha*) *contrahens* Walker under collection number 94. This insect was erroneously referred by the writer to the species *tamarindus* Green (See Proc. U. S. N. M., vol. 62, art. 17, 1923, p. 1).

The types are in the U. S. National Collection of Coccidae.

This is almost certainly the *Monophlebus tectonae* of Stebbing which was published without description in 1902.

Genus **Drosichoides,** new genus.

This new genus is established for certain male monophlebine coccids described from Celebes and Palawan. No other stages are known. These males are very similar to those of the genus *Drosicha*, differing in having a stout, only gradually tapering penis sheath that is not evidently constricted at any point, a conspicuously elongate terminal antennal segment that is fully twice the length of the preapical, and a bright red costal wing margin.

The genotype is *Llaveia haematoptera* Cockerell. *L. sanguinea* Cockerell is also included.

Tribe **Monophlebulini,** new tribe.

This tribe is established here for the reception of two Australian genera, *Monophlebulus* Cockerell and *Nodulicoccus* Morrison. It may be recognized through the possession of the following characteristics: Adult female with spines on derm, with seven distinct pairs of abdominal spiracles, each normally with a conspicuous row or band of disk pores within atrium, antennae normally 7- to 9-segmented, beak short conical, obscurely 2-segmented, without suggestion of a marsupium or a band of disk pores on underside of abdomen; larva with 5-segmented antennae, body with spines numerous and conspicuous, large marginal tubular pores, when present, trilocular instead of bilocular, no median ventral cicatrix (uncertain in one genus); adult male with antennal segments beyond second each binodose and bearing two whorls of long setae, with apex of abdomen with more than a single pair of fleshy tassels, and abdomen with seven pairs of spiracles although these are sometimes difficult to locate.

Tribe **Llaveiini,** new tribe.

This tribe is erected for the reception of the Mexican and Central American species that have been assigned at various times to *Llaveia* and *Pro-*

tortonia. Species belonging here may be recognized by the following set of characters: Adult female with derm without, or, in a few species, with spines, abdominal spiracles in seven pairs, without disk pores within atrium of each, antennae normally 9-segmented and anal tube without polygonal wax pores at inner end, or antennae normally 11-segmented, thoracic spiracles with cluster of disk pores at opening and abdomen with three or with as many as 30 ventral cicatrices; larva with normally 6-segmented antennae, seven pairs of abdominal spiracles and dorsal longitudinal rows of spines; adult male with antennal segments beyond third trinodose and each with three whorls of setae, abdomen with more than a single pair of marginal fleshy tassels developed, basal diagonal vein short, at most fading out without approaching the wing margin very closely, not curved towards end, costal margin of wing bright red, and apical antennal segment about as long as preapical.

Llaveia oaxacoensis, new species.

Adult female.—At maturity surrounded by a fairly dense mass of flocculent white waxy secretion, this extended posteriorly to enclose the eggs, this mass not so definitely shaped as to be precisely comparable to the ovisacs of such forms as species of *Icerya;* body of female after oviposition remaining shriveled at the anterior end of the cottony mass; body color of denuded dried female dull red, often irregularly blotched and mottled with darker color; body as mounted almost uniformly elliptical in shape; length range 7-11 mm., width range 4.5-7 mm.; derm membranous to faintly chitinized at maturity; antennae 11-segmented, apparently closely resembling these organs in the other species of the genus, the basal segments stout, much wider than long, the intermediate tapering gradually to the relatively long and slender apical; legs large and stout, the setae along the lower face of femur, tibia and tarsus in each very stout, spine like; beak stout conical, rather distinctly 2-segmented, apex with 12–14 blunt-tipped sensory setae; thoracic and abdominal spiracles as in the other members of the genus, the thoracic much larger and with a loose cluster of around 15–30 disk pores near the opening of each; derm pores abundant as in the other species, of one general type, large disk, with numerous loculi and centers varying, circular, oval, elongate, triangular or quadrilocular; derm setae rather few, as in other species, those in mid-dorsal and mid-ventral areas small, some along margin much larger; body hairs also small, more numerous than setae and somewhat more numerous than the pores, mostly slender, but many, along the margin and to some extent dorsally, much stouter and distinctly spinelike, in this respect differing from the condition in the other species included in the genus.

Larva.—Not available.

Adult male.—Length as mounted on slide about 5 mm., excluding abdominal tassels, antennae the same, total maximum expanse across extended wings 11 mm.; dorsum of head, prothorax, costal border of wing, and abdomen of dried specimens a rather bright brick red; eyes dark reddish-brown, antennae, thorax, legs and remainder of wings blackish to

black; diagonal vein short, extending hardly more than half way to the wing margin; with three pairs of lateral and apical fleshy abdominal tassels.

This species has been described from a series of specimens including holotype adult female and paratype adult females and males and preadults collected by Mr. E. G. Smyth on *Acacia* species at Oaxaco, Mexico, September 22, 1923, while he was engaged in a search through Mexico for parasitic enemies of the Mexican Bean Beetle for the Bureau of Entomology.

The types are in the U. S. National Collection of Coccidae.

Genus **Llaveiella**, new genus.

This genus is here established for the reception of the coccids which Professor Cockerell considered as representing true *Llaveia axin* (Llave). (See Cockerell, Can. Ent. vol. 29, 1897, p. 271; Proc. Acad. Nat. Sci. Phil. for 1899, p. 259, and elsewhere). The writer is unable to accept his conclusion in this, hence the erection of a new genus. It may be separated from its immediate relatives by the following characteristics: Adult female with 9-segmented antennae, about 15 ventral cicatrices, spines retained on body, and hairs and spines together distinctly more abundant than disk pores; larva with both lateral and apical marginal setae elongate and conspicuous, anal opening with a circle of disk pores, and abdomen with a single median circular ventral cicatrix.

The genotype is the species referred to by Professor Cockerell as *Llaveia axin* (Llave) which reference is regarded here as a misidentification, in consequence of which a new specific name *taenechina* is applied to these specimens. No other species is known to belong with this. The generic characters given above together with Professor Cockerell's various descriptive notes on the species characterize it adequately.

The holotype adult female and paratype adult females and larvae are in the U. S. National Collection of Coccidae.

The insect was collected at Salina Cruz, Mexico, May 29, 1896, by Dr. C. H. T. Townsend (Div. Ent. No. 7191).

Tribe **Iceryini** Cockerell.

No new genera are characterized in this tribe, but brief descriptions are given below for two new species belonging in genera assigned here.

Icerya similis, new species.

This insect is very closely related to *I. montserratensis* R. and H. and *I. zeteki* Cockerell, differing only, so far as studied, in the apparently constant possession of five ventral cicatrices, in contrast to the three of *montserratensis* and the seven of *zeteki*.

The species is based on specimens collected by Dr. John R. Johnston on coconut leaves (*Cocos nucifera*) (Palmae) from Cocoplum, near Bocas del Toro, Panama, received Feb. 1922 (holotype and paratype); on speci-

mens from Scarborough, Tobago Island, on unknown fruit tree, collected Nov. 7, 1918, by the writer (A–922) (paratypes); on specimens from Port-of-Spain, Trinidad Island, collected by the writer from *Cassia fistula* (Leguminosae) on Nov. 4, 1918 (A–881) and Nov. 23 (A–1044) (paratypes); and from specimens from Port-of-Spain, Trinidad Island, on *Clusia alba* (Guttiferae), collector and date of collection unknown (paratypes).

The types are in the U. S. National Collection of Coccidae.

Steatococcus samaraius, new species.

This species is closely related to *Steatococcus australis* (Maskell), the adult female agreeing with it in possessing large "open center" pores producing glassy threads, but differing in that these do not occur in the mid-dorsal area as in *australis,* and in that the marsupial opening, while not chitinized anteriorly, is supplied here with a narrow band of disk pores.

The species is based on specimens obtained by Mr. Geo. Compere at Samarai, New Guinea, on unstated host (holotype and paratypes).

The types are in the U. S. National Collection of Coccidae.

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PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

A POLLACK WHALE ON THE COAST OF VIRGINIA.[1]

BY GERRIT S. MILLER, JR.

Seven years ago the United States National Museum obtained the first recorded complete skeleton of *Balænoptera borealis* from North American waters.[2] The animal, an old male about 45 feet in length, was stranded at Pablo Beach, Duval County, Florida. Four years later a second North American specimen, likewise an entire skeleton, was added to the national collection (No. 239,307). This individual came ashore at Walnut Point, Northumberland County, Virginia, in March, 1923. The skeleton was roughed out, buried in clean sand beyond danger from wave action, and left until September, 1924, when it was uncovered and brought to Washington. It is a male, length 26 feet 4 inches, so young that the skull has been successfully disarticulated to show the details of the cranial telescoping. Of its identification there can be no doubt; the characters of the baleen and earbones perfectly agree with those of the adult male from Florida. On both sides of the body the head of the first rib is bifid. As in the case of the adult it was not possible to obtain good photographs or detailed measurements of the animal's exterior. Some measurements of the skeleton compared with those of the adult male (in parenthesis) are as follows:

MEASUREMENTS.

(In millimeters unless otherwise indicated.)

Length of skull (straight), 1 m. 720 mm. (3 m. 480 mm.).
Greatest breadth (squamosal), 890 (1 m. 600 mm.).

[1] Published here by permission of the Acting Secretary of the Smithsonian Institution.

[2] See Miller, A Pollack Whale from Florida, presented to the National Museum by the Miami Aquarium Association. Proc. U. S. Nat. Mus., vol. 66, pp. 1–15, pls. 1–22, December 11, 1924.

Length of maxillary along upper surface, 1 m. 260 mm.; tip not perfect, (2 m. 550 mm.).
Length of intermaxillary along upper surface, 1 m. 300 mm. (2 m. 690 mm.).
Breadth of beak at middle (curved) 460 (670).
Length of nasal (median), 138 (260).
Length of lacrimal, 163 (265).
Greatest width of lacrimal, 63 (113).
Length of jugal (greatest in straight line), 217 (325).
Largest baleen plates, 270 (640).
Greatest diameter of auditory bulla, 109 (223).
Distance from stapes to tip of posterior petrous process, 180 (360).
Length of mandible (straight), 1 m. 748 mm. (3 m. 290 mm.).
Length of mandible (curved), 1 m. 830 mm. (3 m. 415 mm.).
Atlas, breadth, 365 (—); depth, 225 (—).
Axis, greatest breadth, 368 (680).
Axis, depth, 115 (155).
Third cervical, greatest breadth, 360 (—).
Third cervical, height from lower border of centrum, 212 (—).
Fourth cervical, greatest breadth, 360 (668).
Fourth cervical, height from lower border of centrum, 210 (320).
Fifth cervical, greatest breadth, 347 (608).
Fifth cervical, height from lower border of centrum, 210 (295).
Sixth cervical, greatest breadth, 340 (570).
Sixth cervical, height from lower border of centrum, 225 (365).
Seventh cervical, greatest breadth, 327 (572).
Seventh cervical, height from lower border of centrum, 233 (420).
First dorsal, greatest breadth, 313 (630).
First dorsal, height from lower border of centrum, 242 (430).
First dorsal, centrum: Width, 155 (215); depth, 116 (160); length, 40 (75).
Seventh dorsal, greatest breadth, 476 (770).
Seventh dorsal, centrum: Width, 143 (215); depth, 107 (155); length, 96 (175).
First lumbar, greatest breadth, 497 (915±).
First lumbar, centrum: Width, 178 (325); depth, 118 (175); length, 120 (210).
First caudal, greatest breadth, 387 (640).
First caudal, centrum: Width, 193 (265); depth, 155 (220); length, 145 (260).
Scapula, greatest breadth, 510 (1 m. 50 mm.).
Scapula, greatest depth, 320 (590).
Humerus, length, 225 (350).
Radius, length, 372 (710).
Ulna, length (outer side), 355 (700).
First rib, length (greatest in straight line), 472 (925).
Seventh rib, length (greatest in straight line), 896 (1 m. 640 mm.).
Stylohyal, length (greatest in straight line), 220 (445).
Basihyal, length, 130 (265).
Basihyal, width (greatest in straight line), 367 (750).

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PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

A NEW PEDETES FROM TANGANYIKA TERRITORY.[1]

BY GERRIT S. MILLER, JR.

Among some specimens of mammals collected by Mr. Loveridge while a member of the Smithsonian-Chrysler African Expedition are an adult and young *Pedetes* which appear to represent a hitherto undescribed form. This race of *P. cafer* may be known as

Pedetes cafer dentatus, subsp. nov.

Type.—Adult male (skin and skull) No. 251879, U. S. National Museum. Collected near Dodoma, Tanganyika Territory, Africa, July 8, 1926, by Arthur Loveridge.

Characters.—Externally similar to *Pedetes cafer cafer* as described by Wroughton (Ann. and Mag. Nat. Hist., ser. 7, vol. 20, p. 32, July, 1907) and as represented by specimens from Malmani Oog, Transvaal, but underparts less tinged with buff; dorsum of hind foot mostly whitish and soles dark sepia in conspicuous contrast; skull of maximum size and with auditory bullae more inflated than in true *P. cafer;* incisors very broad.

Measurements.—Head and body 440; tail 450; hind foot (with claws) 160; (from fresh specimens by collector); ear from meatus in dried skin about 60. Skull: median upper length 88 (87.6, 87.0[2]) condylobasal length 77.0 (75.6, 73.6); palatal length (median) 41.2 (41.0, 39.0); length of nasals (median) 31.6 (32.8, 32.4); zygomatic breadth 57.0 (—, 56.0); least interorbital breadth 38.0 (36.8, 36.0); greatest breadth across mastoid bullae, 45.6 (44.0, 45.2); post-incisive constriction 17.0 (14.4, 15.0); combined breadth of nasals anteriorly 15.0 (14.2, 14.0); combined breadth of nasals posteriorly 22.8 (20.6, 22.0); alveolar-frontal depth, 36.2 (35.0, 35.0); mandible 56.0 (55.6, 55.2); maxillary toothrow (alveoli) 19.0 (19.0, 18.8); mandibular toothrow (alveoli) 21.4 (20.0, 19.0); combined breadth of maxillary incisors along cutting edge 10.6 (8.0, 8.6); combined breadth of mandibular incisors along cutting edge 9.4 (7.8, 8.0).

Specimens examined.—Two, the type from Dodoma, and an immature female from Mukwese, Manyoni.

[1] Published here by permission of the Acting Secretary of the Smithsonian Institution.

[2] Measurements in parenthesis are those of two specimens from Malmani Oog, Transvaal, adult male, No. 221386, and adult female, No. 221381, both collected by H. C. Raven in 1919.

Remarks.—That this animal is a form of *Pedetes cafer* and not a near relative of *P. surdaster* is shown by the high development of the two characters which appear to distinguish the northern and southern members of the genus specifically; that is, by the strong contrast between the anterior and posterior breadths of the nasals and by the backward inflation of the mastoid bullae to a level obviously behind that of the external occipital crest. In its more nearly parallel-sided nasals and slightly backward-inflated bullae the adult of *Pedetes surdaster* retains features which in *P. cafer* are characteristics of immaturity.

I have not seen specimens of the two races (*salinæ* and *orangiæ*) of *Pedetes cafer* described by Wroughton in 1907. In both of these, however, the tail is explicitly said to have the ventral area white, and not merely lighter brown than the upper surface. There is no white on the tail in the specimens from Transvaal collected by Raven, nor in either of the skins from Tanganyika. Wroughton furthermore makes no mention of a conspicuous pattern of hind foot coloration such as that which is present in the Tanganyika race, or of any special enlargement of the incisor teeth.

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PROCEEDINGS
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A NEW KANGAROO MOUSE FROM CALIFORNIA.

BY E. A. GOLDMAN.

In connection with a revision of the genus *Microdipodops* Mr. Donald R. Dickey has generously placed at my disposition his collection of specimens of these little known rodents. The new subspecies described below is named for Mr. Dickey in recognition of his important work on mammals.

Microdipodops megacephalus dickeyi, subsp. nov.

DICKEY'S KANGAROO MOUSE.

Type.—From 3 miles southeast of Oasis, Mono County, California (altitude about 5,150 feet). No. K1036, ♀ adult, collection of Donald R. Dickey, collected by Laurence M. Huey, August 19, 1922.

General characters.—A large, very pale form, most closely allied to *M. pallidus*, but still paler, with narrower mastoids and smaller teeth. Size and color about as in *M. m. lucidus*, but skull quite different.

Color.—Type: Face, top and sides of head and general dorsal area very light buff, finely and inconspicuously lined with black; under parts, lower part of flanks, forelimbs and hind feet pure white; postauricular white spots present as usual in the group; tail pale buffy above, white below.

Skull.—Very similar to that of *M. pallidus;* mastoids about as large as in *pallidus*, but narrower, less expanded laterally near auditory meatus, fully inflated posteriorly, the outer sides more nearly parallel, giving them a rather squarish appearance; teeth (incisors and molars) smaller; supraoccipital and interparietal narrowly compressed as in *pallidus.* Compared with the skull of *M. m. lucidus*, the mastoids and audital bullae are smaller, less inflated, the nasals are longer, and the teeth decidedly larger.

Measurements.—Type: Total length, 170; tail vertebrae, 95; hind foot 25. *Skull* (type): Length (median line), 27.2; greatest width (between outer sides of audital bullae), 19.3; zygomatic breadth (immediately in front of audital bullae), 11.6; length of nasals, 10; interorbital breadth, 11.7; maxillary toothrow (alveolar length), 3.2; width of upper incisors (cutting edge), 1.3.

Remarks.—The kangaroo mouse here described is limited in known distribution to the basin-like valleys lying between the White Mountains in

California on the west and the Silver Peak Mountains in Nevada on the east. It is surprisingly unlike its near geographic neighbors *M. polionotus* and *M. m. lucidus* which inhabit valleys somewhat isolated by mountain ranges to the westward and eastward respectively. No other kangaroo mouse is known to range quite so far south.

Specimens examined.—Total number, 54, as follows:

California: Deep Spring Valley (middle), Inyo County, 7; Oasis (type locality), Mono County, 36.

Nevada: Dyer, 9; Palmetto Wash (mouth), Esmeralda County, 2.

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PROCEEDINGS

OF THE

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A FEW NOTES ON PLANT NAMES.

BY WILLIAM A. DAYTON.

-ISMA *Names Are Neuter.*

The recent transfer, incorrectly spelled, of a considerable number of names to the genus *Syntherisma* calls attention to the fact that this genus, though neuter, is treated by most writers as if feminine. The same is true of other genera ending in *-isma*, and *-sma* generally; in fact, Greek nouns ending in *-μα* are regularly neuter. A few illustrations, taken at random, will suffice,—all being neuter and taking the definite article τό: ἄλισμα, a water plant; ἀνάγκασμα, compulsion; ἄνθισμα, a multicolored dress; κιθάρισμα, music for the cithara; λάκρισμα, something torn; μέλισμα, melody; σφράγισμα, a seal; ψιθύρισμα, a whisper. In this category belong such generic names as *Aphanisma*, *Chylisma*, *Pholisma*, *Syntherisma*, and *Xolisma*, all of which are neuter; hence, for example, we should say *Syntherisma sanguinale* and *Xolisma ferrugineum* rather than the customary *S. sanguinalis* and *X. ferruginea.*

An *apparent* exception to this rule is the *-osma* names, such as *Glycosma*, *Rutosma*, *Synosma*, *Thamnosma*, and *Xanthosma*, which are sometimes treated as neuter but are really feminine,—the original Greek ending being *-ē*, not *-a* (from ἡ ὀσμή, odor); hence, for example, we should use *Thamnosma montana*, not *T. montanum* as it is customarily spelled.

RANUNCULUS ACRIS *L., Sp. Pl. 554. 1753.*
ERIGERON ACRIS *L., Sp. Pl. 653. 1753.*

The original spelling of these specific names is still generally adhered to, although in the third edition of Species Plantarum *Erigeron acris* was changed to *E. acre.* It is sufficiently obvious that these names should be written *Ranunculus acer* L. and *Erigeron acer* L., respectively.

DESMODIUM BATOCAULON *A. Gray, Pl. Wright. 2: 47. 1853.*
MEIBOMIA BATOCAULIS *(A. Gray) Kuntze, Rev. Gen. 1: 197. 1891.*

Meibomia is the accepted generic name under the American Code.

The above species is a highly palatable and valuable forage plant of the woodland-oak types of Arizona and it is desirable that its name be properly spelled. Dr. Gray's specific name was Greek; Dr. Kuntze has made it a hybrid—neither Greek nor Latin. The Latin form, of course, would be *baticaulis*, but an arbitrary change from a Greek to a Latin form is certainly unwarranted. The suffix *-caulon*, to be sure, is not Attic Greek, the word for *stem* (cognate with Latin *caulis*) being ὁ καυλός, though there are related diminutives, καυλεῖον and καυλίον. It is customary to regard these *-caulos, -caulon* specific names as adjectives, the feminine form of which would be *-caule*. Clearly, therefore, the proper spelling of the name of this leguminous plant under the American Code is *Meibomia batocaule* (A. Gray) Kuntze.

Dyssodia *Cav. Descr. Pl. 202. 1802.*

Two things are evident as regards the form of this generic name: (1) that Cavanilles published it as spelled above, and (2) that, until very recently, American botanical writers have almost universally spelled it *Dysodia*. That the etymology is from the Greek δυσωδία, a foul smell, seems sufficiently obvious—more especially in view of Cavanilles' comment (*op. cit.*):" * * * llamada allí vulgarmente *Ruda* por su mal olor." The double s obscures the etymology and is a patent misspelling. Asa Gray was thoroughly justified in deliberately dropping one s from this name in Syn. Fl. 1²: 355. 1888, and it is only a most rigid interpretation of priority that can set his action aside. *Dysodia* is the orthographically correct form of this name.

On Certain Priorities.

The U. S. Department of Agriculture, in rejecting duplicating plant binomials, took a fine forward step towards a reasonable rapprochement between the American and International Codes. By a sort of tacit understanding, moreover, certain other concessions to good taste and propriety have been pretty generally adopted maugre priority pure and simple; examples of this sort are shown in the use of *Washingtonia* for the palm instead of umbellifer genus; in the admissibility of the rather irregularly published *Sequoia washingtoniana* (=S. *gigantea* Dec., *not* Endl.) *vice Sequoia wellingtonia;* in the use of *Toxylon*, instead of *Ioxylon*, for Osage-orange, and so on. The writer feels that the action indicated exhibits and presages a safe and healthy tendency in American botany. He believes the time is ripe for those following the American Code to consider seriously classification and possible adoption of certain groups of desirable conserved names, and (in Bul. Torr. Bot. Club *53:* 157–160. 1926) has proposed one form of departure from pure priority. May I suggest another line of departure from *nomina priora* that might well be considered? That is, that names which are *obviously and completely unscientific* be rejected? Botany is a science; as far as it is a *science*, therefore, it must of necessity hold no brief for what it *knows* to be wholly false and untrue. Under such a ruling *Asclepias syriaca* L. would be rejected in favor of *A. cornuti* Dec., and *Simmondsia chinensis* (Link) Schn. would not be permitted to oust *S. californica* Nutt.

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PROCEEDINGS

OF THE

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NEW NAMES FOR SOME WESTERN MONTANE PLANTS.

BY WILLIAM A. DAYTON.

In the course of study of the range flora of the western National Forests the following new binomials have been found necessary. Mr. Tidestrom has given me permission to include here certain new combinations which should be attributed to him.

Hookera lemmonae (S. Wats.) Tidestrom, comb. nov.

Brodiaea lemmonae S. Wats., Proc. Amer. Acad. *20:* 376. 1885.
Triteleia lemmonae (S. Wats.) Greene, Proc. Calif. Acad. *2:* 141. 1886.

Sedum watsoni (Britton) Tidestrom, comb. nov.

Gormania watsoni Britton, *ex* Britt. & Rose, Bull. N. Y. Bot. Gard. *3:* 29. 1903.
Cotyledon oregonensis S. Wats., Proc. Amer. Acad. Sci. *14:* 292. 1879.
Not *Sedum oreganum* Nutt., *ex* Torr. & Gray, Fl. N. Amer. *1:* 559. 1840.

Prunus crenulata (Greene) Tidestrom, comb. nov.

Cerasus crenulata Greene, Proc. Biol. Soc. Wash. *18:* 56. 1905. (Not to be confused with the Japanese *P. crenata* Koehne.)

This New Mexico-Arizonan ally of *Prunus emarginata* (Dougl.) Walp. and *P. prunifolia* (Greene) Shafer seems to be a sufficiently well-marked species, with glabrous (or nearly so) herbage; narrow leaves evenly crenulate, never emarginate but acute or obtuse, and of a lance—or elliptic—oblong type (never obovate or oblanceolate); and small bright red drupes 8 mm. thick or less.

Lotus nummulus, nom. nov.

Hosackia rigida nummularia M. E. Jones, Proc. Calif. Acad. Sci., 2d ser., *5:* 633. 1895.
Anisolotus nummularius (M. E. Jones) Woot. & Standl., Contr. U. S. Nat. Herb. *16:* 135. 1913.

Lotus nummularius Tidestrom, Contr. U. S. Nat. Herb. *25:* 303. 1925.
Not *Lotus nummularius* Reichenb. *ex* Steud. Nom. Bot. *2:* 74. 1841. 2d ed.

Oxytropis besseyi (Rydb.) Tidestrom, comb. nov.

Aragallus besseyi Rydb., Mem. N. Y. Bot. Gard. *1:* 250. 1900.

Mr. Tidestrom has frequently used the name *Oxytropis besseyi* in identifying Forest Service range plant material but, so far as I can ascertain, the combination has never been published. Dr. C. Dwight Marsh has also used the name in print (see U. S. Dept. Agr. bulletins no. 575 (pub. 1918) and no. 1245 (pub. 1924)) but no synonymy is given and neither the description nor colored figure there given seem to me at all definitive of this particular species; it would seem, therefore, that the combination has not been validly published by Marsh. Dr. Marsh categorically dismisses this species from the rank of locoweeds. All our National Forest material shows bluish or purplish flowers; Dr. Marsh's plate has the flowers of a distinctly reddish hue.

Oxytropis macounii (Greene), comb. nov.

