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NOTES ON WEST INDIAN LAMPYRIDÆ AND CANTHARIDÆ (COLEOPTERA) WITH DESCRIPTIONS OF NEW FORMS

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In Novitates No. 60, footnote on page 2, I remarked that I had in hand records of Lampyridæ belonging to the genera *Photinus* and *Photuris* and some species of Cantharidæ. These records, now ready for publication, include specimens received from the following sources: British Museum, sent by Mr. G. J. Arrow; Mr. Geo. N. Wolcott of the Insular Experiment Station at Rio Piedras, Porto Rico; University of Iowa, sent by Dr. Dayton Stoner; Estacion Experimental Agronomica, Santiago de las Vegas, Cuba, sent by Mr. Stephen C. Bruner, Chief of the Department of Entomology and Vegetable Pathology; also a number from Haiti, collected by Mr. F. E. Watson of this Museum, whose expedition to that part of the Island of Hispaniola was made possible through the generosity of Mr. B. Preston Clark.

Lampyridæ

Photinus pallens (Fabricius)

JAMAICA: without any definite locality; Coll. British Museum.

Photinus heterodoxus Leng and Mutchler

Two specimens of this species, in the collection of the Insular Experiment Station of Porto Rico, which are merely labeled "PORTO RICO," differ slightly from the type. One of the specimens has a somewhat well-defined brown spot on the disk of the pronotum, which extends from the base to about the apical third. The elytra in both specimens are somewhat darker. The basal abdominal segments are darker and the apical ones are not waxy white.

Photinus ceratus Leng and Mutchler

JAMAICA: no definite locality; Coll. British Museum.

Photinus glaucus (G. A. Olivier)

CUBA: Sierra Maestra, July 10-20, alt. 3600 to 4300 feet (C. H. Ballou and S. C. Bruner); Coll. Estacion Exp. Agronomica, Santiago de las Vegas, Cuba.

The three specimens from Cuba which I have seen do not agree in every respect with those from Jamaica. Further study with a larger series may show sufficient differences to require them to be separated from *glaucus*.

Photinus lutzi Leng and Mutchler

DOMINICA: Laion (G. A. Ramage); Coll. British Museum.

Photinus dubiosus Leng and Mutchler

PORTO RICO: Larres, March 7 (F. Sein); Rio Piedras, April 5 (Geo. N. Wolcott); Coll. Insular Exp. Sta., Rio Piedras, Porto Rico.

Photinus pygmæus E. Olivier

CUBA: Sierra Maestra, alt. 3000 to 4200 feet, July 10–20; Pico Turquino, alt. 3500 feet, and summit,¹ July 20 and 22; and Nagua Oriente, July 7 (S. C. Bruner and C. H. Ballou); Camagüey, July to August (J. Acuna); Coll. Amer. Mus. Nat. Hist. and Coll. Estacion Exp. Agronomica, Cuba.

There are thirteen specimens among the above material received from Mr. S. C. Bruner which I have identified as this species. These specimens range from brownish black to deep black in color and are from 3 to 6.5 mm. in length.

Photinus lengi,² new species

Figure 1

MALE.—Elongate. Head black, somewhat deeply depressed between the eyes. Mandibles brown, darker on inner margin. Antennæ black, longer than the head and thorax. Pronotum testaceous, thinly clad with moderately long, yellow pubescence, disk rosy with more or less defined darker spots or markings; margins somewhat coarsely but not very closely punctate, disk less coarsely punctate. Scutellum yellow, more or less rosy at base. Elytra covering the abdomen, dark brown bordered except at base with pale yellow, somewhat closely punctate and covered with a short yellow pubescence, lateral margins somewhat broadly flattened. Underside reddish yellow. Metasternal episternum wholly, and sides of metasternum narrowly fuscous, first to fourth ventral segments of the abdomen more or less broadly darkened through the central portion, fifth and sixth black, seventh with waxy white light organs at the

¹There are several specimens among the material sent by Mr. S. C. Bruner which are marked "Cumbre" (Summit) when referring to altitude. All specimens so marked are from Pico Turquino, the summit of which, according to published records, is approximately 2400 meters (about 7800 feet) above sea-level.

