

DESCRIPTIONS OF MISCELLANEOUS CHALCIDOID  
PARASITES FROM PUERTO RICO.  
(HYMENOPTERA)

By HERBERT L. DOZIER, *Associate Entomologist*,  
Bureau of Entomology & Plant Quarantine, United States  
Department of Agriculture

During the course of recent entomological investigations in Puerto Rico advantage was taken of the opportunity to collect for study certain groups of small chalcid wasps. The present paper gives descriptions of thirteen new species from Puerto Rico, together with three additional species from other localities. Rearing records of four previously described but little known encyrtids are also given. Most of the parasites treated in this paper are either coccid-inhabiting or parasitic in the eggs of other insects. One is an important larval parasite of the Cuban laurel thrips, *Gynaikothrips uzeli* (Zimm.).

FAMILY ENCYRTIDAE

*Leptomastidea antillicola*, new species

Easily distinguished from all described members of the genus by the difference in wing markings and male genitalia.

Male.—Length, exclusive of oedeagus, 1.075 mm., expanse 2.137 mm., greatest width of forewing 0.358 mm.

General color yellowish, the head and prescutum a soiled orange, the pronotum fuscous; the scutellum, metanotum, propodeum, and abdomen embrowned. Eyes greenish. Antennae brown, the scape paler along inner margin at base. Forewings hyaline, with the marginal vein and the stigma brown, and a short, prominent, oblique brown vitta extending from the marginal vein basally but not reaching the posterior margin; an irregular fuscous clouding extending across the apex and following around the posterior margin for over half its length. Legs a soiled testaceous, the posterior ones distinctly darker.

Head slightly narrower than the thorax. Frontovortex appearing polygonally reticulate under high magnification. Eyes prominent, distinctly hairy. Antennae slightly longer than the body, the scape and pedicel reticulated; the scape slightly compressed, almost four times as long as wide, greatest width at the middle; pedicel short, only a fourth as long as the scape, narrowed at base; funicle with verticillate whorls of long cilia, joints 3-6 provided with inconspicuous longitudinal sensoria; first funicle joint slightly longer than the others, but distinctly shorter than the club. Pronotum very short. Prescutum rather short, nearly two and a half times as wide as long, covered with numerous

black setae. Scutellum triangular, rounded at apex, provided with strong setae, and appearing scaly reticulate under high magnification. Forewings comparatively broad, measuring 0.860 mm. in length by 0.359 mm. in width, densely ciliate except for a somewhat oval and oblique bare area beneath the marginal vein. Abdomen subovate, slightly longer than the thorax. Male genitalia long and slender, without lateral process; claspers with a pair of short, small spines.

Female.—Unknown.

Type.—Cat. No. 51762, U. S. National Museum.

Described from a single male reared by Dr. M. R. Smith from *Pseudococcus virgatus* on foliage of "Guaba", *Inga inga*, in coffee grove of the University of Puerto Rico Demonstration Farm at San Sebastián, P. R., May 12, 1936.

### *Anagyrus similis*, new species

In general appearance and antennal coloration this species is close to *Anagyrus coccidivorus* Dozier and *A. subalbipes* Ishii but is differentiated from those at once by its black head, pronotum, and prescutum.

Female.—Length 1.46–1.58 mm., expanse 2.27–2.44 mm., greatest width of forewing 0.35–0.37 mm. Head opaque black; pronotum and prescutum black, the remainder of the thorax a soiled orange. Antennae white, the basal half of the pedicel and the entire first funicle joint black and the scape black, marked with a conspicuous pale area occupying the distal fourth, this pale area yellowish on the dorsal half and clear transparent on the ventral half. Abdomen light brown; the legs a soiled testaceous-yellow.

Eyes covered with numerous short, erect, dark, setae. Mandibles bidentate, the lower tooth smaller. Antennae very long and slender, 0.90 mm. in length, covered with numerous short hairs, the scape conspicuously widened or foliaceous, twice as long as greatest width, covered with numerous strong setae, particularly prominent over the pale distal area; funicle joints distinctly longer than wide, funicle 1 the longest funicle joint and subequal to the pedicel in length; funicles 2–4 subequal in length and very slightly longer than funicles 5 and 6. Forewings 1.00 mm. in length and 0.37 mm. in width, rather uniformly ciliated except the oblique hairless streak. Abdomen distinctly longer than the thorax, narrowed to the tip, the ovipositor hidden.