Oxytropis campestris spicata Hook., Fl. Bor. Amer. *1:* 147. 1830.
Aragallus spicatus (Hook.) Rydb., Mem. N. Y. Bot. Gard. *1:* 251. 1900.
? *Oxytropis spicata* (Hook.) Pammel, Man. Pois. Plants *2:* 569. 1911.
Oxytropis spicata (Hook.) Standl., Contr. U. S. Nat. Herb. *22:* 373. 1921.
Not *O. spicata* (Pall.) Olga & Boris Fedtsch., Consp. Fl. Turkestan *2:* 188. 1909, based on *Astragalus spicatus* Pall., Reise durch Verschied. Prov. Russ. Reichs *2:* 742 (app. 118, t. w.) 1776.
Aragallus macounii Greene, Proc. Biol. Soc. Washington *18:* 16. 1905.
Argallus cervinus Greene, Proc. Biol. Soc. Washington *18:* 16. 1905.

Thurberia triloba (DC.) Tidestrom, comb. nov.

Ingenhouzia triloba DC., Prodr. *1:* 474. 1824.
Thurberia thespesioides A. Gray, Mem. Amer. Acad., new ser., *5:* 308. 1855.

It is obvious that DeCandolle's malvaceous genus *Ingenhouzia* (*loc. cit.*) is a homonym, about a dozen genera of that name (or else of but slight variations in spelling) having been proposed. It would be a pity if the celebrated Johannes Ingenhousz (1730–1779), who was, with de Saussure, the founder of the science of plant nutrition and who was the first to demonstrate that carbon, the most abundant constituent of vegetable tissue, originates from the CO_2 of the atmosphere, were deprived of being the eponym of a plant genus. The writer trusts that the oldest of these names, Dennstaedt's *Ingenhoussia* (1818), may yet prove a tenable generic name, although the Index Kewensis refers it to *Vitis;* apparently the only Washington copy of the work where this name was published, "Schlüssel zum Hortus Indicus Malabaricus," owned by the Library of Congress, is, I am informed, lost.

That DeCandolle's *Ingenhouzia* and Gray's *Thurberia* are synonyms seems also to be very clear. In the foreword to his "Calques des dessins de la flore du Mexique, de Moçiño et Sessé," 1874, Alphonse DeCandolle notes: "M. Asa Gray, en parcourant nos dessins, a reconnu dans le genre Ingenhouzia DC. celui qu'il a publié lui-même plus tard, sous le nom de Thurberia," and again, in the index under *Ingenhouzia*, he has this notation: "Ce genre, fondé sur la t. 101 des Icones florae mexicanae, a été reconnu par M. Asa Gray, a Genève, en 1869, pour être son *Thurberia*, et l'espèce pour son *Th. thespesioides*, dont il a donné une excellente figure dans ses Plantae Thurberianae, t. 6. L'identité est si évidente qu'il a paru inutile de calquer le dessin. Le nom générique Ingenhouzia subsiste, étant le plus ancien."

Conanthus xylopodus (Woot. & Standl.) Tidestrom, comb. nov.

Marilaunidium xylopodum Woot. & Standl., Contr. U. S. Nat. Herb. *16:* 162. 1913.

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A RECENT MISUSE OF FAMILY NAMES.

BY E. R. DUNN.

In 1923 Baron G. J. Fejérváry published (Ann. Mus. Hungarici, 20, p. 178) a diagnosis of a new family of frogs. This family, *Ascaphidae*, was based on the single genus *Ascaphus* Stejneger, which he removed by his action from the family *Discoglossidae*. The family was defined and certain skeletal and muscular characters are mentioned.

According to Article 4 of the Code, *Ascaphus* is the type genus of this family, and according to Article 5, the name "is to be changed when the name of the type genus is changed," and by implication not to be changed unless the name of the type genus is changed.

In 1924 Dr. G. K. Noble (Amer. Mus. Novitates No. 132, p. 9), considering *Ascaphus* and *Liopelma* as together forming a family distinct from the *Discoglossidae* uses the name *Liopelmidae* as proposed by himself. He does not mention Fejérváry's previous action, although he was aware of it, as appears by the citation of the latter's paper in the list of references.

This action of Noble's is indefensible. He has not "changed the name of the type genus" and the fact that *Liopelma* is the older of the two genera is irrelevant, as the code nowhere gives the right to pick a new type genus.

Noble says that he follows "present day custom in using the oldest generic name in forming the family name," which is all very well, provided no names have yet been founded on any of the included genera, but this is very different from ignoring a previous name, and thus producing the impression that none had been given. On this basis we may expect soon to see the name *Euryceidae* Noble substituted for *Plethodontidae* Gray 1850 (*Eurycea* Rafinesque 1822; *Plethodon* Tschudi 1838). Other examples might be cited which could be changed on exactly the same principle as that on which Noble has discarded *Ascaphidae*. Yet these names are in general use, and sanctioned by high authority in nomenclatorial affairs.

Noble says further in dealing with a Neotropical group which he considers distinct from the *Leptodactylidae*, "I have erected" the family *Brachycephalidae*. Yet the authority for this family name is not Noble, but Gray, who proposed the name in 1856.

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DESCRIPTION OF A NEW SUBSPECIES OF BEAVER.

BY E. W. NELSON.

The mammal collection of the Biological Survey contains several specimens which appear to represent a previously undescribed subspecies of beaver. So far as known, it is peculiar to the drainage basin of the Humboldt River in Nevada, and probably also that of the neighboring Carson River, although no specimens are available to determine this.

This new geographic subspecies is most nearly related to *Castor canadensis frondator* of the Colorado River drainage, as shown by specimens from northern and eastern Arizona. It is darker than *frondator* and has a slenderer skull. From *C. c. leucodontus* from the Columbia River drainage in eastern Washington and Oregon it differs in its distinctly paler color and slenderer skull. The skull of the new subspecies differs much more from that of *C. c. subauratus*, its nearest neighbor geographically, on the western side of the Sierra Nevada, than from those of the two other subspecies named above. The narrow skull and especially the rostrum of the Humboldt River beaver contrasting strongly with the massive skull and broad heavy rostrum of *subauratus*.

This beaver is named in honor of Mr. Vernon Bailey, of the Biological Survey in recognition of his field and technical studies of the beavers which have added largely to our knowledge of these interesting animals.

All measurements are in millimeters.

Castor canadensis baileyi, subsp. nov.

HUMBOLDT RIVER BEAVER.

Type from the Humboldt River, 4 miles above Winnemucca, Nevada; No. 228006, ♂ adult, U. S. National Museum (Biological Survey collection), collected by J. R. Bunch, October 13, 1917.

General characters.—Color nearest that of *frondator* but a little darker; distinctly paler than *leucodontus;* skull comparatively light and narrow with much narrower and slenderer rostrum than in either *frondator, leucodontus* or *subauratus.*

Color of type in fall pelage.—Upperparts dull rusty chestnut, brightest on crown with a dull yellowish shade on the cheeks; ears dark brown; base of tail all around uniform with adjacent parts of body; tops of hind feet dark chestnut; underparts of body dull drab brown.

Measurements of type.—Total length, 1064; tail, 254 (length of naked part, dry, 241, width, 135); hind foot, 183; ear (dry), 24. *Skull:* Condylobasal length, 133.2; greatest zygomatic breadth, 92.2; breadth of braincase, 42.2; breadth of intercrbital constriction, 22.3; breadth of rostrum at base, 29; length of nasals, 48.7; greatest breadth of nasals, 21.1; alveolar length, upper molar series, 31.2.

Eight specimens examined, all from Nevada. Winnemucca, 5 skins and skulls; Iron Point, 1 skin and skull; Golconda, 1 skull; Deeth, 1 skull.

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TWO NEW BORNEAN SNAKES.

BY THOMAS BARBOUR.

In a collection of reptiles made in Dutch Borneo last year by Dr. Eric Mjoberg I have found two species of *Calamaria* which appear to be undescribed. At first it may seem unwise to add to the complications existing within this genus, but it does seem that most of the many species recently described are valid and in most cases well defined. Whether the species are really very restricted in their range as seems now to be the case or whether some, at least, range widely, only time with much more extensive collecting will tell.

The new forms may be called

Calamaria egregia, sp. nov.

Type M. C. Z. 22648 from Mt. Tibang, alt. 1500 meters, Northern Central Dutch Borneo.

Diagnosis.—Rather similar to *Calamaria brachyura* from Mt. Kina Balu, but having a larger number of subcaudals, a smaller eye, and a different colouration.

Description.—Diameter of eye distinctly less than its distance from the mouth; rostral slightly wider than long, slightly over three times as wide as a supraocular, much shorter than the parietals; one prae and one post ocular; six upper labials, third and fourth entering the eye, fourth much the smallest; first lower labials on each side in contact; both pairs of chinshields in contact. Scales in 13 rows, ventrals 202, subcaudals 16.

Colour.—Slaty grey above with six dark longitudinal lines, the median pair very narrow, the outer pair broad and distinct. Area between lateral and outer or latero-ventral lines whitish, all ventral surfaces immaculate white. There is a white postocular area and an extension of the ventral white up onto the sides a short distance behind the angle of the jaws. Tail dark above with two large white spots above the vent and two near the tip, a row of fine white dots along each side. The white areas are probably all red in life.

Dr. Mjoberg found many species or nearly allied forms occurring on Mt.

Tibang which were formerly supposed to be confined to Mt. Kina Balu. This form belongs to this category although it is not so very similar to its more northern ally, *C. brachyura.*

Calamaria electa, sp. nov.

Type M. C. Z. 22650 from Pasir, Southeastern Dutch Borneo, collected by Dr. Eric Mjoberg in 1926.

A form apparently related to *C. sumatrana* with a slightly smaller eye, some slight differences in squamation and very different colouration.

Description.—Diameter of eye slightly less than its distance from the mouth; rostral very slightly broader than deep; frontal a little longer than broad and a little more than twice as wide as a supraocular; only a little shorter than the parietals; one small narrow prae and one larger postocular; five upper labials, third and fourth entering the eye, the third the smallest; mental and anterior chin shields in contact; posterior chinshields in contact for a short distance anteriorly only. Scales in 13 rows, ventrals 156, subcaudals 17.

Colour.—Dark brown, uniform above; scales of the two outer rows with white spots, ventrals and subcaudals all half yellow anteriorly and half blackish brown. No other markings.

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A NEW BAT FROM COLOMBIA

BY H. HAROLD SHAMEL.

In working over a collection of mammals from Colombia, South America, received from the Instituto de la Salle at Bogota, the following new subspecies of bat was found.

Sturnira lilium bogotensis, subsp. nov.

Type.—Adult female, skin and skull, No. 251989 U. S. National Museum, collected at Bogota (Estacion "La Uribe"), Colombia.

Characters.—A small-toothed form like the Mexican *Sturnira lilium parvidens* Goldman, but with longer foot and forearm.

Color.—Upperparts clove brown slightly darker around eyes and extending unto forehead, the grayish white subapical band of the fur everywhere showing through the brown on the back. The fur at the base has a very narrow band of whitish gray, succeeded by a very broad band of brown, followed in turn by a somewhat narrower band of whitish gray, with the tips brown. These bands are strongly marked in the type as well as four other specimens examined. The fur is long and thick, about 9.2 on the back as compared with 6.5 in the type of *Sturnira l. parvidens.* The underparts are a lighter gray-brown with two large dark brown spots at the base of the wing surrounded by a border of lighter brown. Epaulettes present, but not strongly marked and the fur seems to be of the same texture as the surrounding fur, and in no instance is it bristle-like as in many specimens of *S. l. lilium.*

Skull.—The skull seems to be not different from that of the northern form except in its greater interorbital, zygomatic and cranial breadths.

Teeth.—Molariform teeth small in transverse extent like those of *S. l. parvidens,* the toothrow averaging shorter; in four skulls from Colombia the maxillary toothrow is 6.0–6.2 as against 6.2–6.4 in 3 skulls from Mexico.

Measurements.—Type: Head and body, 67.8; tibia, 15.8; foot, 15.0; thumb, 11.2; forearm, 45.2; third metacarpal, 45.0; fifth metacarpal, 45.5 (all measurements taken from dry skins); total length of skull, 22.6; condylo-basal length, 18.5; interorbital breadth, 6.1; zygomatic breadth, 13.2; breadth of braincase, 10.6; maxillary toothrow, 6.0, mandibular toothrow, 6.6; width at base of canines, 5.4.

[1]Published here by permission of the Acting Secretary of the Smithsonian Institution

Specimens examined.—Five from the following localities: Bogota, 4 including the type, and Villavicencio, 1.

Remarks.—This bat has been compared with four specimens of *S. l. parvidens* in the U. S. N. M. collection, one skin, the type from Guerrero and three alcoholics all from Vera Cruz, Mexico. It is distinguished by its larger foot, 14.8–15.5 instead of 11.5–12.6, by its average longer forearm, 44.6–45.5 instead of 39.8–45.0, and length of third metacarpal, 43.0–45.8 instead of 39.0–44.0. The fur is also darker and thicker. In the synonymy under *Sturnira lilium* the names nearest it geographically are *erythromos* and *oporaphilum*, Tschudi, Fauna Peruana, 1844, p. 64, the types of which, in Neuchatel, Switzerland, were examined and measured by Mr. G. S. Miller, Jr. in 1904. The measurements made by Mr. Miller show the wing and foot to be too small for the Colombia bat. The measurements are as follows: "*Phyllostoma erythromos* Tschudi, forearm, 40; tibia, about 14; foot, 11; third finger, about 90. *Phyllostoma oporophilum* Tschudi, forearm, 42; tibia about 18; foot, 11."

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NOTES ON THE GENUS RHAGOVELIA, WITH DESCRIPTIONS OF SIX NEW SPECIES.[1]

BY C. J. DRAKE AND HALBERT M. HARRIS.

In working over some miscellaneous Hemiptera collected by the authors during the past few seasons much difficulty was encountered in determining the specimens belonging to the genus *Rhagovelia*. This led to a rather critical study of all available material with the result that several species new to science have been recognized. The genus *Rhagovelia*, family Veliidae, is readily distinguished by the deeply cleft terminal segment of the intermediate tarsi. This cleft bears a tuft of long hairs which, it is said, extends fan-like into the water when the insect is in motion. Although recent keys characterize the anterior tarsi as uniarticulate they are, as Champion has long ago pointed out, composed of three distinct segments. Rhagoveliae prefer fairly rapid parts of streams, where they may be found congregated in schools, especially in eddies near projecting rocks.

During this study the writers have found the characters of the posterior legs in certain species to vary with sex and with wing development. In *obesa* and *distincta*, the posterior legs vary markedly in their degree of incrassateness in individuals from the same locality. Likewise, the hind tibiae also vary from straight to distinctly sinuate and the spines of the femora are slightly variable, even on opposite legs of the same specimen. In other species, long series of specimens have failed to show more than slight variation in these and other characters, even in apterous and macropterous individuals.

The proportional measurements, as given in the descriptions,

[1]Contribution from Department of Zoology and Entomology, Iowa State College, Ames, Iowa.

were made with an eye-piece micrometer on which 34 lines equal one millimeter. In the case of the legs the figures represent inside measurement.

Rhagovelia oriander Parshley.

Winged form: Black, the wings dark brownish black. Pronotum with a grayish brown spot on either side in front. Hemelytra reaching slightly beyond apex of genital segments.

Male: Pronotum a little longer than wide, acutely triangularly produced behind, with a fairly distinct median carina, the disc considerably swollen. Length, 3.44 mm.; width 1.48 mm.

Female: Pronotum much longer than wide, the apex produced into a semi-erect, somewhat cylindrical process. Length, 3.89 mm.; width, 1.63 mm.

Morphotypes, macropterous male and female, taken on Olentangy River, Columbus, Ohio, October 10, 1915, by C. J. Drake. *Paramorphotypes,* males and females, taken with morphotypes and at Rockbridge, Hocking Co., Ohio, July 7, 1916.

Apterous males and females were taken with the winged forms. The pronotal process is more developed in some specimens than in others; the hind femora of the males also show a slight variation in size in different specimens taken from the same colony. Specimens of the apterous form from Ames, Iowa, and from the type locality, Brookings, S. D., in addition to many specimens from Le Sueur, Brandon, Red Wing and Benson, Minnesota, and also from Hennepin County, Minnesota, are before us. The Ohio specimens have slightly shorter appendages than those from Iowa and South Dakota.

Rhagovelia obesa Uhler.

Many specimens of winged and wingless individuals from Tennessee are at hand; also apterous forms from New York and Pennsylvania. The hind femora of the apterous males vary markedly in size in different specimens. The posterior tibiae are sinuate in the form having strongly incrassate femora. The bifid pronotal process of the macropterous female varies slightly in size in different individuals.

R. arctoa Bueno, of which twelve paratypes and more than seven hundred other specimens (mostly type material from University of Minnesota collection) have been studied, is inseparable from *obesa* except for color markings. In *arctoa* the legs are slightly darker, the anterior femora are without the pale basal markings and the coxae and trochanters (basal portion of the anterior ones excepted) also are black. In specimens from Ottawa, Ontario, collected by C. H. Curran, August 23, 1925, the coxae and trochanters are distinctly paler than in the Minnesota specimens. A macropterous female from Minnesota has a bifid pronotal process as in typical *obesa.*

Paratypes of *R. flavicincta* Bueno indicate that this form also is extremely close to *R. obesa* Uhler.

Rhagovelia knighti, n. sp.

Form, size, general color, and markings very similar to *R. obesa* Uhl.

Apterous male: Antennae blackish, somewhat shiny, with the usual seta-like hairs, the basal one-third of segment I yellowish, the proportional length of segments:—I:II:III:IV = 26:16:18:15. Pronotum broader than long, broadly rounded behind, with two yellowish spots in front. Connexivum narrowly margined with flavous to reddish brown. Body beneath bluish gray, the anterior and posterior coxae, all trochanters, margins of all acetabula and the basal part of anterior femora yellowish. Anterior trochanter with a dark spine. Intermediate legs:—femur:tibia:tarsal II: III = 56:41:21:26. Posterior legs:—42 (wide 12):39:6:11. Posterior femora rather strongly incrassate, armed with a row of short teeth along the basal two-fifths, and from there to apex with a row of 8–9 spines which become much shortened distally and also a row of smaller teeth. Last segment of venter depressed on either side, emarginate behind, clothed as in *obesa*. First genital segment brownish, depressed on each side, with a distinct median ridge. Length, 3.20 mm.; width, 1.12 mm.

Apterous female: Pronotum broadly rounded behind, depressed in the middle, with a fairly distinct median ridge, marked in front as in male. Mesonotum emarginate behind; the metanotum truncate. Connexivum broadly margined with flavous, with a tuft of brown hairs at the apex, not so strongly produced at the apex as in *obesa*. Posterior margin of last abdominal segment with a tuft of rather long hairs on each side. Last segment of venter clothed with brownish hairs, its length and width sub equal (18:19). Antennae and intermediate legs as in male. Posterior legs:—41 (wide 7):45:5:10; the femora armed with a longer spine at the apical two-fifths, and from thence to apex with 3-4 very short spines Length, 3.2 mm.; width, 1.18 mm.

Holotype, apterous male; *allotype*, apterous female; *paratypes*, several apterous males and females; all taken at Hollister, Missouri, Sept. 5–10, 1925, H. H. Knight, collector. Holotype and allotype in authors' collection, paratypes in collections of H. H. Knight, Iowa State College, and the authors.

The male of *R. knighti* n. sp. is rather difficult to separate from the male of *R. obesa* Uhler; the female is easily recognized by the rounded posterior margin of the pronotum and the apical angle of the connexivum.

Rhagovelia rivale Bueno.

A long series of atperous males and females taken at Wray, Colorado, August 4, 1925, by C. J. Drake is at hand. The posterior margin of the pronotum, which is acutely rounded in the male and broadly rounded in the female, differentiates *rivale* from closely allied species. A male and female from Lawrence, Kansas, collected by Dr. Hugo Kahl, October 1. 1926, and two paratypes have also been examined.

Rhagovelia choreutes Hussey.

Several specimens of apterous females collected at Gainesville, Florida, July 14, 1918, by C. J. Drake and a long series of apterous males and females, New Braunfels, Texas, June 22, 1917, H. H. Knight, collector, have been studied. In none of the specimens are the middle femora yellow on the basal half as characterized by Hussey (Jl. N. Y. Ent. Soc., XXXIII, p. 67, 1925). However, there is a tendency for the hind femora to be pale along two broad patches at the base.

Rhagovelia distincta Champion.

Several winged males and females and a long series of apterous specimens collected by Dr. Herbert Osborn at Orizaba, V. C., Mexico, January 9–16, 1892, also two cotypes from the same locality, have been studied. The posterior femora of the wingless males are considerably more incrassate in some individuals than in others.

Rhagovelia excellentis, n. sp.

Elongate, dull black with an aeneous lustre, sides of pronotum including acetabula testaceous. Legs black, the anterior and posterior coxae, the anterior trochanters in part, the intermediate and posterior trochanters in part, an inconspicuous spot on base of anterior femora, and margins of all acetabula testaceous to brownish. Entire body clothed with short pubescence, the sides of the pronotum with a few scattered long hairs. Pronotum grayish in front, with a small yellowish spot on each side of median carina. Antennae brownish black, the basal fifth of segment I brownish testaceous. Anterior trochanters unarmed.

Apterous male: Pronotum broader than long, broadly rounded behind, depressed on either side in front. Mesonotum and metanotum truncate behind. Antennal formula:—I:II:III:IV = 32:20:19:17. Abdomen narrowed posteriorly, with a shiny blackish spot on each tergite; the connexivum margined with brownish. Last segment of venter depressed posteriorly and with a distinct ridge on either side, the hairs clothing the ridge longer. Formula intermediate leg:—femur:tibia:tarsal II:III—72:56:32:32. Posterior femora moderately incrassate, armed at the basal two-fifths with a long, bent, black spine which is followed by 10 shorter stout spines and preceded by a row of short black teeth. Posterior tibia denticulate within, with a short spur at the apex. Posterior leg formula:—femur:tibia:tarsal II:III = 55 (wide 14):57:8:13. Genital segments clothed with longer hairs, dark brownish beneath, the basal segment paler. Length, 4.48 mm.; width, 1.33 mm.

Apterous female: Antennal formula:—I:II:III:IV = 38:24:22:18. Pronotum much more broadly rounded than in male, the yellowish spots in front a little larger. Mesonotum and metanotum slightly emarginate behind. Connexivum strongly reflexed but not meeting above, margined with brownish, with slightly longer, thicker, and darker hairs at apices of first, fifth and sixth segments. Last segment of venter beneath darker than others, clothed with longer hairs, slightly raised and faintly produced at

the middle behind, its length greater than its width (26:22). Formula middle leg:—femur:tibia:tarsal II:III = 79:60:32:35. Posterior femora slightly swollen, not wider than intermediate ones, slightly sinuate within, armed at the apical two-fifths with a long black spine and from thence to the apex with 4–5 shorter spines. Formula posterior leg:—femur:tibia: tarsal II:III = 57 (wide 8):70:8:14. Length, 4.34 mm.; width, 1.65 mm.

Holotype, apterous male; *allotype*, apterous female; *paratypes*, many apterous males and females; collected from irrigation canal and a small stream near Dolores, Colo., August 15, 1925, by C. J. Drake. Types in authors' collection, paratypes in collections of Iowa State College, Colorado Agricultural College and the authors. *Excellentis* is probably most closely related to *distincta* Champ. However in the female the pronotum is more rounded at the base, the intermediate legs are longer, the apex of the last segment of the connexivum is more strongly produced, and the last abdominal segment above is without the heavy patch of hairs. The male of *excellentis* is distinctly longer and has longer legs.

Rhagovelia calopa, n. sp.

Apterous male: Short, stout, fusiform, rather densely clothed with short fine hairs interspersed with numerous long hairs. Body grayish black; the legs darker, somewhat shiny, clothed with long hairs; pronotum with a large yellowish brown spot on each side in front. Head with the usual impressed lines. Pronotum short, slightly more than one-half as long as the head, its basal margin almost straight. Mesonotum very large, three and one-half times as long as the pronotum, truncate behind. Abdomen strongly narrowed posteriorly, connexivum broad, strongly narrowed apically. Venter bluish gray, the last segment and also the genital segments brownish. All coxae, anterior and posterior trochanters, base of anterior femora, and base and two longitudinal stripes on posterior femora yellowish.

Antennae black, somewhat shiny, the basal third of the proximal segment pale, I and II with the usual scattered setae and long hairs; the proportion:—I:II:III:IV = 31:18:13:16. Anterior trochanters unarmed. Formula middle leg:—femur:tibia:tarsal II:III = 64:47:23:28. Hind leg:— 52 (wide 20):54:5:12. Posterior femora greatly swollen, armed with a double row of spines, those of the anterior (outer) row shorter and continuing for the entire length of femora and onto the trochanters; the inner row irregular, with a longer, stouter spine at the basal third and one or two double spines near the middle. Posterior tibiae with a double row of short stout spines, one or two on the apical third being very long; with a long spur at the apex. Length, 2.86 mm.; width, 1. 5. mm.

Holotype, male, Los Amates, Guatemala, January 16, 1905, in authors' collection. This species resembles in general appearance *R. femoralis* Champ. from which it may readily be separated by the difference in proportional lengths of antennal segments, by the short, narrow, rectilinear pronotum, the large truncate mesonotum, and the hairy legs. The pronotum is formed as in the apterous specimens of *R. plumbea* Uhl., *R. salina*

Champ., and *R. tenuipes* Champ. However, the enormously incrassate posterior femora distinguishes *R. calopa* n. sp. from these species.

Rhagovelia gregalis, n. sp.

Form and general appearance somewhat similar to *R. tenuipes* Champ.

Apterous male: Brownish black; the pronotum somewhat bluish gray anteriorly, with a transverse yellow spot in front. Body and legs clothed with rather dense pile, the sides of thorax and the legs also with a few scattered long hairs. Antennae brownish black, the basal portion of segment I testaceous, proportion of segments:—I:II:III:IV = 38:23:23:20. Pronotum short, more than five times as broad as long, the posterior margin broadly emarginate. Mesonotum broader than long, narrowed posteriorly and truncate behind. Legs black, anterior coxae and trochanters, posterior coxae and trochanters, and margins of all acetabula yellowish. Anterior trochanters unarmed. Intermediate legs:—femur:tibia:tarsal II:III = 74:48:32:28. Posterior legs:—55 (wide 9):60:7:10. Posterior femora armed slightly beyond the middle with a long brownish spine and from thence to apex with 8–9 much shorter black spines. Posterior tibia without a distinct spur at the apex. Length, 3.06 mm.; width, 1.27 mm.

Apterous female: General markings as in male, the pale pronotal spot larger, the hairs on abdomen slightly shorter and not so dense. Head with the usual impressed lines. Antennae as in male. Pronotum as in male, its posterior margin slightly emarginate. Connexivum very wide, the outer margin rounded. Body beneath black, the legs brownish black. Intermediate legs:—68:46:30:29. Posterior legs:—54 (wide 8):60:8:11. Posterior femora armed with a long spine at the apical two-fifths and from thence to apex with 6–7 much shorter spines which become shorter distally. Last segment of venter wider (23) than long (18). Length, 3.5 mm.; width, 1.40 mm.