²Dedicated to my good friend and co-worker, Mr. Chas. W. Leng, senior author of our work on the Lycidæ, Lampyridæ, and Cantharidæ (Telephoridæ) of the West Indies, to whom I am indebted for many favors and also for his kindness in reading the manuscript and checking up the new species included in this and my former paper.

basal part, apex of seventh and the small eighth segment dark. Femora yellow. Tibiæ and tarsi darker. Length, 8.5 to 10.5 mm.

FEMALE.—Head broad and feebly depressed between the eyes. Pronotum yellow, disk yellow with dark central spot. Scutellum wholly yellow. Elytra about one-half as long as the abdomen, leaving four dorsal segments fully, and the greater part of a fifth, uncovered. Exposed dorsal segments of the abdomen with a median costa, first three exposed segments becoming gradually darker, the two apical ones black. Underside yellow; metasternal episternum black; apical three segments of the abdomen darker, last segment with a pair of waxy white, light organs at the base, otherwise as in the male. Length, 11.5 mm.

HABIT: Holotype male, No. 26979, and allotype female, No. 26980, Port au Prince (at light), December 22 to 31, 1921. Paratypes male and female, Nos. 26981 and 26982, Port au Prince (at light), December 22, 1921 to April 11, 1922 (F. E. Watson); Coll. Amer. Mus. Nat. Hist.

The males of this species, at a superficial glance, resemble some specimens of *quadrimaculatus* but on examination they will be found to have the pale margins (especially the lateral ones) of the same width throughout, also the general color of the paler portions of the elytra whitish yellow. There are also two male specimens in the type lot in which the dark color on the disk of the elytra, behind the scutellum, is not fully developed, making the suture appear broadly margined basally; in these same specimens the dark spot on the disk of the thorax is barely perceptible, there being merely a dusky mark to indicate the spot. The two female paratypes seem to have just emerged (before capture) from the pupal shell as none of the darker colors are as well developed as in the allotype.

The species should be placed in the Pantoni group near *pantoni* and *suavis*.

Photinus magnus, new species

Elongate. Front of head light brown, somewhat deeply excavated between the eyes in the male, moderately impressed in the female, punctate and covered with a light brown pubescence. Mandibles pale yellowish brown at base, apex black. Palpi pubescent with an intermixture of longer hairs, black, apical joint with a streak of light brown at each side. Antennæ reaching about to the hind coxæ, black, pubescence moderately long and somewhat coarse. Pronotum somewhat broadly rounded in front, subapical and sublateral margins depressed, the sublateral being much more deeply so in the male than in female, somewhat coarsely punctate; pubescence very short, pale yellow with a few scattered black hairs; disk rosy, with darker spots. Male with a large dark spot on the middle of the disk, longitudinally divided at the



Fig. 1. *Photinus lengi*, new species. Female allotype.

base to about the apical third by the rosy color in the holotype, almost completely divided in the paratype, and with two minute dark spots on each side at the base, the inner spots paler than the outer ones. Female with four spots on the middle of disk, the two front ones smaller and paler in color than the two hinder ones, basal spots similar to those in the male. Scutellum pale yellow, coarsely punctate and pubescent. Elytra smoky black, moderately coarsely punctate and covered with a short, pale yellow pubescence, margined at the sides and suture with pale yellow; apex very vaguely margined. Underside yellow, more or less marked with dark brown in the holotype and allotype, brownish black in the paratype. Female with the apex and sides of the first to fifth ventral segments of the abdomen more or less black at the sides and apex, sixth wholly black, seventh with a waxy white spot at each side of the base and with a pale-colored longitudinal line through the center. Male with the sides and apex of the four basal segments very narrowly darker in the holotype, only slightly paler basally in the paratype, fifth and sixth black, seventh waxy white, small eighth yellowish brown. Legs yellow, apex of femora, inner margin of tibiae and all of tarsi brown. Length, male 14.5 mm., female 16.5 mm.

CUBA: Holotype male, No. 26983, and allotype female, No. 26984, Sierra Maestra, alt. 4500 feet, July 10–20, 1922 (C. H. Ballou and S. C. Bruner); Coll. Amer. Mus. Nat. Hist. Paratype male, Sierra Maestra, July 10–20, alt. 3600–4200 feet (C. H. Ballou and S. C. Bruner); Coll. Estacion Exp. Agronomica, Cuba.

Photinus magnus variety **turquino**, new variety

MALE.—Form slightly more elongate. Center of the impressed front part of the head black, sides and apex margined with rosy color. Pronotum with only one large, central, squarely outlined black spot which has the basal center longitudinally divided by a narrow pale line. Elytra dark with pale margins continuous around the apex. Underside brownish black, seventh segment waxy white at base and sides. Otherwise as in the species.