Male.—Unknown.

Type.—Cat. No. 51742, U. S. National Museum.

Described from the type female taken by the writer sweeping roadside grass and vegetation at Santa Isabel, P. R., Aug. 16, 1935; a paratype female taken sweeping grass on dry pastured slopes near San Germán, P. R., November 26, 1935; and a paratype female taken sweeping "grama" grass, *Paspalum* sp., at Lake Guánica, P. R., June 30, 1936. The type female and paratype female from San Germán, P. R., are deposited in the U. S. National Museum.

**Anagyrus graminicolens**, new species

A species easily recognized by its long, prominently protruded, dark ovipositor, and very conspicuous black and white antennae.

Female.—Length, including ovipositor, 2.15 mm., expanse 2.75 mm., greatest width of forewing 0.372 mm. General color a soiled brownish-orange, the head black, the pronotum and mesoscutum black, the scutellum distinctly orange; antennae black except the conspicuously white distal third of the pedicel, second and sixth funicle joints, and entire club; the scape deep black with a transverse conspicuous clear white area near its tip; legs soiled yellowish-orange, ovipositor sheaths black.

Rather elongate in general appearance owing to the very long, prominently protruded ovipositor, the well-tapered abdomen, and the long, slender antennae. Eyes with rather sparse, short, pale setae. Antennae very long and slender, 1.06 mm. in length, covered with numerous short hairs; the scape conspicuously dilated below or foliaceous, three times as long as greatest width, with three very strong setae present at edge of the transparent clear area; first funicle distinctly the longest funicle joint, nearly twice as long as the pedicel; funicle 2 very slightly longer than funicles 3, 4, and 5, which are subequal in length and width; funicle 6 slightly shorter and wider. Darker portions of the body appearing under high magnification in balsam mounts to be minutely but distinctly reticulate. Forewings 1.15 mm. in length and 0.372 mm. in width, rather uniformly ciliated except for the oblique hairless streak. Both thorax and abdomen rather elongate, the latter about a third longer than the thorax, tapered to the prominently protruded ovipositor, which extends for a length of about 0.33 mm. beyond the tip of the abdomen.

Male.—Unknown.

Type.—Cat. No. 51743, U. S. National Museum.

Described from the type female taken by writer sweeping grass and low weeds in beach association, Mani Beach, P. R., August 11, 1935, and a series of 47 paratype females taken sweeping "grama" grass, *Paspalum* sp., in open pasture at Lake Guánica, June 30, 1936. Type female and two paratype females, mounted in balsam on individual slides, together with six paratype females preserved dry and sixteen paratype females in alcohol, are deposited in the U. S. National Museum. The species will undoubtedly prove to be a primary parasite of a grass-feeding mealybug, when its biology is known.

**Homalopoda cristata** Howard

Howard, Journ. Linn. Soc. London, Zool., 25, p. 91, 1894.

This species was originally described from a single female from St. Vincent. A female, reared by the writer from *Ceroplastes giganteus* Dozier on *Ficus rubricosta* at Source Cazeau, Haiti, Dec. 11, 1930, was compared with the type in the National Museum and

proved to be identical. A single female was taken by the writer sweeping at sides of drainage ditch in a sugarcane field at Guayama, P. R., Jan. 17, 1936, and two females were taken on a leaf of a roadside shrub at Mayagüez, P. R., Jan. 23, 1936.

### ***Pseudhomalopoda prima* Girault**

Girault, Journ. N. Y. Ent. Soc., 23, pp. 171-172, Sept. 1915.

A female was reared by the writer from *Chrysomphalus aonidum* on palm at Damien, Haiti, April 25, 1930, and compared with the type in the National Museum. A second female specimen was reared from *Terminalia catappa* foliage infested with *Aspidiotus destructor* and *Saisettia oleae* at Port-au-Prince, Haiti, Dec. 13, 1929. Dr. Giuseppe Russo reared a female from *Chrysomphalus aonidum* at Moca, República Dominicana, Dec. 12, 1926. The writer reared a female from lemon foliage infested with *Chrysomphalus aonidum* and *Lepidosaphes beckii* at Mayagüez, P. R., Sept. 28, 1935.

### ***Anicetus annulatus* Timberlake**

Timberlake, Proc. Haw. Ent. Soc., 4, no. 1, p. 277, 1919.