Winged form: Pronotum brownish black, somewhat bluish gray in front, the yellow spot smaller than in apterous form, the humeri prominent. Wings dark brown, the veins distinct, the lateral margins ciliate on basal half; extending much beyond the apex of the abdomen. Venter with last segment blackish. Proportions of antennae and legs as in apterous form. Length, 3.95 mm.; width, 1.54 mm.

Holotype, apterous male; *allotype,* apterous female; *paratypes,* 2 females; *morphotypes,* winged male and female. Type locality, San Pedro, Honduras, February 21–28, 1905. Types in authors' collection.

Rhagovelia hirtipes, n. sp.

Macropterous female: Blackish; the wings brown, the veins darker and rather prominent. Pronotum black with a large transverse, yellowish spot in front; triangularly produced posteriorly, the apex sub-truncate, clothed with long hairs. Antennae brown, the basal portion of first segment testaceous, the proportion:—I:II = 30:16, (III and IV wanting). Body beneath bluish gray. Legs brownish black, the margins of all acetabula, all coxae and trochanters, and the basal portions of anterior and posterior femora yellowish, intermediate coxae and trochanters darker.

Intermediate legs:—femur:tibia:tarsal II:III=61:50:30:28. Hind legs:—45 (wide 9):58:8:11. Posterior femora clothed within with numerous long yellowish brown hairs, armed with a long curved brown spine at the basal two-thirds which is preceded by a row of short stout teeth and followed by 4–5 very short spines. Length, 4.28 mm.; width 1.52 mm.

Holotype, winged female, San Pedro, Honduras, September 21–28, 1905, in authors' collection. The patch of long hairs at the apex of the pronotum and the short hind femora with their hairy clothing distinguish this species from *R. gregalis* n. sp.

Rhagovelia regalis, n. sp.

Moderately small, fusiform, grayish black. Head with the usual impressed black lines.

Apterous male: Antennae long, brownish black, with the usual seta-like hairs on the basal segments, segment I with the basal one-third testaceous; proportion:—I:II:III:IV=34:20:20:15. Pronotum short, about five times as wide as long, with a transverse pale spot in front, the posterior margin sinuate. Mesonotum distinctly broader than long, its hind margin subtruncate. Metanotum truncate behind. Connexivum rather broad, margined with brownish, the outer margin rounded. Abdomen above with a transverse brownish, shiny spot on the next to the last segment and a similar, much larger, rectangular spot on the last segment. Legs dark brown, all femora and intermediate trochanters blackish, the margins of all acetabula and the anterior and posterior coxae testaceous. Formula intermediate leg:—femur:tibia:tarsal II:III=65:44:26:26. Posterior leg:—51 (wide 9): 51:4:7. Posterior femora not thicker than intermediate ones, strongest on the basal third and gradually tapering distally; armed at the basal two-fifths with a long, obliquely slanting, dark spine and from thence to apex with 9–10 much shorter spines. Hind tibia with a slender spur at the apex. Venter bluish gray, distinctly depressed on either side behind; the last segment dark brown, more strongly depressed, with a distinct median ridge. Genital segments dark brown. Length, 2.56 mm.; width, 1.24 mm.

Apterous female: Larger, the general color and markings as in male. Antennae as in male. Connexivum broad, not strongly reflexed, abruptly rounded and clothed with longer hairs at the apex, margined with dark brown. Abdomen above with a large, shiny, brownish black spot on each of the last 3–4 segments. Legs slightly darker, the formulae of intermediate and posterior ones as in male; posterior femora slightly less incrassate, the long dark spine placed at the middle and followed by 7–8 very short spines; the hind tibiae slightly longer than in male. Last segment of venter brown, broader (19) than long (16). Length, 3 mm.; width, 1.35 mm.

Holotype: apterous male; *allotype,* apterous female, Honduras, in the collection of Iowa State College. *Paratypes,* one male and eight females, all apterous, taken with types, in collections of Iowa State College and the authors. The short pronotum, the formulae of antennae and legs and the shape of the connexivum distinguish *regalis* from related species.

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DESCRIPTIONS OF NEW FORMS OF BIRDS COLLECTED BY H. C. RAVEN IN NORTHEAST BORNEO.

BY J. H. RILEY.

Mr. H. C. Raven began his explorations in east Borneo in 1912, in continuation of the work of Dr. W. L. Abbott in other parts of that island. After collecting on the mainland of Borneo for some months, Raven visited the various islands, stretching from just north of the mouth of the Beroe River east to Maratua, thence south to Penang Harbor. Most of these islands are small, except Maratua, and lie somewhat nearer to the coast of Borneo than the latter. In working over this collection I find the following forms apparently need description:

Dinopium raveni, sp. nov.

Type.—Adult male, U. S. National Museum, No. 182,316, Pulo Eraban, northeast Borneo, June 13, 1913. Collected by H. C. Raven (original No. 830).

Similar to *Dinopium javanensis javanensis,* but wing and tail much shorter and the feathers of the center of the chest and breast buffy brown with rather narrow cream buff centers without any black. Wing, 123; tail, 71; culmen, 30.5.

Remarks.—The present species is founded upon a male and female taken at the type locality on the same day. The female only differs from the male in having the head black with white shaft streaks. In a large series of *Dinopium javanensis* from different parts of the range of the species there are none that match the above specimens. All have the feathers of the chest and breast heavily bordered with black, while in *Dinopium raveni* only the lower border of the throat has a few black-bordered feathers outside the few black spots forming the center line of the throat; the center of the chest and breast being entirely without black. In *Dinopium raveni,* the sides, flanks, and under tail-coverts are narrowly barred with blackish. *Dinopium raveni* has a proportionally shorter wing-

tip than *Dinopium javanensis* and for this reason, along with the distinct color of the chest, must be ranked as a distinct species. *Dinopium javanensis* has been recorded from Borneo. Dubois (Proc. Zool. Soc. Lond., 1897, p. 782) described *Tiga borneonensis* from an unknown locality in Borneo, but it is described as having the lower-parts barred transversely with black and can not very well be the present species. Hartert (Nov. Zool., 1901, p. 50) states that it is only an aberrant *Tiga javanensis*, but the measurements given by Dubois are very small for this species and in this respect fit *Dinopium raveni*. Two specimens of *Dinopium javanensis* from Java before me measure, wing 132 and 136. Stuart Baker (Fauna Brit. India, ed. 2, vol. 4, 1927, p. 72) gives the wing of *D. j. javanensis* as 118 to 139.

Yungipicus moluccensis tantulus, subsp. nov.

Type.—Adult male, U. S. National Museum, No. 181,846, Tanggaroeng, Mahakkam River, northeast Borneo, June 21, 1912. Collected by H. C. Raven (original No. 58).

Similar to *Yungipicus moluccensis moluccensis* from Java, but smaller, more brownish, less blackish above, the nasal plumes the same color as the forehead instead of creamy white, the upper tail-coverts less heavily barred. Wing, 69.5; tail, 31.5; culmen, 12.5.

Remarks.—The above race is founded on the type, a male and female from Pulo Pandjang, and a female from Pulo Eraban.

Hargitt (Ibis, 1882, p. 43) has shown that *Picus moluccensis* Gmelin was probably founded on a Javan specimen and I would definitely designate Java as the type locality of the name, if it has not already been done. *Iyngipicus fusco-albidus* Salvadori (Ann. Mus. Genova, 5, 1874, p. 42) is a new name for *Picus variegatus* Wagler (nec. Latham) and has the same type locality, Java. *Picus sondaicus* Wallace (Ann. Mus. Genova, 5, 1874, p. 43) is only a re-naming of the Javan form. This leaves the Bornean form without a name, which I have supplied.

Collocalia francica perplexa, subsp. nov.

Type.—Adult male, U. S. National Museum, No. 182,370, Pulo Maratua, northeast Borneo, May 24, 1913. Collected by H. C. Raven (original No. 742).

Similar to *Collocalia francica germani* of Siam and the Philippines, but wing averaging longer, back a deeper, less brownish black, rump band much darker and much less pronounced, wings and tail with more purplish and less greenish sheen, wing, 122.5; tail, 51.

Remarks.—The present form is founded upon eight males, three females, and one unsexed from Maratua, one male and one female from Pulo Pandjang, one female from Pulo Balik Kukup, and one female from Pulo Raboe Raboe. They have been compared with about an equal number from Peninsula Siam and the Philippines. There does not appear to be any differences in size or color between the sexes. The nine males from islands off northeast Borneo have wings, 119.5–125 (121.8): Eight males from Peninsula Siam (4) and the Philippines (4) have wings, 109–122

(117.3). Apparently no form of *Collocalia francica* has been recorded from Borneo before. *Collocalia francica bartelsi* Stresemann (Orn. Monatsb., 1927, p. 46) from west Java is not available for examination, but from the known distribution of the forms, the form from northeast Borneo and west Java can hardly be the same.

Collocalia vestita maratua, subsp. nov.

Type.—Adult male, U. S. National Museum, No. 182,367, Pulo Maratua, northeast Borneo, May 21, 1913. Collected by H. C. Raven (original No. 736).

Similar to *Collocalia vestita mearnsi* of the Philippines, but upper-parts deeper black, less sooty; the wings showing a more purplish sheen, less greenish; the lower-parts much duskier. Wing, 118; tail, 48.

Remarks.—The present form is founded upon one specimen only, but I have before me fourteen specimens of *Collocalia vestita mearnsi* and four of *Collocalia vestita vestita.* From the former it differs as described, from the latter it is a much deeper, less brownish black above, the wings and tail more purplish, less greenish, but below the two forms are much alike. *Collocalia vestita aenigma* resembles *Collocalia vestita maratua* very closely above, it is lighter below, especially on the throat, and has a somewhat longer wing.

Chalcostetha calcostetha proxima, subsp. nov.

Type.—Adult male, U. S. National Museum, No. 182,688, Pulo Derawan, northeast Borneo, April 25, 1913. Collected by H. C. Raven (original No. 569).

Similar to *Chalcostetha calcostetha calcostetha* of the main island of Borneo, but averaging larger, especially the culmen. Wing, 63.5; culmen, 20.

Remarks.—Over ninety specimens were collected, consisting of adults of both sexes and immatures, from the following islands: Raboe Raboe, Derawan, Samama, Maratua, and Bakungan. No constant differences in color can be detected between series from the main island of Borneo and the small islands off the coast, but the island series average larger. Thirty males from the small islands given above measure: wing, 59–65 (62.3); culmen, 18.5–21 (19.5). Six males from northeast Borneo measure: wing, 58–62.5 (60.5); culmen, 17.5–19 (18.2). Males from the Malay Peninsula agree with those from the main island of Borneo in size, as the following will show: seven males, wing, 60–61.5 (61); culmen, 17–19.5 (18). The males from northeast Borneo and the islands off the coast run remarkedly true to type. The lower back, rump, and upper tail-coverts are a shining, coppery green with little or no iridescent lilac purple. On the mainland the majority of the specimens have these parts with much iridescent lilac purple, but some have these parts green with little or no lilac. The most brilliantly green-rumped specimens examined are a male from west Sumatra and one from Java. Stuart Baker (Fauna Brit. India, Birds, vol. 3, ed. 2, 1926, p. 373) restricts *Nectarinia calcostetha* Jardine to Borneo.

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NOTES ON NORTH AMERICAN TILLINAE, WITH DESCRIPTION OF A NEW CYMATODERA (COL.: CLERIDAE).

BY EDWARD A. CHAPIN.

In identifying and incorporating the material which has accumulated since Mr. A. B. Wolcott[1] rearranged the National collection of the genus *Cymatodera* Gray, a new species was noticed and a case of synonymy was made apparent by the study of additional material.

Lecontella gnara Wolcott.

1927. *Lecontella gnara* Wolcott, Coleopt. Contrib., Vol. 1, p. 105.

As only the female of this species was known to Wolcott I include here a short description of the male characters.

Male.—Terminal antennal segment elongate, almost twice as long as the basal segment; fifth abdominal sternite broadly and shallowly emarginate, sixth sternite rounded, terminal tergite slightly larger than the sixth sternite, broadly rounded.

Comparing the length of the terminal segment of the antenna with that of the basal, the ratio for *L. cancellata* Lec. (male) is 18:8, in *L. gnara* Wolc. for the same sex it is 17:9.

The material examined by the writer consists of a male and four females, data as follows:

A male, Santa Catalina Mountains, Arizona, reared from *Quercus arizonica*, Nov. 25, 1914, by M. Chrisman, Hopkins No. 12630 A; a female, Arizona (no other locality cited), reared from mesquite, by M. Chrisman, Hopkins No. 12299 C5; a female from Tucson, Arizona, Aug. 15, 1915; a female from Sabino Canyon, Arizona, Aug. 15, 1915, collected by Tucker (in collection J. N. Knull); a female from Sabino Canyon, Arizona, reared from *Juglans* sp., Jan. 19, 1915, by W. D. Edmonston, Hopkins No. 10962 G.

[1] 1921, Proc. U. S. Nat. Mus., Vol. 59, pp. 269–290, Pl. 43.

Cymatodera mitchelli, n. sp.

Form of *C. angustata* Lec., apterous, feebly shining, clothed with rather long hairs, gray-brown to piceous in color, antennae, legs and under parts dark castaneous. Head closely and moderately finely punctate, the punctures sparsely placed just above the clypeus and becoming more densely set toward the occiput. Eyes moderately prominent. Antennae just a little longer than the head and pronotum together, segments in shape and size as in *C. longula* Wolc. Prothorax slightly less than one and one-half times as long as width across anterior margin, feebly constricted before and behind the middle, basal width about five-sixths of apical width, antescutellar impression distinct, basal tubercles moderately prominent. Surface densely set with moderately coarse punctures, the punctation slightly less dense along the median line. Elytra across humeri but slightly wider than thorax at base, conspicuously dilated behind and widest at apical third, strongly convex above, punctures coarse, deep, in ten rows, suddenly disappearing at apical fourth, interspaces minutely punctulate and set with long and short hairs intermingled. First and second interspaces each wider than any subsequent interspace. Body beneath finely and rather densely punctured, pubescence sparse. Legs, especially the tibiae, clothed with long hairs. Length: 8 to 9.5 mm.

Male.—Metasternum with a sharp and prominent carina on either side of the median line; fifth abdominal sternite with a broad semicircular emargination, terminal sternite rather elongate, tricarinate, the median carina rather feeble, the lateral carinae extending onto the outer apical angles, apex broadly and shallowly emarginate. Terminal tergite narrower than the terminal sternite, with a small apical notch.

Female.—Fifth sternite with a broad shallow emargination, terminal sternite and tergite each bluntly rounded.

Type and six paratypes: U. S. N. M., Cat. No. 40544. Data as follows: Type (male) and three paratypes (males) from Marfa, Texas, June 5–6, 1908; three paratypes (one male and two females) from Chisos Mountains, Brewster Co., Texas, October 12, 1908; all specimens collected by J. D. Mitchell and R. A. Cushman.

In Wolcott's table to the North American species of this genus, *C. mitchelli* falls into the *knausi-morosa* group and runs out with *C. longula* Wolc. Its affinities as displayed by the male sexual characters are more with *Morosa* Lec. and *umbrina* Fall and remotely with *knausi* Wolc. The metasternal carinae so well developed in this species are indicated by short, sharp protuberances in both *morosa* amd *umbrina*. *C. mitchelli* is immediately separated from *C. longula* by the very different genitalia.

Cymatodera longula Wolcott.

1921. *Cymatodera longula* Wolc., Proc. U. S. Nat. Mus., Vol. 59, p. 280, 287.

1921. *Cymatodera rudis* Wolc., Proc. U. S. Nat. Mus., Vol. 59, p. 281, 287.

A study of the type material upon which these names are based, together with a few additional specimens, has convinced the writer that there is

but a single species represented by the series. Micrometer measurements of the various specimens fail to sustain the differentials given in the key. In view of the variation in the conformation of the terminal abdominal tergite in the male sex which exists in other species of this genus, for instance, in *C. balteata* Lec., the differences which occur in this series can not be considered specific. The important thoracic measurements of each specimen before the writer are given in the following table.

Length of thorax.	*Anterior width.*	*Posterior width.*	*Sex.*	*Data on specimen measured.*
34	19	16	♂	*rudis*—paratype.
34	20	18	♂	Catalina Mts., Ariz., Hopkins No. 10650 Z.
35	21	19	♂	*rudis*—type.
37	20	18	♀	*rudis*—paratype.
39	23	21	♂	*longula*—type.
40	21	19	♀	*rudis*—paratype.
41	23	20	♂	Sabino Canyon, Ariz., G. Hofer.
43	25	23	♀	Sabino Canyon, Ariz., G. Hofer.
44	24	21	♀	Catalina Springs, Ariz., Hubbard and Schwarz.
45	25	22	♀	*rudis*—allotype.
45	25	22	♀	*rudis*—paratype.
45	27	24	♂	*longula*—paratype.
47	27	24	♂	*rudis*—paratype.
60	35	32	♀	Ray, Ariz., ex dead Parkinsonia, E. A. Schwarz.

The females of this species may be separated from those of any other species known to the writer by the two short but prominent carinae on the last tergite.

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PROCEEDINGS
OF THE
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A NEW AGELAIUS FROM HAITI.

BY STUART T. DANFORTH AND JOHN T. EMLEN, JR.

During the course of a summer's ornithological wanderings in Santo Domingo and Haiti, the authors came across a new *Agelaius* which it is proposed to call

Agelaius quisqueyensis, sp. nov.

Most nearly allied to *Agelaius humeralis* (Vigors) of Cuba.

Adult male.—Uniform glossy black with a faint bluish green reflection. Lesser wing coverts cadmium yellow. Middle coverts cinnamon buff, becoming pale buff at the tips. Iris dark brown. Bill, legs and feet black.

Adult female.—Similar to the adult male, but smaller, slightly duller, and some of the middle coverts have black markings.

Immature male.—Similar to the adults, but with the yellow wing patch more restricted and duller in shade, the lesser coverts being deep chrome instead of cadmium yellow, and with some black markings near the tips of most of the feathers of the lesser and middle wing coverts.

Type.—Adult male, No. 534, collection of S. T. Danforth, collected on July 29, 1927, at Artibonite Sloughs, near St. Marc, Haiti, by S. T. Danforth.

Measurements (in millimeters). Adult male (1 specimen).—Length in flesh 214; extent in flesh 325.5; wing 103.5; exposed culmen 18; tarsus 23; middle toe with claw 24.

Adult females (3 specimens).—Length in flesh 191–201 (196.3); extent in flesh 293.0–303 (297.5); wing 94–97 (95.5); exposed culmen 16.5–17 (16.8); tarsus 22–22.5 (22.2); middle toe with claw 22–23.5 (29.1).

Immature male (1 specimen).—Length in flesh 206; extent 320; wing 99; exposed culmen 16.5; tarsus 22; middle toe with claw 23.

Three of the specimens are in the private collection of the senior author, deposited at the College of Agriculture of the University of Porto Rico, at Mayagüez, P. R., and two are in the collection of the Academy of Natural Sciences of Philadelphia.

Notes.—This form is closely allied to *A. humeralis* of Cuba, and resembles it greatly both in size and general markings, but differs considerably

in the shade of the wing markings, which are much lighter and brighter colored in the new form. About twenty-five of these birds were observed on July 29, 1927, at some sloughs near the Artibonite River, about eight miles from St. Marc, in central western Haiti. They were found in flocks of from five to ten, perching in trees by the edges of the sloughs. Some of them were feeding young birds on the wing, so the nesting season had evidently not long passed.

The authors are very much indebted to Dr. Frank M. Chapman of the American Museum of Natural History for the loan of a small series of *Agelaius humeralis* for comparison with our birds.

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PROCEEDINGS
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NEW GNATEATERS AND ANTBIRDS FROM TROPICAL AMERICA, WITH A REVISION OF THE GENUS MYRMECIZA AND ITS ALLIES.

BY W. E. CLYDE TODD.

A critical study of the Gnateaters (Family Conopophagidæ) and Antbirds (Family Formicariidæ) in the collection of the Carnegie Museum has now been completed, and among other things of interest has revealed the existence of a surprisingly large number of apparently undescribed species and races among the birds belonging to these groups. The collection of Formicariidæ handled is especially fine, being rich in material from French Guiana and the Amazon Valley, which appears to be one of the centers of distribution for this Family. It consists of no less than 9098 specimens, representing 221 species and 124 additional subspecies, belonging to 53 genera. With such abundant material in the way of well prepared and uniformly made up skins from different regions, it has been possible for the first time to compare series for geographic variation. The results of this study show clearly that numerous forms which heretofore have been supposed to be constant over an extensive area are really divisible into two or more races. Supposed gaps in the ranges of certain genera and superspecific groups have been filled by the discovery of new representative forms. Almost without exception the ranges of all such forms in the Amazon Valley appear to be sharply limited by the great rivers of this region—the Rio Negro, the Tocantins, the Xingú, the Tapajóz, the Madeira, the Purús, and the Amazon itself. It is seldom that we find the same form occurring on both banks of this river, even as far up as the Peruvian boundary. Differentiation seems to have been induced mainly by isolation, to the effects of which birds of such sedentary habits as the Ant-

birds would naturally be peculiarly susceptible. On this basis the increased tendency to differentiate south of the Amazon is understandable, since this area is cut up by several large streams, while on the north the Rio Negro is virtually the only river of any size to offer a barrier to dispersal. The whole question is exceedingly interesting to the student of distribution, but can only be barely alluded to here.

The latest treatment of the birds of these difficult groups is that by Dr. C. E. Hellmayr (Field Museum Zoological Series, III, iii, 1924, pp. 369). This work, backed up by the author's study of the type-specimens in Europe and America, and by his critical review of the literature, is an invaluable contribution to the subject, and has been taken as the basis for the present paper. With much more ample material in many cases than was available to Dr. Hellmayr, and with a different conception of the subspecies, our conclusions naturally differ in certain respects. In the case of the genus *Myrmeciza* and its allies an entirely new arrangement has been suggested, with the new forms fitted in where they seem to belong.

The present paper is the fourteenth of the series to appear in these Proceedings, and follows the others in the use of millimeters in measurements, and of Mr. Ridgway's "Color Standards and Color Nomenclature" in the naming of the colors. Acknowledgments are due the respective authorities of the American Museum of Natural History, the Museum of Comparative Zoology, the Academy of Natural Sciences of Philadelphia, the U. S. National Museum, and the Field Museum of Natural History for the loan of specimens used in this connection. To Dr. C. E. Hellmayr of the institution last named the writer is under further obligations for reporting on certain specimens sent to him for that purpose. Dr. Percy R. Lowe of the British Museum has courteously supplied certain detailed information on types in the collection under his care, for which thanks are due.

Conopophaga aurita australis, subsp. nov.

Similar to *Conopophaga aurita occidentalis* Chubb, but upper parts averaging more rufescent, and under parts more decidedly buffy, the black of the throat in the male more extended, reaching the upper breast.

Our extensive series of *Conopophaga aurita* from the Rio Purús and the south bank of the Rio Solimoës differ decidedly from birds of the same

species coming from localities on the north bank, which are clearly referable to *C. occidentalis* Chubb. The characters on which the latter is based are carried a step further in the present form, and by just that much tend toward those of the lower Amazonian *C. snethlageæ*, without, however, showing actual intergradation. The buffy wash on the under parts is more marked in both sexes of *australis*, and the greater posterior extent of the black throat-area in the male is also a marked feature, resulting in a narrowing of the rufous brown of the breast, which as a rule is a little paler than in *occidentalis*. Compared in series, *australis* averages more rufescent, less olivaceous, above. The difference in size between the two is inconsiderable.

Type, No. 91,917, Collection Carnegie Museum, adult male; Nova Olinda, Rio Purús, Brazil, July 14, 1922; Samuel M. Klages.

Corythopis torquata subtorquata, subsp. nov.

Similar to *Corythopis torquata torquata* von Tschudi (as represented by three specimens from Peru in the collection of the American Museum of Natural History), but decidedly smaller; upper parts, wings, etc., much brighter (Dresden brown instead of sepia); and under parts less heavily streaked, the streaks brownish rather than grayish, and the crissum washed lightly with the same color. Male: wing, 67; tail, 50; bill, 14.5; tarsus, 25.5. Female: wing, 65; tail, 47; bill, 14.5; tarsus, 24.

Reluctant as I am to add another name to the literature of this genus, there seems no help for it in the present case, as the pair of birds before me evidently represent a well-marked form, distinguishable at a glance from both *C. torquata torquata* and *C. torquata sarayacuensis*.

Type, No. 50,859, Collection Carnegie Museum, adult female; Rio Yapacani, Bolivia, September 20, 1914; José Steinbach.

Thamnophilus multistriatus brachyurus, subsp. nov.

Similar to *Thamnophilus multistriatus multistriatus* Lafresnaye of the Eastern Andes of Colombia, but tail markedly shorter; barring of the under parts not quite so heavy in both sexes, giving these parts a lighter appearance; females with a more or less decided collar of black spots (partially concealed) on the nape, which are wanting in the females from the Eastern Andes.

In four males the tail measures respectively 62, 63, 64, 60. In six females it is 61, 61, 60, 61, 63, 63.

Dr. Chapman could find no racial differences in the series he examined (cf. Bulletin American Museum of Natural History, XXXVI, 1917, 368), but with smoothly made up specimens there is no difficulty in distinguishing between examples from the Eastern and Western Andes respectively. The characters above pointed out seem to justify the subspecific segregation of the series according to locality, and since Lafresnaye's name *multistriatus* was presumably based on a "Bogotá" skin, it is the form from the Western Andes that requires naming. Since the distinguishing characters of this race are better marked in the female, I select one of that sex as the type.

Type, No. 67,029, Collection Carnegie Museum, adult female; Caldas, Colombia, June 6, 1918; M. A. Carriker, Jr.

Thamnophilus nigriceps magdalenæ, subsp. nov.

Adult male not certainly distinguishable from the same sex of *Thamnophilus nigriceps nigriceps* Sclater. Adult female with the streaking on the lower parts virtually confined to the throat, and much narrower.