FEMALE.—Unknown.

CUBA: Holotype, No. 26985, Summit of Pico Turquino, July 2, 1922 (S. C. Bruner and C. H. Ballou); Coll. Amer. Mus. Nat. Hist.

Photinus unicus, new species

MALE.—Oblong elongate. Head very moderately excavated between the eyes, yellow. Palpi yellowish brown. Antennae dark brown, about one-half as long as the body. Pronotum yellow, moderately broadly rounded at apex, submargins slightly impressed, disk with a longitudinal depression at basal half. Scutellum yellow. Elytra brownish black, margined, except at base, with yellow; sutural and apical margins narrower than the lateral. Underside dark brown, last two (including the small eighth) ventral segments of the abdomen whitish yellow. Legs brown, marked with paler color. Length, 5 mm.

FEMALE.—Unknown.

JAMAICA: Holotype; Coll. British Museum.

This species differs from all of the others from Jamaica, which have the elytra margined with paler color, in having the thorax of a uniform

pale color. In general appearance it resembles *apoplecticus* and *simplex*. It differs from *apoplecticus* in the form of the pronotum which is much more elongate and broader in *apoplecticus*. The antennæ also differ, they being shorter in *apoplecticus* than in this species. The species differs from *simplex* in the following respects: the antennæ are longer and the basal joint is not testaceous; the disk of the thorax is not rosy; the apical pale margin of the elytra is much narrower; the body beneath is darker in color; and the apex of the pronotum is less broadly rounded.

Photinus simplex (E. Olivier)

DOMINICA: Laudat, March 30; Coll. British Museum.

Photinus nefarius (E. Olivier)

CUBA: Nagua Oriente, July 7 (S. C. Bruner and C. H. Ballou); Coll. Amer. Mus. Nat. Hist. Nagua Oriente, July 7 and Yara, July 5 (S. C. Bruner and C. H. Ballou); Coll. Estacion Exp. Agronomica, Cuba.

Photinus quadrimaculatus (Castelnau)

SANTO DOMINGO: no definite locality; Coll. British Museum. DOMINICAN REPUBLIC: Haina (Geo. N. Wolcott). HAITI: Port au Prince (at light), December 22, 1921 to March 29, 1922; Fond Parisien, February 11-18, and Aux Cayes (at light), March 15-20 (F. E. Watson); Coll. Amer. Mus. Nat. Hist.

The five male and eleven female specimens which are before me show a marked variation in the elytral markings. The black color on the disk of the elytra in many of the specimens forms a continuous line narrowed toward the middle and extending from the base to near the apical margin. In some this line is almost separated at the middle of the elytra, thus making the apical and basal parts appear darker. There is also a specimen in which the black color is barely noticeable at the base but is very prominent and forms a black spot near the apex of each elytron, and another which has the discal black markings covering the apical margins of the elytra.

Photinus commissus E. Olivier

JAMAICA: no definite locality; Coll. British Museum.

The three specimens of this species which were received from Mr. G. J. Arrow of the British Museum are an extremely dark form of *commissus*. They have the disk of the pronotum darker and the elytra

blackish brown, leaving the outer apical margin pale. There is also a pale spot on the basal third and on the apical half of each elytron. In one of the specimens these spots are fairly large, in another they are quite small, and in a third they are scarcely discernible.

***Photinus discoideus* (Sahlberg)**

One specimen of this species in British Museum Collection, labeled "West Indies," is probably from Guadeloupe, as there are no records of the species being found in any of the other islands.

***Photinus limbipennis* Jacquelin Duval**

CUBA: Camagüey, December 29 (J. Acuna); Coll. Amer. Mus. Nat. Hist. and Coll. Estacion Exp. Agronomica, Cuba.