A single female of this species was reared by the writer from "Petit calecon", *Bauhinia divaricata*, material at Source Cazeau, Haiti, Dec. 8, 1930. A female is at hand, reared by Dr. Giuseppe Russo from *Lecanium* scale on rose at Santo Domingo, República Dominicana, April 30, 1927. It has been reared in California and Japan from *Coccus hesperidum* and *Coccus pseudomagnoliarum*. It was definitely shown to be a primary parasite by Harold Compere in 1924.

### ***Metaphycus monticolens*, new species**

Recognized immediately by its very distinctive orange and fuscous coloration, with distinct metallic reflections.

Female.—Length 0.932-1.00 mm., expanse 1.85 mm., greatest width of forewing .0257-.0272 mm.

Head and pronotum black with slight bluish metallic reflections, practically the entire prescutum dark but a shade lighter and with distinct greenish metallic reflections; remainder of thorax a beautiful contrasting orange, and abdomen fuscous with aeneous reflections. Antennae a soiled testaceous orange, basal two-thirds of pedicel infuscated. Legs pale yellowish; middle femora at their distal fourth and proximal fourth of middle tibiae annulated with fuscous; hind femora slightly infuscated at tip. Forewings hyaline, with a distinctive irregular cross band of light brown occupying the area of the marginal and stigmal veins, and beneath same following the oblique hairless area to the posterior margin,

where the cloud enlarges and extends distally along the margin for a short distance.

Eyes almost hairless, with a few transparent setae barely visible under highest magnification. Antennae rather slender, the scape flattened on the underside but not expanded, long and slender, five times as long as wide; pedicel somewhat pyriform, distinctly narrowed at base, longer than the first three funicle joints combined; first and second funicle joints subequal in length and width, slightly longer than the third; funicles 4, 5, and 6 increasing gradually in width and length; club as long as the entire funicle combined, twice as long as wide, obliquely truncate. Pronotum opaque, mesoscutum short, covered with numerous setae which break off easily in mounting, and six more prominent ones along near the posterior margin; axillae with five setae each; scutellum under high magnification appearing elongately reticulated, provided with twenty strong setae. Forewings nearly three times as long as wide, measuring .076 mm. in length by .027 mm. in width; postmarginal vein rudimentary; marginal vein much shorter than the submarginal, the latter with four strong marginal bristles; uniformly ciliate distad of the oblique hairless streak. Abdomen shorter than the thorax, somewhat subtriangular in outline, the ovipositor slightly, if at all, protruded.

Male.—Unknown.

Type.—Cat. No. 51761, U. S. National Museum.

Described from the type female, collected by the writer sweeping shrubbery at 3,000 ft., Maricao, P. R., August 18, 1935 and a paratype female taken by the writer on a "guama", *Inga laurina*, tree in a coffee grove in the mountains above Mayagüez, P. R., August 21, 1935.

#### *Hunterellus hookeri* Howard

Howard, Canadian Entomologist, 40, pp-239-241, 1908.

Collections of the brown dog tick, *Rhipicephalus sanguineus* Latr., made at irregular intervals at Mayagüez, P. R., from Sept. 24 to November 4, 1935, on a police dog showed a very heavy percentage of parasitization. Parasites issued in numbers on Oct. 23d., and from 10 isolated swollen ticks a total of 77 parasites issued from Nov. 1-4. In every case the parasites issued from second-stage females, each body showing an exit hole towards the posterior end from which one or more parasites issued. Apparently the adult females and males are not attacked. The host tick became much less abundant during November and this could be accounted for by the activity of *Hunterellus hookeri*. More parasites were reared on November 30 from the few ticks collected. Two ticks collected on December 2d yielded 16 parasites and a tick collected on December 13th yielded 4 parasites on January 3d. The latter part of December saw a decided increase in the tick again.

## Family EULOPHIDAE

## Subfamily Aphelininae

***Hispaniella howardi*, new species**

This species might easily be confused with *Aspidiotiphagus citrinus* Howard but is distinguished at once by having only four tarsal joints and broader forewings. A rather short and robust species, very distinct from the European *Hispaniella lauri* (Mercet).

Female.—Length, including ovipositor 0.35–0.40 mm., expanse 0.817 mm., greatest width of forewing 0.086 mm. General color yellowish, the sides of the thorax, base of abdomen, and sides along the middle marked with fuscous; anterior margin of prescutum and pronotum infuscated along the middle; antennae uniformly dusky; legs pale.