Both Dr. Hellmayr (Field Museum Zoological Series, XIII, iii, 1924, 77) and the writer (Annals Carnegie Museum, XIV, 1922, 314) have already remarked upon the peculiarities of specimens of this species from the interior of Colombia. On a recent visit to the British Museum Dr. Hellmayr took with him a series from our collection for comparison, and now reports that No. 63,855, from the lower Atrato, is exactly like Sclater's type of *nigriceps*. This confirms his suspicion as to the source of the type, which is not from the "Bogotá" region at all; and thus the way is left open to give a name to the form of the Magdalena Valley, on the basis of the characters apparent in our specimens. These characters have been confirmed by additional specimens examined in this connection, in the collections of the Academy of Natural Sciences of Philadelphia and American Museum of Natural History respectively. The other localities represented are El Tambor, (within twenty miles of) Honda, Puerto Berrio, and Malena, Colombia.

Type, No. 70,765, Collection Carnegie Museum, adult female; Mariquita, Tolima, Colombia, October 2, 1918; M. A. Carriker, Jr.

Thamnophilus incertus atriceps, subsp. nov.

Similar to *Thamnophilus incertus incertus* von Pelzeln, but general coloration darker in both sexes.

Specimens of *Thamnophilus incertus* from the east bank of the Rio Tapajóz differ from topotypical skins from Pará in their generally darker coloration, manifest in the male on the crown, which is black, in contrast with the plumbeous of the rest of the upper parts (instead of being almost the same or merely a trifle darker), and in the female by the browner tone of the under parts (as shown in a series of eight specimens). Some of the Pará females, it is true, are virtually as richly colored as the above, but as a series they differ as aforesaid.

This well-marked race is evidently confined to the region east of the Rio Tapajóz, since on the west side of that river it is replaced by *T. punctuliger*, with which, however, it does not appear to intergrade, although they are of course "representative forms." It probably ranges eastward to the Rio Xingú at least, and possibly to the Rio Tocantins, where it would meet true *T. incertus*. Its characters are a step in the direction of *T. polionotus*, from which it differs in its plainer wings, with the white markings restricted to the lesser coverts in the male. The record for Victoria, Rio Xingú, published by Miss Snethlage (Boletim Museu Gœldi, VIII, 1914, 271) doubtless belongs here.

Type, No. 77,597, Collection Carnegie Museum, adult male; Miriituba, Rio Tapajóz, Brazil, March 24, 1920; Samuel M. Klages.

Thamnophilus murinus cayennensis, subsp. nov.

Similar to *Thamnophilus murinus murinus* Sclater and Salvin, and adult female not certainly distinguishable. Adult male with the wings externally decidedly brighter, more rufescent, than in the typical race.

Comparison of a good series of this species from French Guiana with another from Obidos and Manacapurú, assumed to be typical, shows that the former belong to a well-marked race which for some reason—probably paucity of material—has hitherto escaped discrimination and description. Its characters are shown only in the male sex, and run true in twenty males from French Guiana as compared with thirteen from Manacapurú and eleven from Obidos, and I have no hesitation in attributing them to geographic variation. Females from the two regions, however, are practically the same. This may account in part for the wording of Sclater's description of that sex in the Catalogue of the Birds in the British Museum, XV, 1890, 195.

Type, No. 65,088, Collection Carnegie Museum, adult male; Pied Saut, French Guiana, December 1, 1917; Samuel M. Klages.

Thamnophilus murinus canipennis, subsp. nov.

Similar to *Thamnophilus murinus murinus* Sclater and Salvin, but adult male with the wings externally grayish, like the rest of the upper parts.

In this race, which differs from true *murinus* in exactly an opposite direction from the Guiana form, the wings of the male are gray, with little or no brownish shade, and therefore not in contrast with the rest of the upper parts. Immature birds, however, have more or less brownish wings, thus betraying the derivation of the present race from the one which inhabits the coast region of Guiana. It may have been that the individuals from the upper Amazon examined by Sclater and Salvin when they described *murinus* were young birds, since they remarked no differences between these and others from more eastern localities. On the other hand, Sclater's later description (Catalogue of the Birds in the British Museum, XV, 1890, 195) would lead one to believe that he had a bird of this type in hand, since he does not say anything about the wings being brownish.

Type, No. 96,991, Collection Carnegie Museum, adult male; Tonantins, Rio Solimoës, Brazil, June 28, 1923; Samuel M. Klages.

Thamnophilus punctatus saturatus, subsp. nov.

Similar in general to *Thamnophilus punctatus punctatus* (Shaw) of Guiana, Venezuela, etc., but male with more black on the upper parts, and the white edgings of the scapulars wider and more conspicuous; female with the upper parts strongly rufescent.

A strongly marked race, which heretofore has been confused with true *punctatus,* owing no doubt to lack of material. Dr. Hellmayr (Field Museum Zoological Series, XIII, iii, 1924, 93, note), in speaking of a single female from Utiarity, northern Matto Grosso, has correctly indicated

its characters as shown by this sex, but no other writer seems to have recognized them, although Miss Snethlage, in her Catalogue of Amazonian birds (Boletim Museu Gœldi, VIII, 1914, 271) records specimens which evidently must belong here. While males are in series darker above than those of *punctatus*, owing to an increase in the amount of black mottling, they are by this very token so close to those of *T. amazonicus* as to be scarcely distinguishable—and doubtless not invariably at that! Where the ranges of these two forms overlap, as on the Rio Tapajóz, the placing of individual specimens with one species or the other must often be guesswork. Indeed, I can find no *constant* characters to distinguish them, when males alone are considered, but in general *saturatus* is slightly paler gray below than *amazonicus* (about deep gull gray as compared to slate gray), and has less black on the back; the white spots on the upper tail-coverts average larger also. Females, on the other hand, are of course entirely different from those of *amazonicus*, and may readily be told from those of true *punctatus* as well by their strongly rufescent upper parts, which are thus not in sharp contrast with the pileum. Since the characters of this race are most highly developed in the female, I choose a bird of that sex as the type.

This race represents *Thamnophilus punctatus* south of the Amazon. It clearly has nothing to do with *T. ambiguus* Swainson, its tail-markings being those of *punctatus*. I have not seen *Thamnophilus punctatus sclateri* Stolzmann (Annalibus Zoologicis Musei Polonici Historiæ Naturalis, V, 1926, 215), which seems to have the same dark-colored back as the new form, but otherwise the description does not fit, and on geographical grounds it is scarcely likely that the two are the same.

Type, No. 76,125, Collection Carnegie Museum, adult female; Villa Braga, Rio Tapajóz, Brazil, January 7, 1920; Samuel M. Klages.

Thamnophilus amazonicus paraensis, subsp. nov.

Similar to *Thamnophilus amazonicus amazonicus* Sclater, and male not certainly distinguishable. Female duller and paler in general coloration, with less black mottling on the interscapulium, and with the tail distinctly brownish.

The name *amazonicus* was based by Sclater primarily on specimens collected by Bates on the upper Amazon, which is interpreted by Dr. Hellmayr to mean the Rio Javarri. We have none from there, but probably our series from the Rio Purús (Hyutanahan) are the same. A series from the Rio Tapajóz and Caviana (opposite Manacapurú) agree with these, and with the description and plate of *amazonicus*. But the Benevides birds are readily separable from those from farther up the Amazon by the characters of the females, above specified. Males exhibit no differences that I can find. French Guiana specimens agree best with those from the Pará district of Brazil, but may eventually prove separable. Since its characters are obvious only in the female, I select one of that sex as the type.

Type, No. 69,260, Collection Carnegie Museum, adult female; Benevides, Pará, Brazil, September 6, 1918; Samuel M. Klages.

Pygiptila stellaris purusiana, subsp. nov.

Similar to *Pygiptila stellaris stellaris* (Spix) of the Amazon Valley, etc., and male not certainly distinguishable, but female averaging more earthy brown above, with less bluish gray shade.

While not absolutely constant, the difference here remarked is certainly not due to season or age (the series available being sufficient to eliminate both), and seems to justify the division of the species on this basis. A series from the Rio Caura, Venezuela (in the Carnegie Museum and the American Museum of Natural History), agree with birds from the Rio Tapajóz and the upper Amazon. Consequently I see no reason either for recognizing *maculipennis* or for separating Caura examples as a distinct race. But those from the Rio Purús certainly constitute a recognizable subspecies.

Type, No. 87,327, Collection Carnegie Museum, adult female; Hyutanahan, Rio Purús, Brazil, January 16, 1922; Samuel M. Klages.

Myrmotherula klagesi, sp. nov.

Male: above black, streaked with white, but without any white interscapular blotch; wings black, with narrow white edgings, the middle and lesser coverts with white terminal edgings or spots, forming two bars across the wing; tail black, with a small white tip to each feather, the inner rectrices with narrow white edgings externally; under parts white, streaked with black, obsoletely on the abdomen medially; under wing-coverts pure white; inner margins of remiges white. Female: above black, streaked with buffy white; wings and tail as in the male; under parts buffy; the breast and sides with blackish elongated spots or streaks, obsolete on the throat and middle of the abdomen; under wing-coverts white.

The relationships of this new species are with *M. surinamensis multostriata* on the one hand and with *M. cherriei* on the other; in fact, it may be considered a connecting link between these two forms. The male is scarcely distinguishable from that of *multostriata* except by its lack of an interscapular patch and by its slightly longer tail. The striping on the under parts is virtually the same in both forms, showing no tendency to reduction, as in *M. longicauda*, or to increased prominence, as in *M. cherriei*. The female, on the other hand, is entirely different from that of the *surinamensis* group of conspecies, the color-pattern above being the same as that of the male, but the white replaced by buffy, except on the wings and tail; the under parts are more as in the same sex of *multostriata*, but the markings incline more to spots than to streaks. In the female of *M. cherriei* only the crown and hindneck are buffy-streaked, and the streaking below is more distinct (true in both sexes). The mandible is pale in both sexes.

It is curious that this species has not been met with at Santarem by any collectors previous to Mr. Klages, in whose honor it is named. Farther up the Rio Tapajóz it is replaced by *M. multostriata*. Six of our series of fourteen skins come from the islands in the Amazon opposite Obidos.

Ten males average as follows: wing, 48.5; tail, 27.5; bill, 13; tarsus, 15. Four females: wing, 47; tail, 28; bill, 12.5; tarsus, 15.

Type, No. 78,457, Collection Carnegie Museum, adult male; Santarem, Brazil, October 2, 1920; Samuel M. Klages.

Myrmotherula leucophthalma sordida, subsp. nov.

Similar to *Myrmotherula leucophthalma leucophthalma* (von Pelzeln) (as represented by a series from Hyutanahan, Rio Purús), but male with gray of under parts slightly deeper, and posterior under parts slightly darker brown; upper parts more grayish olive, less rufescent. Female with entire under parts much deeper in tone, the throat ochraceous buff (between ochraceous buff and ochraceous orange), paling to clay-color posteriorly.

With a good series of what is assumed to correctly represent true *leucophthalma* available for comparison, it is obvious that the birds from the Rio Tapajóz represent an easily recognizable race. Dr. Hellmayr (Novitates Zoologicæ, XVII, 1910, 347) had but one male from the island of Marajó, and although he noticed several small differences, he thought that these should be confirmed by additional material. Males may best be told by the less rufescent color of the upper parts, giving the impression of greater contrast between the back and the tail, while females, on the other hand, are most readily distinguished from those of the typical race by the strongly ochraceous tone (most pronounced on the throat) of the entire under parts. For this reason I choose one of this sex as the type.

Miss Snethlage records this bird from several localities in lower Amazonia, but as she had but one male of supposedly true *leucophthalma* from the Rio Purús it is no wonder that she failed to discriminate the former as new.

Type, No. 74,770, Collection Carnegie Museum, adult female; Colonia do Mojuy, Santarem, Brazil, November 3, 1919; Samuel M. Klages.

Myrmotherula fulviventris costaricensis, subsp. nov.

Similar to *Myrmotherula fulviventris fulviventris* Lawrence (type-locality Panama), but generally darker and less rufescent; adult male slightly darker and duller below and more pronouncedly so above (more olivaceous, less rufescent), the wings externally more brownish, less rufescent (close to brownish olive). Female also darker, more olivaceous, less rufescent, above, and decidedly paler buffy, less ochraceous, below, the wings externally differing as in the male.

Both Dr. Chapman (Bulletin American Museum of Natural History, XXXVI, 1917, 374; LV, 1926, 391) and Dr. Hellmayr (Field Museum Zoological Series, XIII, iii, 1924, 144) now say that the *Myrmotherula viduata* of Dr. Hartert (described from northwestern Ecuador) is a pure synonym of *Myrmotherula fulviventris* Lawrence (described from Panama), but the latter author admits that if there are two forms of the species, it would be the northern one that would require a name. According to his view, however, the characters of the northern bird are too inconstant to justify such a course. I do not find it so with our material. The Costa Rican birds differ at a glance from a series from western Colombia

in their darker coloration, obvious in both sexes. Accepting the statements of other authorities as to the identity of topotypical Panama skins with those from western Colombia, it becomes necessary to separate the Costa Rican series under some other name. Dr. Hartert, in describing *viduata*, noticed these same differences, but supposed that specimens from Costa Rica were the same as those from Panama, which is evidently not the case. With the specimens before me I believe the formal separation of the present series is fully indicated.

Type, No. 28,025, Collection Carnegie Museum, adult male; El Hogar, Costa Rica, January 12, 1907; M. A. Carriker, Jr.

Myrmotherula hæmatonota phæonota, subsp. nov.

Similar to *Myrmotherula hæmatonota hæmatonota* (Sclater) from the north bank of the Amazon, but altogether paler. Male: pileum and hindneck light brownish olive (instead of brownish sepia); back Sanford's brown (instead of chestnut); wings externally Dresden brown (instead of sepia); wing-coverts similar, with a large subterminal black area and broad tips rich clay-color, forming two bands across the wing; tail Prout's brown (instead of mummy brown); throat with white spots averaging larger; breast, etc., light neutral gray (instead of neutral gray); posterior under parts pale tawny olive (instead of light brownish olive). Female: the upper parts, wings, and tail differ much as in the male, but not in quite so pronounced a degree; the under parts, however, are decidedly brighter and more uniform buffy (between cinnamon buff and antimony yellow).

If this strongly marked form has hitherto remained unrecognized it can only be because specimens from the Rio Tapajóz have never been compared directly with those from near the type-locality, or from north of the Amazon. The differences between the two series are certainly striking, and would perhaps justify retaining them as two specific types. The difference in the wing-markings is conspicuous enough to suggest this. Miss Snethlage appears to be the only authority who has handled any specimens from this region, and she naturally felt justified in following Dr. Hellmayr's lead in calling them all *hæmatonota*.

Almost certainly, judging from the context, the specimens from Calama and Borba, on the east bank of the Rio Madeira, to which Dr. Hellmayr refers (Novitates Zoologicæ, XIV, 1907, 384; XVII, 1910, 349) must belong to the present race, while those from the opposite bank are referable to *M. amazonica* von Ihering, which is a species quite distinct from *M. hæmatonota*, as shown by the ample material in the collection of the Carnegie Museum.

Type, No. 75,173, Collection Carnegie Museum, adult male; Villa Braga, Rio Tapajóz, Brazil, November 28, 1919; Samuel M. Klages.

Myrmotherula ochrogyna, sp. nov.

Adult male similar to that of *Myrmotherula paraensis* (Todd), but gray of under parts darker, neutral gray to deep gull gray, and black of throat and breast averaging more extended. Adult female similar to that of

paraensis in color of under parts, but upper parts entirely different, being dull antique brown, the wings and tail dusky brown, externally much like the back.

Adult male: above, including wings and tail externally, dark neutral gray, inclining to slate-color; auriculars with traces of white streaking; wing-coverts black, with white tips; scapulars extensively white; rectrices with slight white tips; remiges margined internally with whitish; below, throat and breast black; rest of under parts neutral gray, inclining to deep gull gray; bill and feet brownish black (in skin).

Adult female: above dull antique brown, almost uniform; wing-coverts like the back; wings externally Dresden brown; tail raw umber, with external margins and slight tips of dull antique brown; sides of head between yellow ocher and buckthorn brown; under parts strongly buffy, more or less tinged with ochraceous buff; under wing-coverts similar; bill brown above, horn-color below; feet dull grayish brown (in skin).

So far as our material goes this species is known only from one point on the west bank of the Rio Tapajóz, being replaced on the east bank by *M. paraensis*, and west of the Rio Madeira by still another form. After comparing females of the three forms with each other I am still unwilling to follow Dr. Hellmayr in making *M. paraensis* and the present form conspecific with *M. longipennis*, although their representative relationship may be admitted. Since the male so closely resembles the same sex of *longipennis*, it will be better to select a female example as the type of the new form.

Type, No. 76,391, Collection Carnegie Museum, adult female; Villa Braga, Rio Tapajóz, Brazil, January 19, 1920; Samuel M. Klages.

Myrmotherula iheringi heteroptera, subsp. nov.

Males of this race are precisely like those of the typical form, but the females differ in having the upper parts, wings, etc., less purely gray, more olivaceous tinged, and in particular by having the spots on the wing-coverts buffy instead of white. This does not appear to be a sign of immaturity, in our specimen at least. Dr. Hellmayr (Field Museum Zoological Series, XIII, iii, 1924, 158, note) describes a female of this type from the Rio Roosevelt in the collection of the American Museum of Natural History. Very probably his record of *M. garbei* (Novitates Zoologicæ, XIV, 1907, 383) from the Rio Madeira belongs here also; it was based on a male, however, and indeterminable. Our series of five specimens are all from the Rio Purús.

Type, No. 87,591, Collection Carnegie Museum, adult female; Hyutanahan, Rio Purús, Brazil, January 28, 1922; Samuel M. Klages.

Myrmotherula menetriesii omissa, subsp. nov.

Male similar to that of *Myrmotherula menetriesii cinereiventris* Sclater and Salvin in being generally without a decided black throat-patch, but female different, being much more ochraceous below—yellow ocher to (almost) raw sienna.

In his latest review of this group Dr. Hellmayr (Field Museum Zoological Series, XIII, iii, 1924, 161–4) ranges Pará records under *cinereiventris*, but those from Villa Braga on the Rio Tapajóz he places provisionally under *berlepschi*, calling attention to the peculiarities of four females from that locality (apparently he had seen no males), and intimating that they might represent an undescribed race. With more ample material now before me than was available to him, I now find this to be the case. But I can see no especial differences between the females from the Pará region (three specimens) and the series from both banks of the Rio Tapajóz, both being equally richly colored below (the upper parts varying somewhat, but not geographically). Dr. Hellmayr speaks of the rich coloration beneath of some of the Pará females (l.c., p. 162, note). The present form differs from *berlepschi* (not seen by me) in the usual lack of any well-defined gular black patch in the male, and the rather paler coloration of the under parts in the female (*fide* Hellmayr), *berlepschi* being still more richly colored below in this sex. The black throat-patch is fairly well marked, although small, in but one male from Villa Braga (No. 75,766) and more or less indicated in a number of others from that locality, which may be regarded as variants or intergrades towards *berlepschi*. I choose a type, therefore, from among the purer bred Benevides birds, and from the females.

Type, No. 69,230, Collection Carnegie Museum, adult female; Benevides, Pará, Brazil, September 4, 1918; Samuel M. Klages.

Herpsilochmus stictocephalus, sp. nov.

Male: above gray (dark gull gray), with some black and white mottling on the back (more or less concealed); wings black, the remiges with white outer edgings (widest on the tertiaries) and the wing-coverts with conspicuous white terminal spots; tail black, all the feathers with broad white tips except the central pair, which have small white terminal spots and more or less white spotting or edging on their inner webs; pileum and nape black, the forehead with some small white spots or streaks; broad superciliaries white; transocular streak black; auricular and suborbital region mottled black and grayish white; under parts white, shaded with pale gray; under wing-coverts white.

Female: above gray, shaded with olive gray, and mottled with black and white (more or less concealed), as in the male, but rather more brownish, and the edgings of the remiges more grayish white; tail as in the male; pileum and nape black, with white spots, less conspicuous laterally; superciliaries grayish white; transocular stripe black; sides of head mottled grayish white; under parts white, the breast strongly buffy, and the flanks more or less shaded with light olive gray; under wing-coverts white.

The form described by the present writer as *Herpsilochmus sticturus nigrescens* (Proceedings Biological Society of Washington, XXVIII, 1915, 80) was based on a pair of birds from the Rio Caura, Venezuela. There were then available for comparison two male examples from Rio Yuruan, Venezuela (near the British Guiana frontier), which had been examined by Dr. Hellmayr and pronounced typical *H. sticturus*. When the series

of *Herpsilochmus* from French Guiana came to be studied, it was found that the females were of two distinct types: those with rufous stripes on the pileum and a barely perceptible tinge of buffy on the lower parts; and those with a white-spotted pileum and strongly buffy under parts. The latter were slightly larger as well, the wing running 47–50 mm., and the tail 35–38 mm., while the corresponding figures for the former class were 45–47 mm. and 30–36 mm. It then developed that the males also fell into two classes, the differences, however, being less obvious. In the larger form the wing of the male measures 47–50 mm., and the tail 34–40 mm., as against 45–47 mm. and 31.5–36 mm. for the other. In the smaller form the general coloration is darker, especially so above, and the pileum is plain black, without any sign of white spotting or streaking on the forehead, which is always more or less in evidence in the larger bird.

Since these two forms occur together (in French Guiana at least) they must be distinct species. The smaller, darker bird from French Guiana is absolutely the same as the type and topotype of *nigrescens* from the Caura, while the two males from Rio Yuruan belong to the larger and lighter-colored species. The question at once arose as to which of the two was the real *Herpsilochmus sticturus* (described from British Guiana, an intermediate locality with reference to our specimens). The description seemed to point to the smaller species, since there was no mention made of any white spotting on the forehead in the male, while the female was said to have the pileum marked with rufescent. In order to put the matter beyond question, however, Dr. Percy R. Lowe of the British Museum was asked to re-examine the type-series with this point in view, and his notes, recently received, suffice to confirm my suspicions that *nigrescens* is a pure synonym of *sticturus*. For the larger bird, represented in our collection by two specimens from Venezuela and thirty-four from French Guiana, a new name is therefore required. The name chosen refers mainly to the characters of the female, from which sex the type is selected. An immature male (No. 65,164), with some greenish remiges and a white-spotted pileum, absolutely ties up the males of this series with the females described above.

Type, No. 62,172, Collection Carnegie Museum, adult female; Tamanoir, French Guiana, June 19, 1917; Samuel M. Klages.

Terenura humeralis transfluvialis, subsp. nov.

Adult male similar to that of *Terenura humeralis humeralis* Sclater and Salvin from eastern Ecuador and Peru, but lesser wing-coverts and lower back rich Mars orange, instead of dull chestnut, and wing-bands entirely yellow. Adult female with the throat dull whitish, with no buffy shade, and the rest of the under parts dull reed yellow, almost as in the male.

This form is based on a pair of birds from Hyutanahan, Rio Purús, Brazil, which differ from the description and figure of *T. humeralis* in the respects above pointed out. A single male from São Paulo de Olivença appears to vary in the direction of the typical race. Dr. Hellmayr, who has examined these specimens at my request (and has also seen the types

of *humeralis* in the British Museum), believes the form they represent to be new. In any event the present records materially extend the range of this species, not known heretofore to run beyond eastern Peru and Ecuador.

Type, No. 87,818, Collection Carnegie Museum, adult female; Hyutanahan, Rio Purús, Brazil, February 7, 1922; Samuel M. Klages.

Microbates collaris perlatus, subsp. nov.

Similar to *Microbates collaris collaris* (von Pelzeln) of the middle Amazon, French Guiana, etc., but black pectoral collar wider, and posterior under parts sensibly darker.

Eleven specimens from Tonantins, Rio Solimoës, Brazil, when compared with twenty-three from French Guiana and sixteen from Manacapurú, Brazil (the latter essentially topotypical) agree in having the breast-band wider and the sides and flanks with more grayish shading, giving a darker appearance to the under parts by comparison as the two series lie side by side. The flanks and crissum, too, are rather darker brown.

Although this species is known from Amazonian Colombia, no adequate series have heretofore been available, either from this section or from the type-locality, which will readily account for this race having been overlooked thus far.

Type, No. 97,201, Collection Carnegie Museum, adult male; Tonantins, Rio Solimoës, Brazil, July 11, 1923; Samuel M. Klages.

Cercomacra tyrannina vicina, subsp. nov.

Similar to *Cercomacra tyrannina tyrannina* (Sclater), and female not distinguishable. Male paler below, the flanks always heavily shaded with light brownish olive, and the wings externally and tail decidedly brownish olive.

This is the series which Dr. Hellmayr after examination says "are not different either" (from typical *tyrannina*). I can not agree with this determination. It is scarcely likely that all of the five males (in fresh plumage) are in supposedly immature dress, and even if they were they do not agree with the duller-colored males of the El Tambor (Colombia) series, the olivaceous wash on the wings, tail, and flanks being considerably more intense and more uniform. The plate accompanying the original description of *tyrannina* (Proceedings Zoological Society of London, 1855, pl. 98) shows a bird with decidedly grayish wings, which in any event can not be the form with which we are now dealing. Moreover, three adult males from Buena Vista, Colombia, in the collection of the American Museum of Natural History, although presumably topotypical, are clearly intermediate between the form here characterized and a series from El Tambor, Colombia, and could be referred to one as easily as to the other. But if we take *tyrannina* from the original description and figure the present form seems entitled to a name. The olive brownish coloration of certain parts suggests that observed in *læta*, but is much more intense, besides which, the females are different, agreeing with those of *tyrannina*.

We have eight specimens from Palmar, Boyaca, Colombia (near the foot of the northern extremity of the Eastern Andes) and four others (not quite typical) from Azulita, Venezuela, in the humid forest region on the opposite side of the Venezuelan Andes.

Type, No. 60,446, Collection Carnegie Museum, adult male; Palmar, Boyaca, Colombia, April 19, 1917; M. A. Carriker, Jr.

Cercomacra nigricans atratus, subsp. nov.

Male similar to the same sex of *Cercomacra nigricans nigricans* Sclater, but larger. Female uniformly darker in general coloration than the female of *nigricans*.

Dr. Hellmayr acknowledges only one form of this species in his recent work, and still more recently Dr. Chapman (Bulletin American Museum of Natural History, LV, 1926, 400) reiterates his belief that there is no racial variation. But there can be no question whatever that our series from western Colombia (twenty-four specimens) are not the same as the birds from the Santa Marta region and Magdalena Valley, listed as *nigricans*. They are constantly larger, and the females differ also in coloration, being uniformly darker. The upper parts, including the wings and tail, are more blackish, and the black of the under parts is more extended posteriorly, while the gray of the flanks is more sooty, producing a decidedly darker effect as the two series lie side by side. Two females (so marked) from Yumbo (Nos. 70,046–7) have the plumage below irregularly streaked on the throat and squamated elsewhere with white, which is probably an individual variation, but otherwise they are as dark-colored as the others.