***Photinus sublateralis*, new species**

MALE.—Elongate oval. Head, between the eyes, black, very feebly excavated. Mandibles brown. Palpi with the two apical joints black, basal joints generally light brown. Antennæ about one-half as long as the body, dark brown, somewhat densely pubescent. Pronotum moderately broadly rounded at apex, basal angles acute, submargins depressed, somewhat coarsely but not closely punctate, lateral margins yellow, apical dusky; disk with a median longitudinal depression which extends from the base to slightly beyond the middle; rosy red, with a longitudinal dark mark which is narrow at the base and gradually broadens to apex. Scutellum dark brown. Elytra brown, slightly darker basally, broadly expanded at the basal two-thirds, closely punctate and covered with a short pubescence; margined with yellow, narrowly at the suture, more or less distinctly at the apex, moderately broadly at basal two-thirds of the lateral margins where the elytra are dilated. The extreme outer edges of the elytra are dark brown. Thorax beneath, rosy red. Underside of body blackish brown, except the two apical (including the eighth) segments of the abdomen which are pale brown. Legs varying from pale to dark brown. Length, 9.5–10.5 mm.

FEMALE.—Unknown.

CUBA: Holotype, No. 26986, and paratype, No. 26987, Pico Turquino, alt. 5500 to 6500 ft., July 20, 1922 (S. C. Bruner and C. H. Ballou); Coll. Amer. Mus. Nat. Hist. Five paratypes, Pico Turquino, July 20 and 22, alt. 5000 to 5500 ft., and summit (S. C. Bruner and C. H. Ballou); Coll. Estacion Exp. Agronomica, Cuba.

This species differs from any West Indian species in having the outer edge of the lateral pale margin of the elytra bordered with a darker color. One of the paratype specimens does not agree in every respect with the holotype. The disk of the pronotum is not as bright rosy red and the basal part of the black marking is merely indicated by black hairs. The pale margins of the elytra in some of the specimens are more or less disconnected at the apex. I believe the specimens represent one species.

Photinus vittatus (G. A. Olivier)

PORTO RICO: Guanica, December 10; Rio Piedras, March 23; Tao Alta, January 1; and La Plata, June 11 (Geo. N. Wolcott); Coll. Insular Exp. Sta., Rio Piedras, Porto Rico.

Photuris brunnipennis Jacquelin Duval

CUBA: Taco Taco, April 1-6 (S. C. Bruner, J. Acuna and C. H. Ballou); Coll. Amer. Mus. Nat. Hist. Taco Taco, April 1-6 (S. C. Bruner and C. H. Ballou); Santiago de las Vegas, October 31 (B. T. Barreto); Habana, January 20 (J. Acuna); Baracoa, April 19 (P. Cardini); Coll. Estacion Experimental Agronomica, Cuba.

The specimen from Santiago de las Vegas has lost all trace of the paler elytral margins but otherwise agrees with the description of *brunnipennis*.

Photuris jamaicensis E. Olivier

JAMAICA: Trouthall, Clarendon, November 17 (A. H. Ritchie); Coll. British Museum.

The specimen which I have identified as this species is much discolored, but I believe it to be *jamaicensis*.

Cantharidæ**Belotus cacumenum**, new species

Elongate. Head reddish yellow, with inconspicuous cloudy spots on the vertex, apex of labrum margined with black; moderately finely and somewhat closely punctate, covered with a short yellowish pubescence. Mandibles somewhat long with a broad triangular tooth on the middle. Palpi blackish brown, last joint moderately stout. Antennæ black, arising from frontal bosses, nearly as long as the body, moderately serrate; extreme base of the basal joint paler. Pronotum reddish yellow, somewhat finely and moderately closely punctate, subquadrate, somewhat longer through the middle line than at the sides; disk with a transverse impression at the base. Scutellum reddish yellow, apex arcuately emarginate. Elytra nearly two-thirds as long as the body black, somewhat shiny; each elytron with two, more or less obsolete, discal carina, the basal parts of which are joined together in a curve and begin on the basal center a short distance behind the base and extend obliquely to about the apical third; disk coarsely wrinkled punctate; extreme base and apical third finely wrinkled punctate; pubescence short, brown. Head and thorax beneath reddish yellow. Body beneath dark brown to black. Legs blackish brown covered with paler brown pubescence. Coxæ and trochanters pale yellow. Length, 5 mm.

CUBA: Holotype male?, No. 26988, Pico Turquino (Summit), alt. 6620 ft., July 20, 1922 (S. C. Bruner and C. H. Ballou); Coll. Amer. Mus. Nat. Hist.