Head as wide as thorax, the eyes large and prominent. Antennae 8-jointed, somewhat flattened, the scape long and slender; pedicel distinctly wider than the scape and about one-third as long; first funicle joint decidedly the smallest joint, about half as wide as the pedicel; funicles 1, 2, and 3 increasing in width and length successively; club 3-jointed, the second joint the broadest, slightly longer than the first, and subequal in length to the rather pointed terminal joint; microscopic longitudinal sensoria present on last funicle joint and club. Eyes hairless. Ocelli placed in an equilateral triangle, red. Under high magnification the prescutum and scutellum appear to be faintly and coarsely reticulated. Forewings rather broad, the outer anterior margin well rounded; marginal vein furnished with five distinct marginal setae; the submarginal vein always with a single small inconspicuous seta; disk with numerous, fairly uniformly arranged, short setae, a bare area about the stigma; marginal fringe of cilia very long, those on posterior margin distinctly longer than those on the anterior margin, the longest equaling the width of the wings. Forewings hyaline except for a clouded area which extends across the entire width of the wing behind the marginal vein; marginal vein dusky. Abdomen much longer than the thorax but distinctly narrower; the ovipositor slightly exerted. All tarsi 4-jointed.

Male.—Unknown.

Type.—Cat. No. 51685, U. S. National Museum.

Described from a series of twenty six females mounted in balsam, and which were reared by the writer from *Parlatoria pergandii camelliae* Comstock (det. Harold Morrison), on Croton foliage at Port-au-Prince, Haiti, April 13–May 6, 1931. The type female on a slide with a single paratype female, and eight paratype females on two slides, are deposited in the U. S. National Museum.

Named in honor of Dr. L. O. Howard, who did so much excellent pioneer work on scale parasites.

**Prospaltella pulchella**, new species

An unusually beautiful species. Nearest to *P. murtfeldtii* (Howard) but differing at once in the extent of clouding of the forewings and by having the first funicle joint silvery white instead of brown. Also closely allied to *P. fasciativentris* Girault but the anterior femora are not annulated with dusky nor is the abdomen shining piceous as in that species which also has funicle 1 distinctly brown and funicle 2 more dusky than 3.

Female.—Length, including ovipositor, 0.731 mm., expanse 1.305 mm., greatest width of forewing 0.20 mm. General ground color light yellowish; the thorax somewhat varicolored, in general brownish, the sides lighter, (the pronotum, metanotum and propodeum distinctly fuscous. Antennae with the scape and pedicel slightly dusky, all three funicle joints silvery-white; the first two club joints dark brown, the terminal joint white, slightly dusky towards the base. Vertex dusky yellowish, the ocelli red. Forewings hyaline, with a broad infumation or fuscous cloud extending across the wing beneath the distal half of the marginal vein and reaching beyond the stigmal vein. Abdomen fuscous, the apex, the sides irregularly so, and a broad transverse band across the basal fourth, silvery-white. Legs pale, the middle and hind tibiae each with a single fuscous annulation, the middle femora with an indication of a fuscous clouding on lower margin; first and second tarsal joints of anterior legs brown, the middle and hind tarsi with only first joint brown.

Head transverse, distinctly wider than the thorax, the prominent eyes naked. Antennae fusiform, conical at apex, with distinct longitudinal sensoria; scape long and slender, five times as long as wide, narrower than pedicel; pedicel distinctly wider than first funicle joint and twice as long; the three funicle joints successively shorter and slightly increasing in width, funicle 3 nearly twice as long as funicle 1; club 3-jointed, tapered to conical apex, the first joint distinctly the widest, and slightly longer than the second, the terminal joint the longest, pointed. Under high magnification the prescutum, axillae, and scutellum appear coarsely polygonally reticulate, the areas along median line of scutellum longitudinally elongated; the prescutum with a pair of extra strong lateral setae, and nine smaller ones on each side; the scapulae with three setae each, the axillae each with a single one, and the scutellum with a pair of strong setae on each side. Forewings broad, about two and a half times as long as wide (measuring 0.50 mm. in length by 0.20 mm. in width), marginal vein almost equal in length to the submarginal; stigmal vein very short, its anterior border nearly parallel with the costa, shaped somewhat like the head of a bird; disk of wing rather densely ciliated, the cilia less abundant on basal portion beneath the submarginal vein and a large conspicuous area lying beneath basal half of marginal vein appearing hairless owing to the transparency of the pale cilia at that point. Abdomen somewhat ovate in outline, the ovipositor slightly protruded. Tarsi 5-jointed.