Compared with birds from western Ecuador (*Cercomacra maculosa* Sclater) the present form differs in the female sex in being much blacker below. Ecuador females are all conspicuously mottled with white and gray (blackish in only one specimen, which, however, is much grayer even than our No. 70,046). They suggest *Sclateria nævia* very strongly indeed, and are even more mottled than young birds of true *nigricans*. There are thus three valid races of this species, of which the one from western Colombia remains to be named.

Type, No. 70,140, Collection Carnegie Museum, adult female; Yumbo, Valle, Colombia, August 14, 1918; M. A. Carriker, Jr. (Wing, 67; tail 67.)

Myrmoborus stictopterus, sp. nov.

Male not certainly distinguishable from the same sex of *Myrmoborus lugubris* (Cabanis) except for its smaller size (wing, 67; tail, 43). Female: above sepia brown, becoming more rufescent on the pileum, and passing into antique brown on the forehead, this color continued backward as a superciliary stripe, which is paler and more buffy behind the eyes; lores and sides of the head and neck black; wing-coverts like the back, but more rufescent, with conspicuous triangular terminal spots of buffy white; remiges externally cinnamon brown; tail warm sepia; under parts white, the flanks and crissum washed with brownish buffy; under wing-coverts white.

This species differs from *Myrmoborus femininus* (Hellmayr), in the female sex, by the whiter under parts, the much paler and therefore more conspicuous spotting of the wing-coverts, the much less rufescent back, and in particular by the different head-pattern, the forehead in *femininus* being concolor with the crown, while the superciliaries are black like the sides of the head. The single male example is not quite adult, but shows paler tipping to the wing-coverts which is indicated as strongly in some examples of *M. lugubris*, but not at all in *M. femininus*. The female specimen, taken at the same time as the male, seems to be fully adult.

This is probably the form recorded by Dr. Hellmayr (Novitates Zoologicæ, XIV, 1907, 380) from Anavehana, Rio Negro.

Type, No. 99,135, Collection Carnegie Museum, adult female; Marrecao Island, Manacapurú, Brazil, March 8, 1924; Samuel M. Klages.

Myrmoborus ardesiacus, sp. nov.

Adult male: above, including wings and tail externally, slate-color, the forehead and the sides of the crown usually slightly more bluish in tone, the back with a large concealed white interscapular patch; wing-coverts black, with distinct but narrow white tips; outermost primary, alula, and primary-coverts margined externally with white; sides of head (including narrow superciliaries) and entire throat black; rest of under parts deep gray (dark gull gray); under wing-coverts mixed gray and white.

Adult female: above dull brown (sepia to Prout's brown), the back with a concealed white interscapular patch, the forehead and the sides of the crown indistinctly paler; wings and tail externally like the back; wing-coverts black and brown, with distinct but narrow buffy tips; outermost primary, alula, and primary-coverts margined externally with white; sides of head (including narrow superciliaries, loral, subocular, and auricular regions) black; throat white, sometimes bounded behind by a row of blackish spots, but often grading directly into the ochraceous buffy shading of the rest of the lower parts, which is heavy and uniform on the flanks and crissum, but pale on the abdomen medially, this part sometimes being nearly white; under wing-coverts mixed brown and white.

This interesting and unexpected new species combines the dark coloration of the male of *M. leucophrys* with the banded wings and white interscapular spot of *M. melanolæma* and *M. myotherinus*. The female more nearly resembles that of *M. melanolæma*, but may at once be told by the pure white instead of buffy outer margins of the feathers along the edge of the wing, and by the darker feet. The description is based on a series of forty-eight specimens, all from the type-locality.

Type, No. 98,556, Collection Carnegie Museum, adult male; Manacapurú, Rio Solimoës, Brazil, October 16, 1923; Samuel M. Klages. (Wing, 61; tail, 38; bill, 17; tarsus, 24.)

Myrmoborus ardesiacus proximus, subsp. nov.

Similar to *Myrmoborus ardesiacus ardesiacus*, and male not certainly distinguishable. Female much more deeply and richly colored below,

the entire under parts, except the throat, being rich ochraceous buff, while the throat also is more or less washed with this color, and the edge of the wing (primary-coverts, alula, and outer primary), which is pure white in the typical race, is more or less shaded with buffy.

In this form, which comes from the south side of the Amazon, opposite Manacapurú, the female has assumed a color which is almost the same as in *M. ochrolæma*, except that the throat, which in that species is concolor with the rest of the under parts, is paler, more whitish. The color below is between the ochraceous buff and yellow ocher of Ridgway, and it is virtually uniform, and not paler and interrupted medially, as in the typical form. The present form differs from *M. elegans* (Colombian specimens) in the male being darker, more slaty gray below, while the female has the white of the throat not bordered posteriorly by a row of blackish spots, and the upper parts not quite so dark.

Type, No. 99,391, Collection Carnegie Museum, adult female; Caviana, Rio Solimoës, Brazil, June 2, 1924; Samuel M. Klages.

A Review of the Genus Myrmeciza and its Allies.

The treatment of the forms included under the generic groups *Sclateria*, *Myrmeciza*, and *Myrmoderus* by Dr. Hellmayr in his late review of the Antbirds is not entirely satisfactory, as admitted by Dr. Hellmayr himself. Having been able to examine most of the included species, I take advantage of this occasion to propose a new arrangement, in the effort to group the several forms more nearly in accordance with what I conceive to be their real affinities, as shown by their structural characters. Although reluctant to increase the number of genera in this Family, I believe it is better to do so than to attempt to keep forms under the same generic heading which have no characters in common to hold them together, so that the genus becomes unsusceptible of definition and therefore meaningless from a systematic standpoint.

Sclateria Oberholser.

Sclateria Oberholser, Proc. Acad. Nat. Sci. Philadelphia, 1899. 200 (new name for *Heterocnemis* Sclater, preoccupied; type, *Holocnemis flammata* Strickland=*Sitta nævia* Gmelin).

This genus is characterized by its long, slender bill (longer than the head), relatively short tail, and by the tendency of the tarsal scutes to become fused and obsolete. It is hereby restricted to include only the type-species and its near allies.

Sclateria nævia diaphora Todd.

Sclateria nævia diaphora Todd, Proc. Biol. Soc. Washington, XXVI, 1913, 172 (Rio Mocho, Rio Caura, Venezuela).

Sclateria nævia nævia (Gmelin).

Sitta nævia Gmelin, Syst. Nat., I, i, 1788, 442 (Surinam, ex Edwards).

Sclateria nævia toddi Hellmayr.

Sclateria nævia toddi Hellmayr, Field Mus. Zool. Ser., XIII, iii, 1924, 253 (Santarem, Rio Tapajóz, Brazil).

Sclateria argentata (DesMurs).

Herpsilochmus argentatus DesMurs in Castelnau, Expéd. Amér. Sud, Zool., I, Oiseaux, 1856, 53, pl. 17, fig. 2 (Nauta, Peru).

The yellow feet and nearly white (unstriped) under parts of this form are in my opinion good specific characters as compared with *S. nævia*, in spite of the somewhat intermediate character of the Tapajóz race.

Schistocichla, genus novum.

Similar to *Sclateria* Oberholser, but bill proportionately shorter and slenderer (shorter than the head). Similar to *Myrmeciza* Gray, but loral and frontal regions fully feathered; bill stouter, with the commissure straighter; and the tail relatively longer, usually extending beyond the outstretched feet. Type, *Percnostola leucostigma* von Pelzeln.

The species belonging to this group have been shifted about from one genus to another by different authors. The latest authority (Dr. Hellmayr) keeps them in *Sclateria*, but with much misgiving, and suggests that the latter group be restricted to *S. nævia* and its allies, or else merged with *Myrmeciza*. The latter course would make its satisfactory diagnosis quite impossible, so that, after going over the whole ground, I have reached the conclusion that the facts would be best expressed by setting off "*S.*" *leucostigma* and its allies from both these genera, and still further restricting *Myrmeciza*.

Schistocichla subplumbea subplumbea (Sclater and Salvin).

Dysithamnus subplumbeus Sclater and Salvin, Proc. Zool. Soc. London, 1880, 158 (Sarayacu, Ecuador).

Schistocichla subplumbea, subsp.

This is the *Sclateria schistacea* of authors, but not of Sclater, 1858, whose type has been unique until recently, and belongs to a species entirely distinct from that with which it has been misidentified, as will be shown beyond. The present form is therefore without a name, but is conspecific with *S. subplumbea*, from which it differs in the generally darker coloration of the male, and the darker brown upper parts and rather lighter under parts of the female.

As we understand that this form is shortly to be formally described and named by Mr. John T. Zimmer from material in the Field Museum, we refrain from christening it here.

Schistocichla leucostigma (von Pelzeln).

Percnostola leucostigma von Pelzeln, Orn. Brasiliens, ii, 1868, 86, 160 ("Barra do Rio Negro" = Manáos, Brazil).

This form is closely related to *S. subplumbea*, but is much lighter in color in both sexes, and the feet are pale, not dark, as in that form. For the present it may remain specifically distinct, its separated range lending support to this view.

Schistocichla infuscata, sp. nov.

Male: above dark neutral gray, the pileum, wings, and tail more blackish; wing-coverts with small white terminal spots; sides of head deep neutral gray, passing into light neutral gray on the under parts, the flanks and crissum dark olive gray. Wing, 63; tail, 48; bill, 19; tarsus, 25.

Female: above, including outer aspect of wings, deep, rich brown (between Mars brown and Prout's brown), the remiges mummy brown towards their tips; wing-coverts with ochraceous tawny terminal spots; tail dull black; pileum dark brownish olive, with indistinct blackish edgings to the feathers; sides of head similar but duller; under parts between ochraceous orange and ochraceous tawny, paler on the throat, darker and more brownish on the flanks and crissum. Wing, 66; tail, 50; bill, 19; tarsus, 25 (fresher plumage).

The male of this form is much paler than that of *S. subplumbea;* the bill (below) and feet are light-colored instead of dark. The female is also much paler below; the bill and feet differ as in the male; and the upper parts are almost the same, except the pileum and sides of the head, which are brownish olive, not slaty gray. The species is based on a single pair of birds from Tonantins, on the upper Amazon.

Type, No. 96,887, Collection Carnegie Museum, adult female; Tonantins, Rio Solimoës, Brazil, June 21, 1923; Samuel M. Klages.

Schistocichla humaythæ humaythæ (Hellmayr).

Sclateria schistacea humaythæ Hellmayr, Bull. Brit. Orn. Club, XIX, 1907, 51 (Humaytha, Rio Madeira, Brazil).

This form was described from the upper Rio Madeira, and was supposed to be confined to that region. No form of this group has ever been recorded from the Rio Tapajóz, so that our series from that river (Santarem, Villa Braga, and Apacy), consisting of two adult and one immature males and three adult females, are of double interest. They fit the description of *humaythæ* exactly, and show that its range is more extensive than was supposed. The feet in both sexes are decidedly paler ("flesh pink" in life) than in *S. subplumbea.* The latter is not only much darker colored in both sexes, but the female has the pileum and the sides of the head slaty.

Schistocichla humaythæ major, subsp. nov.

Similar to *S. humaythæ humaythæ,* but larger, and tail relatively shorter. Male purer gray above and below; female duller brown above, and the sides of the head dull brownish olive, like the pileum, instead of rufescent like the under parts.

Forty-one specimens of this race are in the collection, from the following localities in Brazil: Hyutanahan and Arimã, Rio Purús; São Paulo de Olivença, Manacapurú, and Caviana, Rio Solimoës. No form of this group has been known thus far in the region of the Rio Purús, or on the middle Amazon above Manáos, but the present series fill the gap, and show a presumably continuous range between the forms inhabiting French Guiana

and Peru respectively. It is curious to find the same form on both sides of the river at Manacapurú, while farther up, at São Paulo de Olivença and Tonantins, two forms occur, confined to either bank. Manáos is the type-locality of *S. leucostigma*, yet at Manacapurú it is the present form that occurs. Probably the Rio Negro is the dividing line between their respective ranges.

Type, No. 96,274, Collection Carnegie Museum, adult female; São Paulo de Olivença, Rio Solimoës, Brazil, April 5, 1923; Samuel M. Klages. (Wing, 70; tail, 48; bill, 18.5; tarsus, 26.5.)

Schistocichla saturata (Salvin).

Heterocnemis saturata Salvin, Ibis, 1885, 427 (Roraima, British Guiana). No specimen of this form has been examined.

Schistocichla schistacea (Sclater).

Hypocnemis schistacea Sclater, Proc. Zool. Soc. London, 1858, 252 (Rio Javarri, Peru).

Male: above and below (including wings and tail externally) almost uniform slate-color, duller on the abdomen and crissum; wing-coverts with small white terminal spots. Wing, 62–66; tail, 47–50; bill, 17–18; tarsus, 23–25.

Female: above rich brown (between Brussels brown and raw umber), duller (pale mummy brown) on the rump, more rufescent on the pileum, which shows paler shaft-stripes and obscure darker margins to the feathers; wings externally brown like the back, the wing-coverts with rufescent buff terminal spots; tail dusky slate-color; sides of head (including superciliaries) and under parts in general rich ochraceous rufous (between Mars yellow and Sudan brown), becoming duller and browner (sepia) on the flanks, and dusky slate-color on the crissum. Wing, 60–65; tail, 48–50; bill, 16.5–18; tarsus, 24–25.

Of this species we have a series of forty-nine specimens from São Paulo de Olivença and Tonantins, on the Rio Solimoës, Brazil. Some of these were sent to Dr. Hellmayr, and he reports that they are the long-lost true "*Hypocnemis*" *schistacea* of Sclater, founded originally on a single male sent by Bates from the Rio Javarri, which flows into the Rio Solimoës a little west of São Paulo de Olivença. The species identified as *schistacea* by later authors is an entirely different bird, subspecifically related to *S. subplumbea*, and is described above. In order to clear up the confusion surrounding the present form a full description is here given.

For the present I refer this species to *Schistocichla*, but it is aberrant, having a weaker bill and shorter tail than the typical forms of that group. The feet, too, are weaker, and the tarsi rougher. In coloration, however, it suggests *S. caurensis*, and may provisionally be left near that form.

Schistocichla caurensis (Hellmayr).

Sclateria schistacea caurensis Hellmayr, Bull. Brit. Orn. Club, XIX, 1906, 9 (Caura River, Venezuela).

In its rather longer tail and rougher tarsi this species approaches *Myrmelastes*, but otherwise is best referred to *Schistocichla*.

MYRMELASTES Sclater.[1]

Myrmelastes Sclater, Proc. Zool. Soc. London, 1858, 274 (type by subsequent designation [Sclater, 1890], *Myrmelastes plumbeus* Sclater = *Thamnophilus hyperythrus* Sclater).

This group differs from *Myrmeciza* in its stouter, heavier bill, and more rounded nostrils. The tail is relatively longer, the outstretched feet not reaching beyond it. But the best marked generic character is the extensive naked postorbital area, which sets off this group from its affines, although in *Myrmeciza maculifer* there is an approach towards it. On the other hand the genus is related to *Gymnocichla*, in which the denudation is still more extensive.

Myrmelastes hyperythrus (Sclater).

Thamnophilus hyperythrus Sclater, Edinburgh New Philos. Journ., (n. s.) I, 1855, 235 (Chamicuros, Peru).

Myrmelastes gœldii Snethlage.

Myrmelastes goeldii Snethlage, Journ. f. Orn., LVI, 1908, 17 (Bom Lugar and Ponto Alegre, Rio Purús, Brazil).

Not seen by the writer, but since it is said to agree perfectly in structure and proportion with *M. melanoceps*, it is doubtless correctly placed here.

Myrmelastes melanoceps (Spix).

Thamnophilus melanoceps Spix, Avium . . . Brasiliam, II, 1825, 28, pl. 39, fig. 1 ("Pará" [error] = Rio Iça, Brazil [fide Hellmayr]).

Myrmelastes fortis fortis (Sclater and Salvin).

Percnostola fortis Sclater and Salvin, Proc. Zool. Soc. London, 1867, 980, pl. 45 (Pebas and Chyavetas, Peru).

Three females from eastern Ecuador (lower Rio Suno) in the collection of the American Museum of Natural History agree closely with our series from the Rio Purús, São Paulo de Olivença, and Caviana, Brazil (forty-nine specimens).

[1] *Myrmelastes cryptoleucus* Ménégaux and Hellmayr, Bull. Soc. Philom. Paris, (9), VIII, 1906, 30 (Pebas, Peru) = *Thamnophilus cryptoleucus*. As shown by the large series in the collection of the Carnegie Museum (from Sao Paulo de Olivença, Panelas Island, and Marrecao Island, Rio Solimoës, Brazil), the type of this species, supposed to have been a male, must have been a female instead. The male may be thus described: black, with a slight gloss, wanting on the flanks, which are duller and more sooty; back with a large concealed white interscapular patch, and the scapulars edged with white externally; all the wing-coverts conspicuously edged with white toward their tips, and the innermost lesser coverts largely of this color; under wing-coverts pure white, and inner margins of remiges white basally, increasing in extent on the innermost; "iris seal, eyelids blackish; bill black; feet plumbeous." There is a certain resemblance in coloration between this species and *Myrmelastes melanoceps*, but it is clearly a *Thamnophilus*, and not a *Myrmelastes*. Dr. Hellmayr, to whom some of our series were submitted for examination, fully agrees with this allocation.

Myrmelastes fortis incanescens, subsp. nov.

Similar to *Myrmelastes fortis fortis,* and adult male not certainly distinguishable. Adult female more grayish above; flanks duller brown; and bill dark-colored beneath.

This form is based on a series of nine specimens from Tonantins, on the north bank of the Rio Solimoës in western Brazil. In the five females of this series the upper back is largely dark gray, in strong contrast to the pileum, while in true *fortis* the rufescent color predominates. In our female specimens of this latter form the bill below is pale or yellowish.

Type, No. 97,601, Collection Carnegie Museum, adult female; Tonantins, Rio Solimoës, Brazil, August 2, 1923; Samuel M. Klages.

Myrmelastes immaculatus immaculatus (Lafresnaye).

Thamnophilus immaculatus Lafresnaye, Rev. Zool., VIII, 1845, 340 ("Bogotá," Colombia).

Myrmelastes immaculatus berlepschi (Ridgway).

Myrmeciza berlepschi Ridgway, Proc. Biol. Soc. Washington, XXII, 1909, 74 (Chimbo, Ecuador).

Myrmelastes immaculatus zeledoni (Ridgway).

Myrmeciza zeledoni Ridgway, Proc. Biol. Soc. Washington, XXII, 1909, 74 (Guayabo, Costa Rica).

Myrmelastes lophotes (Hellmayr and von Seilern).

Percnostola lophotes Hellmayr and von Seilern, Verh. Orn. Ges. Bayern, XII, 1914, 90 (Rio San Gaban, Carabaya, Peru).

Not examined in the present connection.

MYRMECIZA Gray.[1]

Myrmeciza Gray, List Genera Birds, ed. 2, 1841, 34 (type, *Drymophila longipes* Swainson).

In *Myrmeciza* the bill is weaker than in *Myrmelastes;* the nostrils are more elongated; the region back of the eye is normally feathered (although in one group of species the frontal region is less densely feathered than usual); and the tail is relatively shorter, falling short of the outstretched feet.

Myrmeciza longipes longipes (Swainson).

Drymophila longipes Swainson, Zool. Journ., II, 1825, 152 ("Brazil" [error] = Trinidad [fide Hellmayr]).

Myrmeciza longipes panamensis Ridgway.

Myrmeciza boucardi panamensis Ridgway, Proc. Biol. Soc. Washington, XXI, 1908, 144 (Panama Railroad).

[1] *Myrmeciza dubia* Snethlage (Journ. f. Orn., LXXIII, 1925, 273) I am unable to place from the description.

Myrmeciza longipes boucardi von Berlepsch.

Myrmeciza boucardi von Berlepsch, Ibis, 1888, 129 ("Bogotá," Colombia).

Myrmeciza longipes griseipectus von Berlepsch and Hartert.

Myrmeciza swainsoni griseipectus von Berlepsch and Hartert, Nov. Zool., IX, 1902, 76 (Caicara, Venezuela).

Myrmeciza læmosticta læmosticta Salvin.

Myrmeciza læmosticta Salvin, Proc. Zool. Soc. London, "1864," 1865, 582 (Tucurriqui, Costa Rica).

Myrmeciza læmosticta palliata Todd.

Myrmeciza læmosticta palliata Todd, Proc. Biol. Soc. Washington, XXX, 1917, 129 (La Palmita, Santander, Colombia).

This form was based on two specimens from the type-locality and one other from El Tambor, Colombia. A single example from Azulita, Venezuela, extends its range considerably.

Myrmeciza læmosticta nigricauda Salvin and Godman.

Myrmeciza nigricauda Salvin and Godman, Biol. Centr.-Am., Aves, II, 1892, 230 (Intac, Ecuador).

Myrmeciza exsul occidentalis Cherrie.

Myrmeciza exsul occidentalis Cherrie, Auk, VIII, 1891, 191 (Pozo Azul, Costa Rica).

Myrmeciza exsul exsul Sclater.

Myrmeciza exsul Sclater, Proc. Zool. Soc. London, XXVI, "1858," 1859, 540 (Panama).

Myrmeciza maculifer maculifer (Hellmayr).

Myrmelastes exsul maculifer Hellmayr, Nov. Zool., XIII, 1906, 340 (Paramba, Ecuador).

Myrmeciza maculifer cassini (Ridgway).

Myrmelastes cassini Ridgway, Proc. Biol. Soc. Washington, XXI, 1908, 194 (Turbo, Colombia).

As shown by Dr. Chapman and confirmed by the writer, specimens of this species from western Colombia are variously intermediate between *maculifer* and *cassini*. The type and topotype of *cassini*, which have been examined in this connection, turn out to be intermediate examples, but rather nearer the northern form, so that the name may be retained.

Myrmeciza spodiogastris[1] (von Berlepsch and Stolzmann).

Myrmeciza spodiogastra von Berlepsch and Stolzmann, Ibis, 1894, 397 (Borgoña, Chanchamayo Valley, Peru).

[1]Dr. Oberholser contends that compounds of *-gaster* should be inflected the same as those of *-venter*, and with this I am inclined to agree, provided that the word is used as an adjective and not as a substantive.

A series of specimens from São Paulo de Olivença, Rio Solimoës, Brazil, fit the original description very well, but require comparison with topotypical material.

Myrmeciza hemimelæna hemimelæna Sclater.

Myrmeciza hemimelæna Sclater, Proc. Zool. Soc. London, 1858, 48 (Bolivia).

Mr. Ridgway (Bulletin U. S. National Museum, No. 50, V, 1911, 15) was uncertain as to the generic position of this species, but thought it might be a *Myrmoderus*. Dr. Hellmayr, indeed, places it with that group, but I can not follow him in so doing. It seems to me that it agrees much better (even in style of coloration) with *Myrmeciza*, and ought to be placed in this group instead. Only in the denser feathering of the lores and frontal region does it approach *Myrmoderus*, all the other characters being different. These remarks apply also to *M. spodiogastris*.

Myrmeciza hemimelæna pallens von Berlepsch and Hellmayr.

Myrmeciza hemimelæna pallens von Berlepsch and Hellmayr, Journ. f. Orn., LIII, 1905, 32 (Villa Bella de Matto Grosso, Brazil).

Myrmeciza ruficauda (Wied).

Myiothera ruficauda Wied, Beitr. Naturg. Brasilien, III, ii, 1831, 1060 ("Brazil" = Rio Doce, Prov. Espirito Santo, fide Hellmayr).

After examining this species I would refer it without hesitation to *Myrmeciza* instead of to *Myrmoderus*. Its short tail, scantily feathered forehead, and style of coloration all bring it into the former group.

Myrmeciza pelzelni Sclater.

Myrmeciza pelzelni Sclater, Cat. Birds Brit. Mus., XV, 1890, 283 (Marabitanas, Rio Negro, Brazil).

Not examined in this connection, but apparently belonging here.

Myrmoderus Ridgway.

Myrmoderus Ridgway, Proc. Biol. Soc. Washington, XXII, 1909, 70 (type, *Myiothera loricata* Lichtenstein).

This group, as set up by Mr. Ridgway and later treated by Dr. Hellmayr, is certainly heterogeneous, and requires subdivision, for as it stands it is incapable of proper definition. I propose, therefore, to restrict it to the type-species, *Myiothera loricata* Lichtenstein, and its near ally, *Myrmeciza squamosa* von Pelzeln. These agree in shape of the bill, feathering on the head, style of coloration, and in having the tail longer than the wing, with rather narrow rectrices, and much rounded or graduated. The feet are rather weak, and the tarsi slender and pale-colored.

Myrmoderus loricatus (Lichtenstein).

Myiothera loricata Lichtenstein, Verz. Dubl. Berliner Mus., 1823, 44 (Bahia, Brazil).

Myrmoderus squamosus von Pelzeln.

Myrmeciza squamosa von Pelzeln, Orn. Brasilien, ii, 1868, 87, 162 (Ypanema Mattodentro, São Paulo, Brazil).

Myrmedestes, genus novum.

Similar to *Myrmoderus* Ridgway, but tail shorter than the wing, the rectrices relatively wider; and the sides of the head largely naked. Type, *Turdus ferrugineus* Müller.

In the general shape of the bill the type of this genus resembles *Myrmoderus,* but there the resemblance ends, and it seems strange that Mr. Ridgway should have assigned it to that group. The loral, suborbital, and postocular regions are extensively bare—more so than in *Gymnopithys* and *Rhegmatorhina*—and this character alone would suffice to keep the species in question out of *Myrmoderus,* while the style of coloration is different, and the black feet also suggest a distinction.

Myrmedestes ferrugineus ferrugineus (Müller).

Turdus ferrugineus Müller, Natursyst., Suppl., 1776, 141, ex Daubenton, Pl. Enl., 560, fig. 2 (Cayenne).

Myrmedestes ferrugineus elutus, subsp. nov.

Similar to *Myrmedestes ferrugineus ferrugineus* from north of the Amazon, but flanks and crissum paler in both sexes, and female with more white below the black pectoral band, on the upper abdomen.

Nineteen specimens from Villa Braga and Itaituba, Rio Tapajóz, Brazil, differ from a good series from French Guiana and Obidos as above pointed out, and the difference is fully enough to justify giving the southern bird a new name, although it is bridged over by individual variation in both sexes. In typical *ferrugineus* the flanks and crissum are usually Brussels brown, almost uniform, while in the new form the flanks are nearer buckthorn brown, deepening on the crissum into antique brown. As seen in series the difference is obvious, and would of itself justify subspecific separation of the trans-Amazonian birds, aside from the much whiter under parts of the female of the latter, which is another good character.