***Belotus balloui*, new species**

Elongate. Head reddish yellow with a faint dark V-shaped mark which extends from slightly in front of the middle of each eye to the center of the basal margin in the holotype, front of head black in the paratype; granulate punctate and covered with a short whitish pubescence. Palpi with the last joint moderately stout; antennæ arising from frontal bosses, moderately serrate, black, base of first joint yellow; second joint slightly more than one-half as long as the third; third and following joints approximately equal in length. Pronotum reddish yellow, punctate, pubescent, broader than long, rectangular, slightly longer at the middle line than at the sides. Elytra rather indefinitely wrinkled punctate, about one-half as long as the abdomen, brownish black, margined at the suture with yellow and, in the holotype, narrowly yellow on the side margins. The sutural pale margins extend to the base in the holotype; only to the apex of scutellum in the paratype, those on the sides of the holotype are post-humeral. Body beneath black, except central portion of prosternum, apex of metasternum, and apical ventral segments of the abdomen, which are yellowish, abdominal segments margined at the sides with yellow in the paratype. Legs yellowish, base of femora, tibiæ and tarsi on first two pair somewhat darker, hind pair with base of femora, apex of tibiæ and tarsi only slightly darker. Length, 6 mm.

CUBA: Holotype, male?, No. 26989, Palma Mocha, Sierra Maestra, July 10-20, 1922, alt. 3500 to 4400 ft., (C. H. Ballou and S. C. Bruner); Coll. Amer. Mus. Nat. Hist. Paratype, Palma Mocha, Sierra Maestra, July 10-20, alt. 3500 to 4000 ft., (C. H. Ballou and S. C. Bruner); Coll. Estacion Exp. Agronomica, Cuba.

The two specimens from which this species was described do not agree in every respect as to color markings. The one which I have marked as paratype has the front of the head dark; the sutural pale margin of the elytra does not extend to the base and the outer margins are not bordered with paler color; the abdominal segments have the lateral margins bordered with pale yellow and the apical abdominal segments are not pale yellow. I believe they represent one species, as I can find no structural differences on which to separate them.

***Tyththonyx marginicollis*, new species**

MALE.—Elongate, shining. Upper part of head, from base to between the antennæ, blackish gray; sides, front, and underneath pale yellow. Mandibles somewhat long, with a moderately large triangular tooth on the inner side of the middle; pale yellow, apex and tooth slightly darker. Labial palpi moderately long, pale yellow, apical joint darker. Antennæ about two-thirds as long as the body, somewhat strongly serrate, light brown, pale beneath, basal joint club-shaped, second joint broad at apex, joints three to eleven gradually diminishing in thickness and gradually increasing in length. Pronotum blackish gray, margined at the apical angles, sides, basal angles and basal center with pale yellow, apical and basal angles broadly rounded; somewhat finely punctate, pubescence light brown, disk impressed somewhat broadly at the apical sides and basal center, apical center more narrowly longitudinally impressed. Scutellum pale yellowish, apex squarely truncate. Elytra less than one-half the length of the body, dehiscent, rounded at apex, slightly paler than the thorax

in color. Underside pale yellow. Last ventral segment completely divided, penultimate segment deeply arcuately emarginate, the two segments forming together an elongate cavity in which the genitalia lie. Legs yellow, apex of tibiae and tarsi slightly darker. Length, 3 to 4.25 mm.

FEMALE.—Unknown.

ANTIGUA: Holotype, No. 26990; Coll. Amer. Mus. Nat. Hist. One paratype; Coll. University of Iowa. Both specimens collected June 18.

Tytthonyx discolor Leng and Mutchler

PORTO RICO: Larres? Coll. Insular Exp. Sta., Rio Piedras, Porto Rico.

Silis marginella Jacquelin Duval

CUBA: Viñales, April 6–9; Camagüey, July to August (S. C. Bruner and J. Acuna); Coll. Amer. Mus. Nat. Hist. Camagüey, July to August; Taco Taco, April 1–6 (S. C. Bruner, J. Acuna and C. H. Ballou); Coll. Estacion Exp. Agronomica, Cuba.

Silis (Haplacroselis) impressa (Pic)

CUBA: near Pico Turquino, alt. 4500 ft, July 20 (S. C. Bruner and C. H. Ballou); Coll. Amer. Mus. Nat. Hist. Pico Turquino, July 20, alt. 4500–5500 ft., (S. C. Bruner and C. H. Ballou); Coll. Estacion Exp. Agronomica, Cuba.

Tylocerus coriaceus Leng and Mutchler

HAITI: Port au Prince, January 15 to March 21 (at light) and Petionville, January 25 to 29 (at light), (F. E. Watson); Coll. Amer. Mus. Nat. Hist.