Male.—Unknown.

Type.—Cat. No. 51754, U. S. National Museum.

Described from a single female, reared June 17, 1931, by the writer at Port-au-Prince, Haiti, from a shipment of apple twigs

infested with the wooly apple aphid, collected at Camden, Del., and forwarded by L. L. Williams in connection with the attempted introduction of *Aphelinus mali* (Haldeman) into Haiti. The species is undoubtedly a parasite of some apple-infesting coccid.

This species is a typical *Prospaltella* and is certainly congeneric with the genotype, *Prospaltella murtfeldtii* (Howard), and with *P. fasciiventris* Girault, *P. fasciapennis* Girault, and *P. forbesi* Dozier, all of which have the conically pointed club and the stigma bearing a resemblance in outline to that of a bird's head.

### *Prospaltella elongata*, new species

Easily distinguished by coloration and its comparatively narrow, elongated form, an adaptation apparently to the extremely elongated body of its host scale.

Female.—Length, including ovipositor, 0.50 mm., expanse 1.13 mm., greatest width of forewing 0.158 mm. General coloration yellowish-orange, nearly the apical two-thirds of the abdomen, the ovipositor, the upper portion of the head, the pronotum, and the anterior margin of the prescutum, fuscous; antennae uniformly yellowish-orange; legs pallid.

Head slightly wider than the thorax, the vertex transversely rugulose. Antennae long, somewhat flattened, with longitudinal sensoria, the club distinct but only slightly wider than the funicle; scape long and narrow, about five times as long as wide; pedicel half as long as the scape but distinctly wider than either the scape or funicle; first funicle joint very short, only half as long as the second funicle; funicle joints 2 and 3 subequal in width and length; club 3-jointed, the first and second joints subequal in width and length, the terminal joint nearly a fourth longer and narrowed to apex. Under high magnification the pronotum, prescutum, scutellum, and axillae appear faintly and coarsely reticulated. Prescutum with eight strong setae, the axilla with a single strong seta, and the scutellum with a pair. Forewings rather broad, 0.459 mm. in length and 0.158 mm. in width, well rounded at apex; submarginal vein with a pair of strong setae; marginal vein with eight strong setae along its anterior margin; a broad infumation or clouding extending from beneath the marginal vein and stigma across the width of the forewings. Abdomen distinctly longer and narrower than the thorax, narrowing apically to a well-rounded apex where the ovipositor is prominently protruded or exerted.

Male.—Unknown.

Type.—Cat. No. 51681, U. S. National Museum.

Described from a series of 69 females reared by the writer from the long scale, *Lepidosaphes gloveri* (Packard), on a *Euonymus* shrub in a yard at New Orleans, La., January 6, 1926. The type female and 5 paratype females on one slide, 10 paratype females on a second slide, and 9 paratype females on a third, slide, are deposited in the U. S. National Museum.



This species appears to be a very important parasite and is probably responsible for the fact that the long scale is a minor pest of citrus in the Gulf Coast region, while the purple scale, *Lepidosaphes beckii* (Newman), unchecked by natural enemies, is the most serious enemy of citrus. The writer has observed numerous emergence holes of this parasite in *Lepidosaphes gloveri* at Mobile, Ala.

### *Encarsia nigricephala*, new species

Belongs to the group having the middle tarsi 4-jointed. Distinguished immediately from all other described members of the genus by having the head, pronotum, and anterior two-thirds of the prescutum black. Closely related to *Encarsia cubensis* Gahan but differing in color.

Female.—Length, including ovipositor, 0.46 mm., expanse 1 mm., greatest width of forewing 0.115 mm. General color pale yellowish, contrasting greatly with the black head, pronotum, and anterior discal two-thirds of prescutum; the fuscous portions appearing distinctly reticulate under high power. Head about as wide as thorax, the eyes faintly hairy under high magnification. Prescutum with a single strong seta placed near the margin on each side. Antennae long and slender, testaceous yellow; pedicel almost twice as long as the first funicle and distinctly stouter; first funicle decidedly the shortest antennal joint; funicles 2 and 3 successively slightly longer and subequal in width; funicle 4 slightly longer and wider; terminal joint a third longer than first club joint, widened noticeably at base and then slightly tapered. Forewings rather small (0.40 mm. in length by 0.115 mm. in width), the longest cilia of marginal fringe longer than half the width of the wing; submarginal vein with two setae; wing surface rather sparsely ciliated, the cilia absent from a large bare area embracing the stigmal vein and a border around the outer portion of the wing. Abdomen distinctly shorter than thorax, ovipositor strongly exerted. Legs entirely pallid; all tarsi except those of the middle legs 5-jointed.