Type, No. 76,019, Collection Carnegie Museum, adult male; Villa Braga, Rio Tapajóz, Brazil, December 27, 1919; Samuel M. Klages.

Myrmophylax, genus novum.[1]

Similar to *Myrmoderus* Ridgway in the shape of the bill, but tail approximately equal to the wings, composed of broad black feathers, widening

[1] *Myrmoderus griseiceps* Chapman, Am. Mus. Novit., No. 86, 1923, 6 (Palambla, Piura, Peru)=*Neorhopias griseiceps.* Dr. Chapman described this very distinct species as a *Myrmoderus,* probably because of its resemblance in color to "*Myrmoderus*" *atrothorax.* To my mind, however, this resemblance is purely superficial, and its weak feet, graduated and (in the male) white-tipped tail, shape of bill, etc., indicate that it belongs in *Neorhopias* instead. Even the general style of coloration is not seriously out of accord with the other members of this generic group.

towards their tips; and style of coloration entirely different. Type, *Formicarius atrothorax* Boddaert.

The reason for associating this group of species with *Myrmoderus* is not apparent. In fact, they rather suggest *Neorhopias* Hellmayr, except for their more rounded wings and much stronger feet.

Myrmophylax atrothorax atrothorax (Boddaert).

Formicarius attothorax (err. typ.) Boddaert, Tabl. Pl. Enl., 1783, 44, ex Daubenton, Pl. Enl., 701, fig. 2 (Cayenne).

Myrmophylax atrothorax melanura (Ménétriès).

Formicivora melanura Ménétriès, Mem. Ac. Sci. St. Petersburg, (6) III, ii, 1835, 508, pl. 8, figs. 1, 2 (Cuyabá, Matto Grosso, Brazil, fide Chrostowski).

Myrmophylax atrothorax maynana (Taczanowski).

Myrmeciza maynana Taczanowski, Proc. Zool. Soc. London, 1882, 32 (Yurimaguas, Peru).

Not examined in this connection.

Myrmophylax stictothorax, sp. nov.

Male: above dull medal bronze (with a concealed white interscapular blotch), more grayish on the pileum, more dusky on the rump, the wings externally more brownish (sepia), the lesser and middle coverts more blackish; all the upper coverts with small triangular terminal white spots; tail and its upper and under coverts black; sides of head and neck, and the under parts from the breast down, deep neutral gray, the flanks with a slight wash of brownish olive; throat and breast black medially, the latter with some shaft-spots or stripes of white; under wing-coverts dull grayish white. Wing, 58; tail, 56; bill, 14.5; tarsus, 23.5.

Female: above bright Dresden brown (with a concealed white interscapular blotch), the pileum duller (more olivaceous), the wings externally more brownish (Prout's brown), their coverts with whitish or buffy terminal spots (larger than in the male); tail black; forehead and sides of head dull gray; throat white; breast and sides of neck rich ochraceous buff, the sides of the abdomen washed with the same color; abdomen medially white; flanks washed with Saccardo's umber; tibiæ and crissum deep neutral gray; under wing-coverts buffy white. Wing, 57; tail, 55; bill, 13.5; tarsus, 24.5.

This species is allied to *M. atrothorax atrothorax*, from which it differs, in the male sex, by its white-spotted breast, and in the female, by its lighter-colored upper parts and more extensively white under parts. No form of this group has been known heretofore from south of the Amazon in the east, so that it is not surprising to find a representative here that is new. Unfortunately this species is represented by only a single pair of birds, which, however, can not be matched with any known form.

Type, No. 77,834, Collection Carnegie Museum, adult male; Apacy, Rio Tapajóz, Brazil, April 17, 1920; Samuel M. Klages.

Chamæza nobilis fulvipectus, subsp. nov.

Similar to *Chamæza nobilis nobilis* Gould of eastern Ecuador and Peru, but breast rich yellow ocher, with the usual black stripes.

This form is based on a single individual, which I can not believe is immature, even although the buffy crissum might so suggest; its characters seem rather the culmination of the tendency towards fulvescence of the breast which is shown by specimens from the Rio Purús and Rio Solimoës. Moreover, this is an entirely new region for *nobilis*, and it is not surprising to find it represented here by a different race.

Type, No. 75,049, Collection Carnegie Museum, adult male; Colonia do Mojuy, Santarem, Brazil, November 12, 1919; Samuel M. Klages.

Gymnopithys leucaspis lateralis, subsp. nov.

Similar to *Gymnopithys leucaspis leucaspis* (Sclater), but upper parts less rufescent; dusky stripe on the sides of the body more extended posteriorly, to cover most of the flanks; the lower flanks more brownish, less rufescent; crissum more extensively white, with little or no brownish wash.

This is a well-marked form, easily recognizable by its duller, more brownish coloration and dusky flanks, and usually whitish crissum, continuous with the white of the abdomen. The species has not been traced farther east heretofore than the upper Rio Negro, and so it is not surprising to find that it has undergone modification on reaching the farthest outskirts of its range. Its characters are shown equally well in both sexes. Eleven specimens have been examined, all from the type-locality.

Type, No. 98,050, Collection Carnegie Museum, adult male; Manacapurú, Rio Solimoës, Brazil, September 21, 1923; Samuel M. Klages.

Hylophylax nævia obscura, subsp. nov.

Similar to *Hylophylax nœvia consobrina* Todd, but the upper parts darker in tone, between brownish olive and sepia (instead of Dresden brown); gray of sides of head darker.

Four males and two females from Tonantins, on the north bank of the Rio Solimoës, are so markedly different from a series from Manacapurú (*consobrina*) and another from French Guiana (*nœvia*) that I have no alternative but to give them a name. Very possibly the dark-headed birds from Marabitanas, Rio Negro, to which Dr. Hellmayr refers (Field Museum Zoological Series, XIII, iii, 1924, 309, note), may belong here also. I do not consider them, however, as intergrades in the direction of *theresœ*, which occurs at São Paulo de Olivença, farther up the Rio Solimoës. There is no evidence of intergradation forthcoming.

Type, No. 96,888, Collection Carnegie Museum, adult male; Tonantins, Rio Solimoës, Brazil, June 21, 1923; Samuel M. Klages.

Hylophylax gutturalis, sp. nov.

Adult male: above dark neutral gray, the back with a small concealed white interscapular blotch, the lower back, rump, and wing-coverts with numerous feathers black subterminally and tipped with white, producing a

squamate effect; remiges dusky black, the secondaries with white tips; tail black, with small white terminal spots, and crossed near its middle by a row of white spots, confined to the inner webs except on the outermost pair of feathers, where they occur on both webs; upper tail-coverts black, with white terminal spots; throat black; sides of head and rest of lower parts deep neutral gray, including under wing-coverts; under tail-coverts with whitish tips, and paler in tone; "iris reddish brown or chestnut; bill black; feet bluish gray."

Adult female: above brown (dull Brussels brown), the back with a small white interscapular blotch, the pileum more rufescent (argus brown), passing into amber brown on the forehead and sides of the head; lower back with black-and-white-tipped feathers as in the male; wing-coverts brown, tipped with white or buffy; upper tail-coverts brown, with a subterminal black area and white tips; tail-feathers black, with white median and terminal spots as in the male; wings deep brown, with paler brown outer edgings, and whitish terminal spots on the secondaries; throat bright ochraceous buff, darkening on the breast into tawny buff (between ochraceous tawny and buckthorn brown) and into dull tawny olive or buffy brown on the flanks; under tail-coverts dull cinnamon buff or clay-color, with sometimes indicated paler tips; under wing-coverts like the breast.

The male of this interesting new species is so close to that of *H. nigrigula* (Snethlage) (a large series examined) that I can find no constant characters whereby to distinguish it, although it might possibly be a little darker. The female, on the contrary, is entirely different from the same sex of *nigrigula*, and requires comparison only with that of *lepidonota*, than which, however, it is much duller below, especially posteriorly, there being a gradual fading out of the rufescent color from the throat to the crissum, whereas in *lepidonota* the under parts are nearly uniform.

This adds another form to the group typified by *H. pœcilonota*, in which the various species seem to be characterized by different permutations and combinations of sex- and color-characters. We have thirty-three specimens, all from the type-locality.

Type, No. 95,647, Collection Carnegie Museum, adult female; São Paulo de Olivença, Rio Solimoës, Brazil, March 3, 1923; Samuel M. Klages.

Phlegopsis erythroptera ustulata, subsp. nov.

Similar to *Phlegopsis erythroptera erythroptera* (Gould) from north of the Amazon, but male distinguishable by having the upper tail-coverts almost or quite pure black, with little or no maroon brown color; female paler and duller in general coloration, more brownish, less rufescent, the light markings on the wings decidedly buffy instead of white.

The above characters hold good in a series of ten males and five females from south of the Amazon, as compared with nine males and five females from north of that river, assumed to represent typical *erythroptera* (cf. Hellmayr, Field Museum Zoological Series, XIII, iii, 1924, 318–9). As seen in series, this is a good race. The buffy color of the wing-markings

is not due to immaturity, since an obviously immature female (No. 93,708) has these markings rich rusty-buff, and much larger.

Type, No. 93,707, Collection Carnegie Museum, adult female; Arimã, Rio Purús, Brazil, October 13, 1922; Samuel M. Klages.

Grallaricula nana occidentalis, subsp. nov.

Similar to *Grallaricula nana nana* (Lafresnaye), but distinguished by its paler coloration below.

Compared with Lafresnaye's type of *nana* (No. 76,739, Collection Museum Comparative Zoology) our three specimens from the Western Andes are obviously paler, ochraceous rather than ferrugineous below, and seem to represent a separable race. It is of course not surprising to find that the bird of the Western Andes is different. This appears to be the first record from that range.

Type, No. 70,434, Collection Carnegie Museum, adult male; Sancudo, Caldas, Colombia, September 2, 1918; M. A. Carriker, Jr.

Myrmothera campanisoma subcanescens, subsp. nov.

Similar to *Myrmothera campanisoma campanisoma* (Hermann) of French Guiana and northern Brazil, but larger; upper parts more brownish (deep Dresden brown), less rufescent; and stripes on under parts tending more to grayish; under wing-coverts paler, more buffy, less ochraceous. Wing (type), 86; tail, 40; bill, 20; tarsus, 44.

With a satisfactory series of *Myrmothera campanisoma* from various parts of its range it is obvious that three races are represented: (1) the typical one from French Guiana, a strongly rufescent form, small by comparison; (2) *minor*, from the upper Amazon and Rio Purús, much duller and more olivaceous; and (3) a paler race, more russet brown above and with the breast-streaks grayer, which is found on both banks of the Rio Tapajóz, and probably ranges over to the Rio Madeira. This new form agrees with *minor* in larger size as compared with *campanisoma*, but above is not so dull or so olivaceous, inclining more to brownish; the under wing-coverts are also paler as a rule. In spite of some individual variation in the direction of the other forms it is a perfectly good race, as seen in a series of twenty-nine skins (compared with thirty-eight of *campanisoma* and twenty-eight of *minor*).

Type, No. 74,906, Collection Carnegie Museum, adult male; Colonia do Mojuy, Santarem, Brazil, November 6, 1919; Samuel M. Klages.

Grallaria varia distincta, subsp. nov.

Dr. Hellmayr has already called attention to the peculiarities of this race, as represented by specimens from the Rio Madeira. It is similar to *varia*, but the buff shaft-streaks of the upper parts are more distinct; the tail is brighter colored, nearer amber brown than argus brown; the markings of the under parts are more brownish, less rufescent, and tend more to break up into spots or bars posteriorly; and the under wing- and

tail-coverts average brighter, more ochraceous. Five males and one female compared with five males and seven females of true *varia* support this diagnosis. We have, then, three races of this species in the Amazon Valley: *varia* on the north, from east of the Rio Negro to French Guiana; *cinereiceps* from the Rio Negro westward; and the present race on the south side of the Amazon, from the Rio Tapajóz to the Rio Madeira at least.

Type, No. 75,444, Collection Carnegie Museum, adult male; Villa Braga, Rio Tapajóz, Brazil, December 6, 1919; Samuel M. Klages.

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PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

NEW REPTILES AND BATRACHIANS COLLECTED BY DR. HUGH M. SMITH IN SIAM.

BY DORIS M. COCHRAN.

From 1923 until the spring of 1927 the collections of the United States National Museum have been enriched by a wealth of scientific material collected by Dr. Hugh M. Smith, formerly the head of the United States Bureau of Fisheries in the Department of Commerce, now adviser in fisheries to the Siamese Government and director of the Siamese Department of Fisheries. Each shipment of material from him contains specimens which are profoundly interesting and valuable to science. A complete report on the reptiles and batrachians collected by him is about to go to press;—in the mean time full descriptions of three frogs, four lizards and a snake, all new to science, have been prepared as a stimulus to further collecting in the type-localities.

The genus *Chirixalus*, established by Boulenger in 1893 on the finding of a frog with opposed fingers in Burma, must now be united with the genus *Philautus* since the discovery by Dr. Malcolm Smith of *Philautus palpebralis*, which has the first two fingers partially opposed to the others. I am now describing two species with opposed fingers, *nongkhorensis* and *hansenae*, which serve to bridge even more completely the supposed gap between the two genera.

Philautus nongkhorensis, new species.

Diagnosis.—Snout pointed, with a distinct prominence at the extreme tip; skin of head, back and sides with small, round, scattered warts, which are most numerous and largest on the snout; tibio-tarsal articulation reaching tip of snout; interorbital space broader than upper eyelid; first two fingers opposable to the last two.

Type.—U. S. National Museum No. 70108, adult male collected at Nong Khor, southeastern Siam, on October 5, 1925, by Dr. Hugh M. Smith.

Description of the type.—Habit stout. Tongue free and deeply notched behind; no papilla; choanae small, rounded, almost entirely hidden by the edge of the jaw. Head large, as broad as long; snout shorter than diameter of orbit, pointed, with a distinct prominence at the extreme tip, this prominence very evident in profile; canthus rostralis very distinct; loreal region slightly concave, vertical; nostrils much nearer tip of snout than eye, the region above each nostril swollen and prominent; interorbital region broader than upper eyelid; tympanum about one-third the diameter of eye; first two fingers opposable to the last two; a small but distinct web present, this web largest and most apparent between the outer pair of fingers and fringing all the fingers nearly to the disks; fourth finger reaching to the center of the disk on the third finger; disks of the third and fourth fingers as large as the tympanum, of the first two fingers smaller; toes two-thirds webbed, the web extending to the disks, which are a little smaller than the tympanum; subarticular tubercles well developed; a small blunt inner metatarsal tubercle; tibio-tarsal articulation reaching tip of snout; skin of head, back and sides with small round scattered warts which are most numerous on the snout; throat and thighs finely granular, belly coarsely granular; a glandular fold extending from the superciliary region to the shoulder; other glandules at the corner of the mouth and on the shoulder; a large external vocal sac.

Coloration.—Dorsal surface pale purplish buff, with an indistinct darker pattern beginning as a cross-bar on the head through the middle of the upper eyelids, followed by a dusky median blotch which fades out shortly after it reaches the level of the shoulders; very fine gray dots over the entire upper surface, including arms and legs, which have in addition some suggestions of indistinct dusky bars; a few very irregular dusky markings on the back; above the vent a white line bordered below by grayish dots; throat and belly immaculate white; lower surfaces of legs cream color.

Dimensions of the type.—Snout to vent, 28 mm.; breadth of head, 10 mm.; eye, 45 mm.; height of tympanum, 1.5 mm.; fore limb, 17 mm.; hand, 8 mm.; hind limb, 39 mm.; tibia, 14 mm.; foot, 11 mm. Nine additional specimens were taken at the same locality.

Remarks.—The variation in the nine paratypes from the same locality is not great. A female, 70099, the largest in the lot, measures 32 mm. in length. In this individual the webbing between the third and fourth fingers is a good deal deeper than in the type specimen. The roughened warty skin is evident in all the frogs, this being particularly noticeable in 70104, where there are warts or glandules even on the arms and legs. This rough skin will serve at once to distinguish *nongkhorensis* from Boulenger's *doriae*, which he characterizes as possessing a smooth skin. The pointed snout with the queer projection on the end of it will differentiate my species from *simus* of Annandale, which possesses a truncated snout, but has a warty head as in *nongkhorensis*. The color variation among the paratypes is not great, for although some are a little darker than the others, the pattern is indistinct in all of them, with the exception of the crossband

between the eyes, and—in three examples—the faint traces of another dark band just back of the nostrils.

Dr. Malcolm Smith was the first to secure this species at Nong Khor, but he identified it with *Chirixalus doriae* (Proc. Zool. Soc. London, 1924, p. 226); I believe, however, that the two species are truly distinct.

Philautus hansenae, new species.

Diagnosis.—Fingers free, the first two opposed to the other two; upper part of body smooth; tympanum distinct, one-half of the diameter of the eye; throat perfectly smooth; interorbital space much broader than the upper eyelid; inner metatarsal tubercle very small and inconspicuous.

Type.—U. S. National Museum, No. 70109, adult male, collected at Nong Khor, southeastern Siam, on October 4, 1925, by Dr. Hugh M. Smith.

Description of the type.—Habit slender. Tongue deeply nicked behind; no papilla; choanae small, rounded, partly hidden by the edge of the jaw; head a little longer than broad, moderately depressed. Snout obtusely pointed, projecting beyond the mouth, a little longer than the eye; nostril nearer the tip of the snout than the eye; canthus rostralis distinct; loreal region nearly vertical, concave; interorbital space much broader than the upper eyelid; tympanum fairly distinct, a little less than one-half the diameter of the eye, its distance from the eye somewhat less than its own diameter. First two fingers opposed to the others; the outer two fingers bound together to the proximal end of the penultimate phalanx, and with the merest vestige of a web between them, the fourth finger reaching to the disk of third; the second finger only half as long as third; disks as long as broad, those of the third and fourth fingers as large as the tympanum. Toes half-webbed, their disks smaller than those of the fingers; subarticular tubercles well developed; palm of hand with numerous flattened granules; inner metatarsal tubercle very small and inconspicuous; no outer tubercle; outer metatarsals separated at the distal end only. The tibio-tarsal articulation reaching to the nostril. Skin quite smooth except on the belly and lower aspects of the thighs where it is coarsely granular; a feeble fold above and behind the tympanum; an internal vocal sac.

Coloration.—Ground color creamy yellow above and below; the lips lighter; a very distinct white stripe starting at the tip of the snout, continuing backwards on the canthus rostralis to the eye, then widening behind the eye and continuing as a broad, definite dorso-lateral stripe up to the insertion of the hind legs; the entire surface excepting throat and belly thickly dotted with minute reddish dots which are most closely set at the upper and lower margins of the white dorso-lateral stripes; an interrupted dorsal series of dark elongate spots; a round bright blue spot on each side of the back about on a line with the insertion of the hind legs; a few indistinct traces of dark cross-bars on the tibia.

This species is named in honor of my friend, Miss Dora Hansen.

Dimensions of the type.—Snout to vent, 21 mm.; breadth of head, 6.5 mm.; eye, 3 mm.; height of tympanum, 1.5 mm.; fore limb, 13 mm.; hand, 7 mm.; hind limb, 33 mm.; tibia, 12 mm.; foot, 9 mm. Seven additional speci-

mens were taken at the same locality. One other came from Ban Sadet, collected May 30, 1925.

Remarks.—Among the eight paratypes the variation in color pattern is great indeed. One female, 70114, has no dark markings whatsoever, the whole back being peppered with fine reddish dots which are closer together as they approach the margins of the lateral white stripes. Another frog, 70113, also a female, appears to be a ruddy fawn color above, set off by three series of sienna spots, one median starting on the tip of the nose, the other two on the dark upper margins of the lateral stripes; on this specimen the fine dots are not so evident on the back; it is only below the lateral white stripe that they stand out at all conspicuously from the background color. This frog has a few irregular dark patches on the femur, as well as quite a number of them on the tibia.

A sexual difference in length of legs is quite apparent in this series. The tibio-tarsal articulation of all the males easily reaches to the nostril, while in the females it reaches only to the anterior border of the eye or a little beyond.

The female from Ban Sadet taken May 30, 1925, contains a number of rather large eggs. The three females captured October 4 and 5 of the same year are obviously full of eggs, and when one of them was dissected, the eggs were found to be about the same size as those of the Ban Sadet female. The length of the largest female is 23 mm.

The tympanum is very distinct, though small, on nearly all of the specimens. In two of them it is not so distinct because it is more nearly the color of the surrounding skin, although it can be readily outlined when the frog is placed in a different light.

From *Philautus palpebralis* this new species differs in having a much broader interorbital space; in having the tympanum usually quite distinct; in possessing a relatively short second finger and a very long third finger, while the third and fourth are bound together for a much greater proportion of their length; and also in coloration. The fingers of *hansenae* are much more opposed than seems to be the case with *palpebralis;*—so much so, in fact, that it is hard to uncurl them in the alcoholic specimens under examination.

From *doriae*, *hansenae* differs in having the snout longer than the eye and in having a more slender body.

From *nongkhorensis*, *hansenae* differs likewise in slenderness of body as well as in having a smoother skin.

Microhyla malcolmi, new species.

Diagnosis.—Interorbital space as wide as upper eyelid; skin rough; toes entirely webbed; two metatarsal tubercles, the outer much the larger and shovel-shaped; a large tarsal "shovel."

Type.—U. S. National Museum, No. 72172 (collector's number, 2328), an adult female collected at Pak Jong, Siam, on November 15, 1925, by Dr. Hugh M. Smith.

Description of the type.—Habit moderately slender. Snout very blunt and obtuse, shorter than the orbit; interorbital space as broad as upper

eyelid. Fingers long, slender, with very small disks; third and fourth fingers bound together up to the first joint; second finger much longer than the first, and about half the length of the third; toes long, webbed completely to their tips, which are dilated into rather large disks; the upper surfaces of the tips of the toes flattened and with a central depression, but without any actual median cleft; subarticular tubercles prominent; a distinct inner and a greatly developed shovel-like outer metatarsal tubercle; on the tarsus a very large "shovel," fully as long as the first toe. The tibio-tarsal articulation reaches far beyond the tip of the snout; tibia more than two-thirds the length of the head and body. Upper parts with many short, glandular ridges which are most numerous on the sides; a long glandular ridge along each side from above the arm nearly to the groin; three rows of glands on top of the head, the outer two extending from the snout to behind the eye, the middle one to still farther down the back; lower parts smooth; no granules about the vent.

Coloration (in alcohol).—Purplish-gray above, with a large dark angular blotch in the middle of the back; an irregular black spot above the forearm; a series of irregular black spots just below the glandular lateral ridge; a few scattered black spots on the front of the femur; a black patch above the vent on either side; a black line running along the inner face of the tarsal "shovel" and continuing down the tarsus to the metatarsal region; bottoms of feet black. A light area below the eye; a light streak from the posterior corner of the eye to the shoulder, bordered above and below by black. Throat and chest gray with many small white spots; lower aspect of thighs and legs pinkish-orange, their upper aspect dark purplish-gray, with very indistinct darker bandings. Snout to vent, 35 mm.; tibia, 26 mm. Type unique.

I take pleasure in naming this species for Dr. Malcolm A. Smith, now of Surrey, England, whose interest in Siamese reptiles and amphibians during his many years of residence in Bangkok has added so greatly to our knowledge of the fauna of Malaysia.

Remarks.—The type is as yet the only known example of this very remarkable species. It is a female, apparently fully grown, and contains a great many eggs.

This species resembles *Microhyla berdmorei* in possessing fully webbed toes. It is not close even to *berdmorei*, however, for it has no median cleft on the upper surface of the toes. It has also a much blunter snout and a much narrower interorbital space, while the tarsal "shovel," though suggested in *berdmorei* by a slight and hard protrusion on the tarsus, is carried to a relatively immense degree of development in *malcolmi*.

Sphenomorphus helenae, new species.

Diagnosis.—Limbs well developed, pentadactyle; ear opening distinct, as large as the eye opening, without lobules; lower eyelid scaly; no supranasals; the limbs meet and overlap very slightly when pressed against the body; 30 scales around the middle of the body; 3 pairs of enlarged nuchals; 17 lamellae under the fourth toe; 4 supraoculars.

Type.—U. S. National Museum No. 67265, collected at Nontaburi, Siam, by Dr. Hugh M. Smith on September 2, 1923.

Description.—Habit lacertiform; limbs well developed, pentadactyle; the length of the hind limb exceeds the distance between the center of the eye and the fore limb; the distance between the end of the snout and the fore limb contained 1⅜ times in the distance between axilla and groin. Snout short, obtuse; loreal region nearly vertical; a single anterior loreal shield. Lower eyelid scaly. Nostril pierced between a nasal and a postnasal; no supranasal; rostral convex, forming a broad suture with the frontonasal, which is a little broader than long and forms a narrow suture with the frontal, thus separating the prefrontals; frontal slightly narrower than the supraoculars, shorter than the frontoparietals and interparietal together, in contact with first and second supraoculars; four large supraoculars, first and second equal in length, the third shortest; six supraciliaries, first largest; frontoparietals and interparietal distinct, equal in length; the parietals forming a short suture behind the interparietal; three pairs of enlarged nuchals; fifth and sixth upper labials largest, the suture between them below the center of the eye. Ear-opening distinct, oval, as large as the eye-opening; no auricular lobules. Thirty smooth scales around the middle of the body, laterals slightly smaller than the dorsals, which are all quite uniform in size; caudal scales perfectly smooth. A pair of large preanals. The adpressed limbs overlap very slightly, the tip of the fourth toe just reaching to the tip of the fifth finger. Digits of fingers not compressed, of toes only very slightly, none especially elongated; subdigital lamellae smooth, seventeen under the fourth toe. The tail (partly reproduced) very slightly longer than head and body, the scales beneath it enlarged.

Coloration (in alcohol)*:* Above yellowish-brown with scattered dots of slightly darker color; a dark brown lateral band beginning on the tip of the snout and continuing along the side of the head and over the ear, widening considerably at the shoulder and margined above by a light area for its entire length; from the shoulder onwards the dark band is broken up by short transverse spots of the light ground-color, until on the tail it appears as an irregular dark-brown line with invading areas above and below; a median dorsal stripe beginning on the neck, much narrower and less conspicuous than the lateral stripes, and breaking up into numerous irregular brown spots which are continued onto the tail; upper surfaces of arms and legs also brown- and yellow-spotted; labials and sides of head, body and tail spotted with minute grayish dots; entire under surface immaculate white.

Dimensions of the type.—Total length, 58 mm.; head and body, 28 mm.; tail (partly reproduced), 30 mm.; center of eye to shoulder, 8 mm.; hind limb, 10.5 mm.; end of snout to fore limb, 10.5 mm.; axilla to groin, 14.5 mm.; fore limb, 7 mm. The type is unique.

I take great pleasure in naming this species for my friend Mrs. Helen T. Gaige, of the Museum of Zoology at Ann Arbor, Michigan.

Remarks.—The nearest relative to *Lygosoma helenae* is undoubtedly *L. annamiticum* described by Boettger (Ber. Senckenberg. Nat. Ges., 1901,

p. 47) which was collected in Annam. The main difference between the two is in the proportions of the first two supraoculars;—in *annamiticum* the first supraocular is nearly double the length of the second, while in *helenae* the first and second supraoculars are about equal in length, the second, if either, being slightly the longer. Then, too, *annamiticum* is the larger-scaled of the two species, possessing 24 scales around mid-body, while *helenae* has 30 at that point. The subdigital lamellae are different, also, there being 20–22 in the species from Annam, while there are only 17 in my new species. The frontal scale seems to be much longer in the Annam species, for Boettger states it to be as long as frontoparietals and parietals together, while in *helenae* the frontal is only two-thirds that distance, and even falls short of equalling the length of interparietal and frontoparietals together. The median dorsal scale-rows are said to be very broad in *annamiticum*, while in *helenae* the 8 rows of scales covering the back are uniform in size and grade evenly and insensibly into the smaller laterals. The coloration is still another separating character, for in *annamiticum* the under surface is marked with black spots while in *helenae* it is immaculate; and there are three broad dark stripes in the former species, which in the latter are reduced to two rather strong lateral stripes and a very weak and indefinite dorsal stripe.

The two species are similar in possessing enlarged nuchal and preanal scales, the same number of supraoculars, and a large ear-opening. Apparently *helenae* has no near relatives on the mainland with the exception of Boettger's species with which I have just compared it.

Sphenosoma hughi, new species.

Diagnosis.—Limbs well developed, pentadactyle; frontoparietals two; rostral separated from frontonasal by a pair of supranasals which are perfectly distinct from the nasals; lower eyelid scaly; 28 scales around the middle of the body, the dorsals with 5 low keels, the outer being very indistinct; no enlarged nuchals; frontal slightly longer than interparietal and frontoparietals together; hind limb measures about half the distance from axilla to groin.

Type.—U. S. National Museum No. 72275 (collector's number 2941), taken at Koh Tao, Gulf of Siam, by Dr. Hugh M. Smith on January 1, 1927.

Description of the type.—Distance between the end of the snout and the fore limb $1\frac{2}{3}$ times in the distance between the axilla and groin. Limbs well developed, pentadactyle, not meeting when adpressed. Snout obtuse; lower eyelid scaly; supranasals completely separated from the nasals and in contact behind the rostral; frontonasal much broader than long, forming a broad suture with the frontal; prefrontals small and widely separated; frontal slightly longer than the interparietal and frontoparietals taken together; the frontoparietals and interparietal distinct, the latter slightly the smaller; parietals forming a suture behind the interparietal; no enlarged nuchals. Four large supraoculars; seven supraciliaries; seven upper labials, the fifth the largest and below the center of the eye,

longer than deep, about equal to the third and the fourth together. Second loreal twice as long as the anterior loreal. Ear-opening very small, roundish; 28 scales around the body, the dorsals with 5 low keels of which the outermost are barely discernible; lateral scales with very faint keels; preanal scales slightly enlarged. Digits moderate, compressed; fourth toe a little longer than third, with 14 bluntly keeled subdigital lamellae. Tail a little longer than head and body; the scales on top keeled, those beneath it not enlarged.

Coloration.—Bronze-brown above, fading to lighter brown below. Posterior dorsal scales tipped with dark brown; a dark brown streak beginning at the nostril and continuing backwards along the sides, gradually becoming lighter, as the dark pigment becomes restricted to the tips of the scales from the shoulder onwards. Sides of tail with light and darker spots irregularly scattered. Upper labials light brown without any spots on the sutures, but toned with dark brown at their entrance to the mouth. Dimensions of the type: head and body, 55 mm.; tail, 60 mm.; axilla to groin, 31 mm.; fore limb, 12 mm.; hind limb, 16 mm.; fore limb to center of eye, 14 mm.; fore limb to end of snout, 19 mm.

Two additional specimens were secured at the same locality. It gives me great pleasure to name this species in honor of its discoverer, Dr. Hugh M. Smith.

Variations.—the only essential difference in scalation in the heads of the two paratypes is in the upper labials. In 72274, the *fourth* is below the center of the eye on both sides of the head, measuring less in length, however, than the two labials preceding it. The same is true of 72276, so that it might almost seem that the type is abnormal in possessing 4 labials before the subocular, and that 3 is really the usual number. The posterior loreal is always much the longer.

All the specimens agree in having 28 scale-rows, and in the two paratypes the outermost keels on each scale are more easily distinguishable than in the type.

As might be expected, the smallest specimen has slightly longer legs in proportion to the distance from axilla to groin. The hind leg is only about 1½ times into that distance.

The coloration of 72276 is even more uniform than that of the type. The dark brown lateral band is obvious only to the shoulder; upon the sides and tail it is no longer distinguishable. No. 72274, on the other hand, is the most definitely colored of the three, for not only is the dark brown lateral band quite distinct almost to the hind leg, but it also has a lighter stripe bordering it above from behind the eye.

Relationships.—It can not be doubted that this species is very closely related to *Lygosoma herberti* Smith, from the Nakon Sritamarat in Peninsular Siam. The chief difference lies in the larger frontal in *hughi*,—the frontal being a little longer than the interparietal and frontoparietals together, while in *herberti* the frontal equals the length of the interparietal and the frontoparietals. The subocular scale in *hughi* is not excessively large, not being longer than the sum of the two scales preceding it, as is the case in *herberti*. The keels on the dorsals seem to be very much weaker in

hughi. There are no definite white spots on the sides, although as every scale is dark-bordered, the centers appear light.

It is less closely related to *bowringi*, for the latter species has a pair of enlarged nuchals and a pair of temporals, as well as only 3 indistict keels on the dorsals, differing from *hughi* in all these respects.

Leiolopisma eunice, new species.

Diagnosis.—Limbs well developed, pentadactyle, not meeting (or slightly overlapping on the young) when adpressed along the body; ear-opening distinct, nearly as large as the eye-opening, without projecting lobules; lower eyelid with an undivided transparent disk; no supranasals; frontonasal broader than long, forming a straight suture with the rostral; 2 frontoparietals; several pairs of feebly enlarged nuchals; 1 pair of enlarged preanals.

Type.—U. S. National Museum No. 72180, collected at Bang Suk, near Pak Jong, Siam, by Dr. Hugh M. Smith on August 19, 1926.

Description of the type.—Body elongate; the distance between the end of the snout and the fore limb contained (in the adult type) 2 times in the distance between axilla and groin; snout extremely short, obtuse; head depressed and flattened; lower eyelid with an undivided, transparent disk; nostril pierced in the nasal; no supranasals; frontonasal broader than long, forming a broad, straight suture with the rostral which is convex; prefrontals just touching each other; frontal narrow behind, considerably shorter than the frontoparietals and parietal together, in contact with the two anterior supraoculars; four supraoculars, the first and fourth longer than the second and third; six supraciliaries; frontoparietals and interparietal distinct, subequal in size; parietal forming a suture behind the interparietal; several pairs of feebly enlarged nuchals; the fifth lower labial falls below the center of the eye on the left side of head, the sixth on the right side. Ear-opening oval, distinct, nearly as large as the eye-opening; no auricular lobules; 34 smooth scales around the middle of the body, laterals smallest, those beneath the tail somewhat enlarged. A pair of enlarged preanals. The adpressed limbs do not meet, being separated by a distance equalling the length of the foot. Digits distinctly compressed, subdigital lamellae bluntly keeled, 18 under the fourth toe. Tail 1½ times the length of the head and body.

Coloration.—Above dark bronze, the neck and back with small scattered darker spots, which coalesce toward the posterior part of the body and on the beginning of the tail to form a dark median stripe. A narrow black band beginning on the snout, continuing above the ear and broadening above the shoulder, to continue along the sides and on to the tail; the borders of this band are unevenly invaded by lighter bars of color from above and below. Sides yellowish-gray, with some scattered black dots in front of the groin and extending midway to the arm. Lower surfaces of body and throat light gray, immaculate; underside of tail yellowish, dotted with minute brown specks. Lips light, their posterior edges usually with gray or black dots. Upper surface of limbs bronze, with heavy black mottlings. Dimensions of the type: Total length, 135 mm.; head and body, 53 mm.;

tail, 82 mm.; center of eye to shoulder, 13 mm.; hind limb, 16 mm.; end of snout to fore limb, 16 mm.; end of snout to posterior border of ear, 9 mm.; fore limb, 11 mm.; axilla to groin, 31 mm.

Two young specimens probably referable to this species were taken at Pak Jong, Eastern Siam, on May 18, 1925. This species is named in honor of my friend Miss Eunice E. Myers.

Variations.—The two young specimens (70271-2) taken at Pak Jong, Eastern Siam, on May 18, 1925, referred to this species, agree well with the type in head scalation, except that the frontal and interparietal plates are a little broader in proportion to their length than is the case in the adult type. In the smallest specimen, 70272, there is a small interpolated scale between the two frontoparietals, which prevents their meeting; the suture between the rostral and the frontonasal is not straight, but is slightly curved; and the adpressed limbs overlap somewhat. In the slightly larger specimen, 70221, the limbs barely overlap, while in the adult type the limbs fail to meet by a considerable interval.

In both of the young lizards, the congregation of black spots to form a distinct dark median stripe on the posterior part of the body and on to the tail is quite noticeable. The other color characteristics likewise agree with those of the type.

The several pairs of enlarged nuchals on each of the smaller specimens are much more pronounced than in the type, where some of the nuchals are divided into smaller scales. It is impossible to tell just how many pairs of nuchals there are, because they merge with the dorsal scales by regular gradations in size.

Relationships.—A comparison of my new species with *Leiolopisma laterale* can leave no doubt that the two are very closely related. The similarities in body-form and general appearance are at once evident. Both have the widened nuchals which reduce gradually to the size of dorsal scales, and the upper head shields are quite similar. The color pattern, however, is distinctly of a different style in the two species. In *eunice*, the dark lateral band is invaded by many little bars of the lighter color from above and below it; in *laterale* the band is reduced to a narrow dark line which is fairly even in outline above and is set out with a very light area above it, while below it the sides are of a uniform bronze hue, with no trace of vertical bars of light color. Neither are there any brown spots on the back in *laterale*, nor a median dark stripe on the body or tail.

The scales of *laterale* are larger and less numerous than is the case with *eunice*.

Leiolopisma kohtaoensis, new species.

Diagnosis.—Limbs well developed, pentadactyle, not meeting in the adults (or barely overlapping in the young), when adpressed along the body; ear-opening distinct, oval, a little smaller than the eye-opening, without projecting lobules; lower eyelid with an undivided, transparent disk; no supranasals; frontonasal broader than long, forming a straight suture with the rostral; 2 frontoparietals; nuchal region with one or more pairs of irregularly enlarged scales; 30 scales around the middle of the body, often

irregularly arranged in rows; frontal shorter than interparietal and frontoparietals together.

Type.—U. S. National Museum No. 72284, collected at Koh Tao in the Gulf of Siam by Dr. Hugh M. Smith on December 31, 1926.

Description of the type.—Body elongate, the distance between the snout and the insertion of the forelimb contained $1\frac{2}{5}$ times in the distance between axilla and groin; snout short, obtuse; lower eyelid with an undivided, transparent disk; nostril pierced in the nasal; no supranasals; frontonasal broader than long, forming a straight suture with the rostral which is convex; prefrontals forming a median suture; frontal 2/3 the length of frontoparietals and interparietal together, in contact with first and second supraoculars; four large, subequal supraoculars; seven supraciliaries; frontoparietals and interparietal distinct, subequal in size; parietals forming a suture behind the interparietal; the suture between the fifth and sixth supralabials falls exactly beneath the center of the eye. Ear-opening oval, distinct, a little smaller than the eye-opening; no auricular lobules; on the nuchal region some irregularly enlarged scales; 30 smooth scales around the middle of the body, all the dorsal scales arranged rather irregularly and not absolutely uniform in size so that 31 or even 32 scales may be counted in places; lateral scales smallest; the median row of scales beneath the tail enlarged very slightly, but becoming very broad where the reproduced portion of the tail occurs. A pair of large preanal plates. The adpressed limbs do not meet (in the adult), being separated by a distance about equal to the length of the fingers. Digits rather short and scarcely compressed; lamellae very obtusely keeled, 16 under the fourth toe. Tail (reproduced) nearly as long as head and body.

Coloration.—Light bronze above, with irregular, scattered, dark brown spots on top of the head and in the centers of some of the dorsal scales. A dark brown band starting on the canthus, passing above the ear and widening on the shoulder, being broken regularly by little bars of the lighter bronze color invading it; on the tail this band becomes lighter, and is even more broken up into spots. The sides below this dark band are pinkish-yellow with a quite regular row of small dark brown dots along the latero-ventral line. Arms and legs spotted and irregularly banded above. Under surfaces white, immaculate except for a few small brown dots on the throat. Lips light, spotted with brown. Dimensions of the type: Head and body, 44 mm.; tail (reproduced), 41 mm.; axilla to groin, 24 mm.; fore limb, 9 mm.; hind limb, 13 mm.; fore limb to center of eye, 12 mm.; fore limb to end of snout, 15 mm. Two additional specimens were secured at the same locality.

Variations.—The two paratypes, 72282 and 72283, were taken in the same place and at the same time as the type.

In 72282 the prefrontal suture is not so long as in the type specimen, while in 72283 this suture is comparatively very short indeed. The limbs meet and overlap slightly in 72282, the smallest of the three. In 72283, somewhat larger, the adpressed limbs can barely be made to touch, while in the type they are separated by a considerable interval.

Since the limbs of the two youngest lizards are relatively long, they are

likewise different when compared to the length from axilla to groin. The type is $1\frac{3}{5}$, the youngest $1\frac{1}{3}$ and the middle-sized one $1\frac{3}{10}$.

The two paratypes have the interparietal a little larger than the frontoparietals.

In having the frontal shorter than the frontoparietals and interparietal measured together, the paratypes agree with the type. In the irregularity of scalation in the nuchal region and on the back they likewise resemble it. No. 72283 has a row of small scales behind the posterior border of the parietal plates; then follows a pair of enlarged nuchals, each of which is at least twice as wide as the irregular small scales which follow. In 72282 there are three pairs of enlarged nuchals immediately following the parietals, although these are irregularly shaped, and about $1\frac{1}{2}$ times the width of the scales which they precede. The type possesses only two enlarged nuchals, both of which are on the left side of the neck and following the parietals.

In 72282 the fourth toes have 15 and 16 lamellae respectively; in 72283 there are 15 and 17 lamellae.

Relationships.—The relationships are most pronounced towards *L. melanostictum* Boulenger and *L. rupicola* Smith.

From *melanostictum* my new species differs in having the nuchals enlarged somewhat, and mainly in having considerably fewer scale-rows.

They agree in the relative proportion of the limbs and body, as well as in other essential characters.

From *rupicola* my species differs in having considerably shorter limbs, and in having fewer scale-rows.

They agree in having feebly enlarged nuchals; in having the frontal shorter than the interparietal and frontoparietals together, and I do not doubt that a relationship exists between these species.

Callophis hughi, new species.

Diagnosis.—One prae- and two postoculars; 7 upper labials; ventrals 285; a single temporal; body immaculate reddish-brown above, the extreme edges of each scale being powdered with minute gray dots.

Type.—U. S. National Museum No. 72307 (collector's number 2940), collected at Koh Tao, Gulf of Siam, by Dr. Hugh M. Smith on January 1, 1927, under rubbish in evergreen jungle.

Description of the type.—Eye as long as its distance from the mouth; rostral broader than deep; frontal as long as its distance from the end of the snout, much shorter than the parietals; one prae- and two postoculars; a single temporal; seven upper labials, third and fourth entering the eye; two pairs of chinshields, the anterior the larger and in contact with the first, third, fourth and fifth pairs of lower labials; second pair of lower labials much reduced in size, not reaching to the chinshields. Scales in 13 rows; ventrals 285; anal divided; subcaudals 27.

Coloration.—A note furnished by Dr. Hugh M. Smith states that in life the general color was "reddish-brown, lighter on belly; under side of tail *light blue,* with black spots; a black ring around neck, another near end of tail; throat bluish-gray. Never seen before."

In alcohol the posterior part of the belly still remains pink, and the tail

appears bluish-white. At the base of the tail is a complete black ring, then four very irregular spots on the under surface, and near the tip another black ring which does not quite meet on top of the tail. The top of the head is entirely black excepting for the outermost portions of the parietal region and the outer halves of the internasal plates which are light brown. The black "ring" does not extend completely around the neck but covers the nape and ends below and behind the commissure of the mouth. The body shows no trace of spotting or striping; it is uniformly reddish-brown above, the extreme edges of each scale being powdered with minute gray dots. The sutures between the anterior labials of upper and lower jaw are marked off by black, the most decided mark coming between the third and fourth upper labials. Back of this, the posterior labials remain entirely white. The belly is immaculate, the forward portion being cream color turning to pink posteriorly. Dimensions of the type.—Total length, 260 mm.; tail, 26 mm. The species is named for its collector, Dr. Hugh M. Smith. The type is unique.

Remarks.—From *maculiceps maculiceps*, its nearest relative, my new species differs in having a much higher number of ventrals, as well as in lacking the black dots along the back. It differs from Dr. Malcolm Smith's *maculiceps univirgatus* in the same characters, as *univirgatus* has a low ventral count of 173–198 and possesses a conspicuous black vertebral line, while *hughi*, with a high ventral count, is immaculate above.

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PROCEEDINGS

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A NEW WEASEL FROM LOUISIANA

BY E. RAYMOND HALL.

In a study of American weasels, circumstances require the preliminary description, at the present time, of the following new form. The name *arthuri* is proposed as a token of appreciation to Mr. Stanley Clisby Arthur, Director of Wild Life, Louisiana Department of Conservation, who not only secured the type specimen now in the Museum of Vertebrate Zoology, but all the other known specimens of this interesting new weasel.

Mustela noveboracensis arthuri, new subspecies.

Type.—Male, subadult, skull and skin; No. 37515, Mus. Vert. Zool.; Remy, St. James Parish, Louisiana; December 15, 1925; collected by Stanley C. Arthur.

Diagnosis.—A member of the *noveboracensis* group. Males distinguished from those of *Mustela noveboracensis noveboracensis* (Emmons) and *M. n. notia* (Bangs) by transverse and longitudinal convexity (rather than flatness and concavity respectively) of dorsal outline of skull; greater inflation of brain case anteriorly; uniformly spreading zygomatic arches; and slightly darker color, especially on the forehead and nose, of winter coat. Female unknown.

Range.—Known only from St. James and Assumption parishes, Louisiana.

Remarks.—Due to the scarcity of specimens from the southern part of the Mississippi Valley, evidence of intergradation, or lack of it, with geographically adjacent races is had in only one case. A skull-only, No. 1302, U. S. Nat. Mus., from Fort Smith, Arkansas, has a more inflated brain case anteriorly, more evenly spreading zygomatic arches, and a more convex outline than specimens of *noveboracensis* from Iowa, and suggests intergradation of *arthuri* with *noveboracensis*.

The single skin-only from Assumption Parish has not assumed the full winter coat and the underparts have a yellowish tinge as in *notia*. The

other two skins are in full winter pelage and, with the exception of the posterior half in one, have white underparts.

Although the color of the Louisiana Weasel differs only slightly from that of *noveboracensis* and *notia*, and the size, in so far as can be determined from the few specimens, not at all, the skull is highly distinctive. The evenly spreading zygomatic arches, the inflation of the brain case anteriorly, and the convex outline of the skull dorsally stand in marked contrast to the abruptly spreading posterior root of the zygomatic arch, and the laterally constricted and dorsally concave interorbital region in *noveboracensis* and *notia*.

Specimens examined.—Total number, 4. All from Louisiana. St. James Parish: the type, as above, and one skin-only in the collection of Stanley C. Arthur; Convent, one skull-only in U. S. Nat. Mus. Assumption Parish, near Lake Verret, one skin-only in collection of Stanley C. Arthur.

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THE SIAMESE FISH PUNTIUS PROCTOZYSRON BLEEKER.

BY HUGH M. SMITH.

In 1865 Bleeker published under the title "Sur une nouvelle espèce de Puntius à épine anale dentelée" two papers[1] describing *Puntius proctozysron* from Siam. In the same year he published his "Sixième notice sur la faune ichthyologique de Siam" in which this species is referred to.[2]

The species may at once be recognized by its very large, strong, toothed third anal spine, a character which is unique in this group of cyprinoids and may justify the creation of a separate genus for its accommodation.

The fish is fairly common in the rivers of central Siam, and is always recognized by the fishermen as distinct from various related species found in the same waters and bears a vernacular name (pla kamang) which is given to no other fish.

For nearly sixty years after Bleeker's description appeared the fish received no further notice. While *Puntius proctozysron* was definitely listed by Volz[3] from Sumatra and doubtfully by Martens[4] from Borneo, it does not appear to inhabit the Indo-Australian Archipelago and is in reality known only from Siam, as stated by Weber and de Beaufort.[5] In 1923 Dr. Sundu Lal Hova of the Indian Museum in Calcutta, described and figured under the name *Puntius smithi* a fish collected at Bangkok, Siam, by Dr. Malcolm Smith.[6] Hova claimed for his new species that it "differs from all the known species of the genus in the possession of a strong, denticulated anal spine."

A comparison of Hova's description and figure with Bleeker's description clearly indicates that both writers were dealing with the same fish, and my numerous specimens from various localities in Siam agree perfectly with Bleeker's characterization of the species. *Puntius smithi* Hova (1923) therefore becomes a synonym of *Puntius proctozysron* Bleeker (1865).

[1] Verslagen Akademie van Wetenschappen, Amsterdam, XVII, 1865, pp. 198–202.—Nederlandsch tijdschrift voor de dierkunde, Amsterdam, II, 1865, pp. 196–198.
[2] Nederlandsch tijdschrift voor de dierkunde, II, 1865, pp. 171–176.
[3] Revue Suisse de Zoologie, Geneva, XII, 1904.
[4] Die Preussische Expedition nach Asien, Zoologischer theil, 1876.
[5] The Fishes of the Indo-Australian Archipelago, III, 1916, pp. 200–201.
[6] Journal of the Natural History Society of Siam, VI, 1923, pp. 156–158, pl. 11, fig. 2.

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NEW WESTERN THYSANOPTERA.

BY J. DOUGLAS HOOD.

In this paper are described four new genera and seventeen new species, largely from the deserts of California and Arizona. The descriptions are preliminary because it necessarily will be several months before the artist will have completed the illustrations.

All types are in the author's collection.

Family THRIPIDÆ.

Frankliniella fuscicauda, sp. nov.

Female (macropterous).—Length about 1.1 mm. Head and thorax reddish orange, the former less brilliant and shaded with gray; abdomen gray at base, with a slight scattering of yellowish subhypodermal pigmentation, becoming dark blackish brown in last four or five segments; legs yellow, the femora lightly shaded with gray; wings nearly uniform light gray; antennæ blackish brown, with segment 1, basal three-fifths of 3, basal third of 4, and pedicel of 5 paler and yellowish.

Arizona. In the flowers of an undetermined plant.

The brilliant orange thorax, with the brown-tipped abdomen, make this a pretty and easily known species.

Genus **Arpediothrips,** nov.

Body much flattened, glabrous. Head large and very broad, longer than and very nearly equal in width to prothorax. Antennæ eight-segmented; trichomes on segments 3 and 4 forked. Mouth cone long, nearly attaining posterior margin of prosternum, moderately stout; maxillary palpi three-segmented. Pronotum with two pairs of bristles at posterior angles, the outer pair minute and somewhat shorter than a pair at the anterior angles. Wings (when present) with two longitudinal veins which are sparsely but regularly setose throughout their length. Abdominal bristles short and slender.

Genotype: Arpediothrips mojave sp. nov.

In its depressed body form—an adaptation to life far down between the closely appressed leaves of *Yucca*—this interesting little thrips departs widely from the genera of its family. It is seemingly a derivative of *Frankliniella*-like ancestors.

Arpediothrips mojave, sp. nov.

Female.—Length about 1.2 mm. Color pale grayish yellow, with ovipositor and parts of mouth cone darker; last three antennal segments gray; ocellar pigment bright red.

Male.—Smaller than female (length about 1.1 mm.) and slenderer, but similarly colored.

Mojave Desert, California. Exceedingly abundant at the bases of the leaves of Tree-yucca.

Genus **Psilothrips,** nov.

Of undoubted affinities with *Sericothrips* and *Scirtothrips,* resembling both in the finely (but not very distinctly) transversely striate pronotum and the presence of fine pubescence on the sides of the abdominal tergites (this pubescence very brief and consisting of little more than transverse rows of asperities). Fore wings broad, little narrowed beyond basal portion, and with the two complete longitudinal veins dividing the wing into thirds, the anterior vein much less closely setose than posterior vein; no fringe of hairs on anterior margin, but with the usual setæ. Maxillary palpi two-segmented.

Genotype: Psilothrips pardalotus, sp. nov.

Psilothrips pardalotus, sp. nov.

Female (macropterous).—Length about 0.9 mm. Color white, or slightly yellowish; abdominal segments 1–8 each with a transverse dark gray band at base occupying slightly more than the median third; metanotum with two large, and several small, obscure blotches; antennæ shading to light gray in last three segments, all of 1, middle of 2, basal two-thirds of 3, and basal half of 4, nearly white; fore wings with an indistinct gray spot at fork of veins and another similar spot midway to base; ocellar pigment grayish yellow.

Male (macropterous).—Smaller, slenderer, and paler than female; no abdominal markings.

California, Arizona, Texas. One of the characteristic desert species, feeding on a variety of plants, none of which has as yet been determined.

Family PHLÆOTHRIPIDÆ.

Genus **Priesneriella,** nov.

Allied to *Trichothrips* and *Lissothrips,* but with *six*-segmented antennæ, the terminal segment large, pedicellate, and formed by the complete union of segments 6–8; 3 much shorter and narrower than 2. Head short, about as long as broad. Mouth cone semicircularly rounded

apically. Fore tarsi unarmed in the female, armed in the male. Tube short, about one half as long as head, stout.

Genotype: Priesneriella citricauda, sp. nov.

Entirely unlike any other North American genus in that the antennæ are six-segmented. It suggests *Allothrips*, *Bryothrips*, and *Williamsiella*, and is no doubt related to them as well as to *Trichothrips* and *Lissothrips*.

It is named after Dr. Hermann Priesner, of Linz, Austria, who has done more than any other worker to put the taxonomy of the European Thysanoptera upon a sound footing.

Priesneriella citricauda, sp. nov.

Female (apterous).—Length about 1.3 mm. Color uniform dark blackish brown (black to the naked eye), with second antennal segment slightly paler and the tube yellow, shaded with blackish at base and apex. Head very slightly longer than wide, cheeks slightly arched, eyes small, ocelli wanting, postocular bristles moderate in length, pointed. Tube only slightly more than one-half as long as head and about 1.2 times as long as greatest subbasal width.

Male (apterous).—Smaller than female, similarly colored, fore legs often somewhat enlarged, tarsus strongly armed.

Antennal segments:	1	2	3	4	5	6
Length (μ)	32	44	27	31	38	81
Width (μ)	32	28	24	30	29	28

Palo Alto, California. On dead willow branches.

The size and coloration are strongly suggestive of *Trichothrips flavicauda*, but the antennæ are distinctive.

Cryptothrips sordidatus, sp. nov.

Female.—Length about 2.6 mm. Almost exactly like *C. rectangularis*,[1] but with the entire antenna nearly coal-black, excepting only the yellowish basal portion of pedicel of segment 3; with the subhypodermal pigmentation transparent bright red; and with the postocellar bristles long, nearly half the length of postoculars.

Male.—Smaller than female, and with the fore legs enlarged and the tarsus strongly toothed.

California (Longvale and Palo Alto). On manzanita and willow.

Hoplandrothrips angustatus, sp. nov.

Female (macropterous).—Length about 2 mm. Like *H. microps*[2] in nearly all respects, differing only in the following: Head 1.4 times as long as wide; posterior ocelli decidedly closer together than their distance from anterior ocellus, the latter situated on the declivitous vertex and not overhanging in macropterous individuals; antennæ with all of segment 3,

[1]See Hood, Can. Ent., 40 (9): 307. Figs. 18 and 19. 1908.

[2]See Hood, Proc. Ent. Soc. Wash., 14 (3): 150. Pl. VII, figs. 7 and 8. 1912.

most of 4, nearly one-half of 5, and pedicel of 6, yellow; subhypodermal pigmentation scarlet, rather than crimson, and disposed in broken blotches which are not at all dense nor subopaque.

Male (brachypterous).—Paler in color than female, the legs being nearly yellow; head longer and slenderer; postocular bristles very long, bent at middle and curving forward. Fore legs enlarged as usual, tarsal tooth large, femora and tibiæ armed as usual, but the fore tibia with a distinct triangular tooth at tip within.

Nogales, Arizona. On dead branches of mesquite.

This species and *microps* are the only members of the genus in which the third antennal segment has on the outer surface one sense cone only and the fourth one only on the inner surface.

Bagnalliella huachucæ, sp. nov.

Female, forma macroptera.—Length about 1.9 mm. Color *dark* blackish brown (*nearly black to the naked eye*), with *red* subhypodermal pigmentation; antennæ yellow, with first two segments concolorous with head and last two segments darkened; tarsi and tips of tibiæ yellowish, the fore pair brighter; fore wings with scale and extreme base brownish. *Second antennal segment 1.4 times as long as greatest width; proepimeral bristle much shorter than width of antenna; tube 1.4 times as long as greatest subbasal width.*

Female, forma brachyptera.—Apparently identical with the long-winged form, save only for the absence of wings.

Male (brachypterous).—Slightly smaller than female; tarsal tooth stronger and fore legs somewhat enlarged.

Huachuca Mountains, Arizona. On *Yucca* sp.

From the other dark-colored species of the genus, excepting *yuccæ* only, this differs in that the head is not particularly large nor broadened anteriorly, the greatest width being at about the middle and the cheeks curving evenly and similarly to the eyes and to the base of the head. From *yuccæ*, an eastern species, it differs in the characters which have been emphasized in the above description.

Bagnalliella mojave, sp. nov.

Female, forma macroptera.—Length about 1.9 mm. Color brown, with purplish subhypodermal pigmentation disposed in prominent dense blotches; antennæ yellow, with first two segments concolorous with head and last two segments darkened; tarsi and tips of tibiæ yellowish, the fore pair brighter; fore wings with scale and extreme base brownish. Head large, broadened anteriorly, its greatest width decidedly in front of middle, the cheeks curving abruptly to eyes and much more gradually to base of head. Antennal segments 5–7 not elongated (respectively 1.4, 1.6, and 2.1 times as long as greatest width); 7 broadest subbasally, abruptly and prominently pedicellate, its sides strongly arched; 8 rounded apically, hardly conical, sides curved; sense cone on inner surface of segment 3 of antenna minute. Proepimeral bristle shorter than width of antenna.

Female, forma brachyptera.—Apparently nearly identical with the long-winged form, save only for the absence of wings.

Male (brachypterous).—Slightly smaller than female; tarsal tooth stronger and fore legs somewhat enlarged.

Mojave Desert, California. On *Yucca* sp.

The enlarged head, the reduction of the sense cone on the inner surface of the third antennal segment, and the form of the antennal segments serve for its ready recognition.

Bagnalliella desertæ, sp. nov.

Female, forma macroptera.—Length about 1.8 mm. Color brown, with red subhypodermal pigmentation which is not disposed in prominent, dense blotches; antennæ yellow, with first two segments concolorous with head and last two segments darkened; tarsi and tips of tibiæ yellowish, the fore pair brighter; fore wings with scale and extreme base brownish. Head large, broadened anteriorly, its greatest width decidedly in front of middle, the cheeks curving abruptly to eyes and much more gradually to base of head. Antennal segments 5–7 elongated (respectively 1.8, 1.9, and 2.35, times as long as greatest width); 7 broadest at apex, not pedicellate, its sides nearly straight; 8 acute, sharply conical, sides straight; sense cone on inner surface of segment 3 of antenna minute. Proepimeral bristle shorter than width of antenna.

Female, forma brachyptera.—Apparently nearly identical with the long-winged form, save only for the absence of wings.

Male (brachypterous).—Slightly smaller than female; tarsal tooth stronger and fore legs somewhat enlarged.

Victorville, California. On *Yucca* sp.

Closest to *mojave,* but differing markedly in the form of the antennal segments.

Bagnalliella arizonæ, sp. nov.

Female, forma macroptera.—Length about 1.8 mm. Color yellow, with head (excepting narrowly at base) and distal half or two-thirds of tube rather abruptly dark blackish brown, nearly black; legs and antennæ yellow, the latter with segments 1 and 2 largely shaded with blackish brown, 8 gray; wings colorless; subhypodermal pigmentation very pale yellow. Head large, 1.1 times as long as wide. Eyes 0.3 as long as head. Tube only 0.4 as long as head and about 1.33 times as long as basal width.

Female, forma brachyptera.—Apparently identical with the long-winged form, save only for the absence of wings.

Male (bracypterous).—Smaller than female, and with the head and tube generally paler; tarsal tooth stronger and fore legs usually somewhat enlarged.

Arizona, New Mexico and Texas. Abundant on *Yucca* sp.

Related to *B. glaucæ,* but differing conspicuously in the coloration, larger eye, and shorter tube.

Leptothrips heliomanes, sp. nov.

Female (macropterous).—Length about 1.9 mm. Strictly congeneric with *L. mali* (Fitch), but the fore wings without accessory hairs on posterior margin and the antennal segments differently proportioned, segments 5–8 being relatively much shorter, as shown by the following measurements:

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	36	56	72	67	53	46	39	28
Width (μ)	30	30	23	33	30	26	23	17

Male (macropterous).—Smaller and slenderer than female and with slenderer antennæ.

Palm Canyon (near Palm Springs), California. On an undetermined plant.

Genus **Goniothrips**, nov.

Head longer than wide, vertex not at all produced. Antennae eight-segmented, *the third segment acutely produced at outer apical angle*, the seventh and eighth rather closely united. Mouth cone short, about attaining middle of prosternum, broadly rounded at tip. Pronotum rather long (in the genotype about 0.7 as long as the head); fore tarsus with a tooth arising from the inner distal angle of the first segment.[1] Wings strongly narrowed at middle. Terminal hairs on tube shorter than tube.

Genotype: Goniothrips denticornis, sp. nov.

The production of the third antennal segment into an acute structure remarkably like that found in most of the species of *Chirothrips* and *Limothrips* makes necessary the segregation of the only known species from those of the otherwise closely allied genus *Karnyothrips*.

Goniothrips denticornis, sp. nov.

Female (macropterous).—Length about 1.8 mm. Color dark blackish brown (black to the naked eye), with fore tarsi, apical two-thirds of fore tibiæ, most of antennal segment 2 and all of 3–6, yellow; fore wings lightly clouded at base.

Pecos, Texas. Shaken from grass. One female.

Adraneothrips huachucæ, sp. nov.

Female (macropterous).—Length about 1.7 mm. General color dark blackish brown (nearly black to the naked eye), with maroon subhypodermal pigmentation; tarsi, apical half of fore tibiæ, and extreme tips of mid and hind tibiæ, pale yellow, remainder of legs dark blackish brown,

[1] Almost as in *Karnyothrips* (for illustration see Hood, Pan-Pacific Ent., **3** (4): 178. Fig. 1, b. 1927).

with the basal portion of fore tibiæ paler; segment 3 of antenna yellow, 4–6 with basal half or more yellow, remainder of antenna blackish brown, the first two and last two segments darkest. Structurally almost exactly like *A. tibialis,*[1] but with the cheeks converging very abruptly to eyes and segment 3 of antenna about 2.25, instead of 1.9, times as long as wide.

Male (macropterous).—Length about 1.4 mm. Slenderer than female. Fore tarsus with a strong, straight tooth.

Ramsey Canyon, Huachuca Mountains, Arizona. On dead oak leaves.

Readily known from *A. tibialis,* with which it agrees in having the eyes acutely prolonged on the ventral surface of the head beyond their posterior dorsal margin and in that the anterior marginal bristles of the prothorax are long and knobbed, by the tibial coloration and the longer third antennal segment.

Liothrips xanthocerus, sp. nov.

Female (macropterous).—Length about 2 mm. Color very dark blackish brown, nearly black, with dull orange subhypodermal pigmentation; fore tarsi and distal half of fore tibiæ yellowish brown; antennæ with segments 3–6 and basal half of 7 clear yellow; fore wings dark gray, paler along margins and at apex; all bristles on head, thorax, and abdomen stout, black, pointed.

Male (macropterous).—Length about 1.7 mm. Like female, but slenderer.

Blythe, California, and Gillespie Dam, Arizona. Among the terminal leaves of a plant which is as yet undetermined.

The coloration of the antennæ and wings is ample for its recognition.

Rhynchothrips rostratus, sp. nov.

Female (macropterous).—Length about 1.4 mm. Separable from all North American species of the genus excepting *tridentatus* (Shull)[2] by the unarmed fore tarsi, the long head (about 1.26 times as long as wide), the relatively short pronotum (its median length less than that of head), and the non-globose intermediate antennal segments. From *tridentatus* it differs as follows: Fore wings brown throughout instead of clear; distance from posterior dorsal margin of head to frontal costa about 0.65, instead of 0.8, the distance to tip of mouth cone; major setæ on head, thorax, and abdomen pale in color and knobbed at tip, instead of dark and blunt; metanotum indistinctly subreticulate, instead of closely and distinctly longitudinally striate; apices of femora not or only slightly paler than remainder of legs.

Male (macropterous).—Apparently differing from female only in being slightly smaller and possibly more slender.

Arizona. On *Quercus* sp.

[1] Ins. Insc. Menstr., 2 (3): 39. Fig. 1. 1914.

[2] See Hood, Proc. Biol. Soc. Wash., 27: 159. Pl. IV, figs. 4 and 5. 1914.

Megalothrips picticornis, sp. nov.

Female (macropterous).—Length about 4.3 mm. Very much like *M. spinosus,*[1] the only other North American species of the genus, but with segments 3 and 4 of antenna yellow in basal three-fourths and two-fifths, respectively; tube about 0.76 as long as head, instead of about 0.9; all bristles pale, shorter and much less conspicuous, those arising from the proepimera nearly straight and shorter than the median length of pronotum.

Male (macropterous).—Smaller and slenderer than female; segment 6 of abdomen with the usual horn-like processes.

California (Blue Lake) and Utah (Salt Lake City). The specimens from Blue Lake were taken on a dead willow branch; the single Salt Lake specimen was taken May 28, 1879, at an elevation of 4340 feet.

Family UROTHRIPIDÆ.

Stephanothrips bradleyi, sp. nov.

Female (apterous).—Length about 1.3 mm. Color dark blackish brown (nearly black to the naked eye), head darkest; subhypodermal pigmentation of two kinds, one maroon red and quite generally distributed at the sides of head, thorax, and abdomen, the other snow-white by reflected light and narrowly edging the posterior margin of prothorax, metathorax, and abdominal segments 2–7; antennæ with segment 2 pale yellow, 3 yellow at base and brownish yellow at apex, 4 and 5 dark brown; tarsi, apices of mid and hind tibiæ, and bases of all femora paler and more yellowish than remainder of legs; tube brownish yellow, shaded with blackish brown at base and apex. Vertex of head with two pairs of long bristles arising from prominent tubercles. Antennal segments: 2, 44 μ long, 30 μ wide; 3, 84 μ long, 32 μ wide; 4, 34 μ long, 21 μ wide; 5, 41 μ long, 16 μ wide. Ninth abdominal segment about 2.4 times as long as eighth. Tube about 1.14 times as long as head, about 1.6 times as long as ninth abdominal segment, and somewhat more than seven times as long as greatest subapical width.

Male (apterous).—Length about 0.88 mm. Usually paler than female, but essentially like female in structure.

Palo Alto, California. On dead willow branches.

The presence of two, instead of three, pairs of vertical bristles allies this species with the African *buffai* rather than with the Neotropical *occidentalis.* It differs markedly from *buffai,* however, in having the antennæ much stouter, the body dark blackish brown instead of grayish yellow, and in the presence of white markings. I have named it after Dr. J. Chester Bradley the hymenopterist.

[1]See Hood, Can. Ent., 40 (9): 306. Figs. 16 and 17. 1908.

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A NEW WOOD RAT FROM ARIZONA.

BY E. A. GOLDMAN.

Grinnell and Swarth (Univ. Calif. Pub. Zool., X, p. 336, 1913) direct attention to the apparent intergradation of wood rats described as *Neotoma intermedia* and *Neotoma desertorum*, respectively, within a narrow strip along the eastern base of the San Jacinto Mountains, California. As stated by them this is not in accord with the findings of the writer who, in revising the genus (North Amer. Fauna, No. 31, pp. 14–15, 1910), regarded these forms as members of different groups. When the genus was revised, however, very scanty material was available from the region in question. On the basis of the new accessions I concur with Grinnell and Swarth in their conclusion that, owing to intergradation, *N. desertorum* should be reduced to subspecific rank under *N. intermedia*, in accordance with the rule of priority.

The range of *N. intermedia* and subspecies therefore includes a vast area west of the Colorado River. East of the river, however, it is known to have become established only within a limited territory, specimens from which are found to represent a rather well-marked new geographic race described as follows:

Neotoma intermedia devia, subsp. nov.
PAINTED DESERT WOOD RAT.

Type.—From Tanner Tank (altitude 5,200 feet), Painted Desert, Arizona. No. 226,376, ♀ adult, U. S. National Museum (Biological Survey collection), collected by E. A. Goldman, July 27, 1917. Original number, 23,152.

General characters.—Closely allied to *Neotoma intermedia desertorum*, but general color grayer, less buffy, and skull differing in detail. Pelage soft as in *desertorum*.

Color.—Type: Upper parts in general, including top of head and dorsum,

pale grayish buff heavily lined with black, the buffy element becoming richer and inclined to pinkish buff on lower part of cheeks and along sides; under parts overlaid with pale pinkish buff continuous with tone of lower part of sides, except on very small pectoral and inguinal areas, where the hairs are pure white to roots; feet white; tail above blackish, finely and inconspicuously lined with light hairs to near tip which is nearly pure black, below light buffy, becoming brownish toward tip. Topotypes vary in buffy color tone; some individuals are darker than the type but two more nearly approach *N. i. desertorum.*

Skull.—Similar to that of *N. i. desertorum,* but averaging more massive; interparietal decidedly larger, more extended antero-posteriorly; incisive foramina about equal in length to palatal bridge (usually decidedly longer than palatal bridge in *desertorum*); nasals usually broader posteriorly.

Measurements.—Type: Total length, 298; tail vertebrae, 135; hind foot, 31.5. Average and extremes of 4 adult topotypes: 287 (280–292); 131 (127–134); 31 (30–32). *Skull* (type): Greatest length, 39.3; zygomatic breadth, 20.2; interorbital breadth, 4.8; length of nasals, 14.5; length of incisive foramina, 7.7; length of palatal bridge, 7.7; maxillary tooth row, 8.2.

Remarks.—This geographic race presents another interesting example of the general effectiveness of the Colorado River as a barrier limiting the distribution of certain small rodents. Specimens of the forms of *N. intermedia* inhabiting the north and south sides of Grand Canyon are strikingly different in color and cranial details, although obviously very closely related. Two examples from Parker are of the usual grayish coloration characterizing *N. i. devia,* but the skulls are rather small and delicate with small interparietal and suggest an approach to *desertorum.*

In the revision of the genus by the author (l. c. p. 80) the ranges of *N. desertorum* and *N. lepida* were stated to be completely separated by the Colorado River. The subsequent collection within the range of *N. lepida* of the specimens upon which the form here described is based proves the statement to have been an error. *N. intermedia devia* and *N. lepida stephensi* are now known to occur in close proximity along the southern wall of Grand Canyon.

Specimens examined.—Total number, 40, from localities as follows:

Arizona: Cedar Ranch Wash (Painted Desert), 1; Colorado River (mouth of Diamond Creek), 1; Grand Canyon (Indian Gardens), 3; Grand Canyon (Bass Camp), 11; Kingman, 2; Parker, 2; Tanner Tank (type locality), 20.

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A NEW RACE OF MYRMECIZA SCHISTACEA FROM CENTRAL PERU.

BY JOHN T. ZIMMER.

In 1858, Sclater (Proc. Zool. Soc. London, 1858, p. 252) described as *Hypocnemis schistacea* a bird secured by Bates on the "Rio Javari, Upper Amazon," though whether from the present Peruvian or Brazilian side of the Javari is not known. Later other forms were found which eventually were recognized as subspecies of *schistacea*. The males of all the races of this species are comparatively uniform, while the females present the more noticeable differences. Specimens from Peru are not numerous in collections and females from central Peru and from the type locality of *schistacea* were entirely unknown until recently. In 1922, as ornithologist of the Captain Marshall Field Peruvian Expedition of Field Museum of Natural History, Chicago, I secured a female and three males of the species in Peru, in the subtropical forest at the junction of the Chinchao and Huallaga rivers. These were referred to *schistacea schistacea* and it was believed that the hitherto unknown characters of the female had been brought to light.

More recently the Carnegie Museum of Pittsburgh secured specimens of both sexes from Saõ Paulo de Olivença, Rio Solimoës, a locality quite near to the Rio Javari, which proved to be quite distinct from the birds I secured in central Peru. The relative geographic positions of the various localities are such that there is no doubt that the Saõ Paulo de Olivença birds belong to true *schistacea*, while the Peruvian examples represent an undescribed form. Dr. Todd of the Carnegie Museum recently sent specimens of the Saõ Paulo form to Dr. Hellmayr for examination, and I was enabled to compare them

with my material in the collection of Field Museum. Since I am at present working on my Peruvian collections, Dr. Todd and Dr. Hellmayr have kindly resigned to me the description of the new form. It may be known as:

Myrmeciza schistacea intensa, subsp. nov.[1]

Hypocnemis schistacea Berl. and Stolz. (nec Sclater), Proc. Zool. Soc. London, 1896, p. 384 (La Merced).

Sclateria schistacea schistacea Hellmayr (nec Sclater), Novit. Zool., **13**, p. 344, 1906—partim, nos. 2, 3 and 4 (La Gloria, Borgoña and Pozuzo); idem, Field Mus. Nat. Hist. Publ., **13**, pt. 3, pp. 254–255, 1924—partim (Pozuzo, Vista Alegre, Huachipa and Tulumayo).

Type from Huachipa, Peru. No. 60157 Field Museum of Natural History. Adult female collected September 22, 1922, by J. T. Zimmer; original number 2898.

Diagnosis.—Similar to *M. s. subplumbea* from Colombia, eastern Ecuador and northeastern Peru (Iquitos, north bank of Marañon R.), but darker and deeper in coloration. Female darker brown on the back and more blackish gray on the crown; below about as in *subplumbea*. Male blacker above and on the sides of the face and darker gray below, with the throat not distinctly paler than the breast. Size about the same as *subplumbea*.

From *M. s. schistacea* of the Rio Javari and the south bank of the Rio Solimoës, northwestern Brazil, the female is instantly separable by having the crown slaty instead of russet; the back is darker rufous; below the rufous is deeper and more intense; there appear to be fewer pale spots on the upper wing-coverts, and the radial margin of the wing is uniform, without a whitish stripe as in *schistacea*. The males are very like those of *schistacea* but are less bluish gray and more sooty; the white spots on the upper wing-coverts are smaller and are all but obsolete on the tips of the tertials (but noticeable in immature specimens); the axillaries are uniform gray and there is no white stripe along the radial margin of the wing. Both sexes are slightly larger than *schistacea*.

Habitat.—Subtropical forests of central Peru.

Description of type.[2]—Back Vandyke Brown or dark Auburn, slightly lighter on the rump with distinctly lighter, Hazel, tips to some of the feathers. Crown and nape Dark Neutral Gray to Dusky Neutral Gray, becoming slightly tinged with olivaceous at the juncture with the back. Sides of head, lores and ear-coverts paler, Deep Neutral Gray. Chin pale grayish; throat bright Tawny, passing into Sanford's Brown or Argus Brown on the center of the breast, deepening into rich Auburn on the sides of the breast and flanks and passing into near Sanford's Brown in the

[1] As suggested by Dr. Hellmayr (Field Mus. Nat. Hist. Publ., **13**, pt. 3, p. 254, footn. d, 1924) and Dr. Chapman (Bull. Amer. Mus. Nat. Hist., **55**, p. 406, 1926), I have placed the species in the genus *Myrmeciza* rather than *Sclateria*.

[2] Names of colors when capitalized are from Ridgway's "Color Standards and Color Nomenclature."

center of the belly. Under tail-coverts Auburn. Upper wing-coverts and remiges Bone Brown; the remiges edged with the color of the back; lesser and middle coverts and some of the greater series with a terminal, triangular spot of Tawny; primary-coverts and those of the greater coverts nearest the edge of the wing, without spots. Under wing-coverts grayish with faint Tawny tips; axillaries like the lower breast. Rectrices Dusky Neutral Gray with brownish edges. Maxilla and feet brownish black; mandible pale except at tip. Iris blue. Wing 65 mm.; tail 53; culmen (exposed) 19, (from base) 24.5.

Male above uniform Dusky Neutral Gray or Dark Neutral Gray, slightly paler on the forehead and sides of face. Throat and breast paler, Deep Neutral Gray; belly slightly duller, inclining toward Chaetura Black. Remiges blackish brown, lightly edged with the color of the back. Upper wing-coverts, except primary-coverts, with small, terminal, triangular spots of white; tertials the color of the back. Axillaries and under wing-coverts like the breast. Rectrices Dusky Neutral Gray with a faint, tiny speck of white at the tips of the outermost ones. Bill and feet black, the mandible slightly paler at the base in one example. Iris dark brown. Wing 65–67 mm.; tail 52–54; culmen (exposed) 21.5, (from base) 26–28.

A young male in moult is colored below as in the adult except for the admixture of dark rufous feathers on the abdomen becoming more pronounced posteriorly, while the under tail-coverts are Auburn as in the female. Above about like the adult male but slightly paler. Wings like those of the female with a few lesser upper wing-coverts and tertials grayish, the latter with distinct whitish spots on their tips like the coverts. Bill like that of the female. Tail like that of either sex.

Two specimens, male and female, from Tulumayo are in the American Museum of Natural History, New York. According to Dr. Hellmayr, who has examined them, they agree with my birds from Huachipa and Vista Alegre. Dr. Hellmayr has also examined a male and female from Pozuzo; the female had the crown dark gray and the entire under mandible whitish in agreement with the present form. There is no doubt that the Chanchamayo Valley form is *intensa*.

Berlepsch (Ornis **13**, p. 118, 1906) comments on a female of "*schistacea*" from Huaynapata which had the head brownish olive instead of dark gray in comparison with *leucostigma* from Guiana. Dr. Hellmayr (Novit. Zool., **13**, pp. 344 and 345, 1906) describes two females from Marcapata which have the head and back dark olive brown and the lower mandible horn brown, not whitish. Dr. Hellmayr also (Field Mus. Nat. Hist. Publ., **13**, p. 254, footn. a, 1924) describes a female from Chaquimayo comparable with the Marcapata bird. No males of the species have been recorded from this region so the exact affinities are open to question. The female would seem to be darker than *humaytha* and paler than *intensa* and *subplumbea*, with the head not darker than the back although brownish and not gray, showing affinities to *schistacea*. It is certainly not referable to any known variety of *schistacea* since the characters, recorded by independent observers, are quite distinct. In the absence of specimens, especially of the male sex, it would be unwise to name it at this time.

Specimens examined:

M. s. schistacea—Brazil: S. Paulo de Olivença, 2 ♂ 2 ♀.[1]

M. s. subplumbea—Colombia: La Murelia, 1 ♂ 1 ♀. Ecuador: Rio Suno, 4 ♂ 3 ♀.[2]

M. s. intensa—Peru: Vista Alegre, 1 ♂; Huachipa, 2 ♂ 1 ♀ (Type).

M. leucostigma—British Guiana: Carimang River, 1 ♂. Brazil: Conçeiçao, Rio Branco, 1 ♀?[3]

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[1]Specimens in Carnegie Museum, Pittsburgh.

[2]Specimens in American Museum of Natural History, New York.

[3]Specimens in Field Museum of Natural History, Chicago.

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New names are printed in **heavy type.**