Male.—Unknown.

Type.—Cat. No. 51607, U. S. National Museum.

Described from three females reared by the writer from an undescribed whitefly, *Bemisia* sp., abundant on a weed, *Euphorbia hypericifolia*, in a backyard at Mayagüez, P. R., February 12, 1936. These are mounted in damar balsam on individual slides.

### Subfamily Tetrastichinae

#### *Tetrastichus tatei*, new species

This species could be placed in the genus *Geniocerus* Ratzeburg, following Kourdumoff, as it has more than one bristle on the submarginal vein, but this grouping seems unnatural. Members of the genus *Tetrastichus* Haliday are quite varied in their habits. The

new species is the second described as a definite thrips parasite. *Tetrastichus gentilii* Del Guercio was described as a parasite of *Phloeothrips oleae* in 1911.

Female.—Length about 1–1.16 mm. Dark brown in color, the eyes conspicuously red, with the antennae and legs yellowish-testaceous, and a light or clear median area occupying over a third of the abdomen at its base. This clear area is very characteristic of the species. Antennae 9-jointed including a single minute ring-joint that is visible under high magnification; the three funicle joints subequal in length, the first slightly longer than the pedicel; club slightly wider than funicle, tapered, and only slightly longer than funicle joints 2 and 3 combined. Median furrow on mesoscutum and pair of furrows on scutellum distinct. Forewings hyaline, veins testaceous-yellow; submarginal vein with two very distinct bristles and a less distinct, more posteriorly placed one. Abdomen elongate, almost twice as long as thorax, distinctly petiolate, narrowest at base, the ovipositor nearly concealed.

Male.—Unknown.

Type.—Cat. No. 51608, U. S. National Museum.

Described from numerous females reared by the writer from swollen last-instar nymphs of *Gynaikothrips uzeli* (Zimm.), curling the foliage of Cuban laurel, *Ficus nitida*, on the Experiment Station grounds at Mayagüez, P. R., March 26–April 5, 1936. The Type female mounted in balsam on a slide and paratypes on slides, dry, and in alcohol are deposited in the United States National Museum. Named in honor of H. D. Tate, who called the writer's attention to the damage being occasioned by this thrips.

#### Family MYMARIDAE

#### *Mymar antillanum*, new species

In number of primary marginal cilia this species is closest to *Mymar cincinnati* Girault but differs at once in having the discal ciliation of forewings cephalad of the mid-longitudinal line of cilia.

Female.—Length, including ovipositor, 0.645 mm., expanse 1.749 mm., greatest width of forewing, exclusive of marginal cilia, 0.068 mm. Head, thorax, and abdomen dark brown or fuscous, basal third of abdomen distinctly lighter; pedicel pale; flagellum light brown; legs pale yellowish, slightly embrowned, terminal joint of tarsi distinctly fuscous.

Antennae 9-jointed; scape very long, somewhat curved, swollen at base and apex, four times as long as the short, rather stout pedicel; first funicle only slightly longer and distinctly narrower than pedicel; second funicle by far the longest joint, five times as long as the first, perceptibly enlarged distally; funicles 3, 4, and 5 subequal in length, 6 slightly longer and thicker. The forewing on a very long stalk, the distal portion greatly widened into a distinct blade oar-like; slightly over half of distal part of blade broadly infuscated, line of demarcation very irregular and somewhat oblique; primary marginal cilia 42

in number; discal cilia of the blade mostly cephalad of a mid-longitudinal line which extends from near apex to base of blade. Hind wing reduced to a long, narrow, bristle-like appendage, of which the portion basad of the hooklets is bare, beyond the hooklets for some distance sparsely armed with short setae, the apical one-fourth bare and very slender; the portion beyond the hooklets twice as long as that from base to the hooklets but easily broken off. Abdomen distinctly petiolate, the petiole narrow and about half as long as the abdomen; ovipositor slightly exerted beyond the tip. Legs long and slender, the tarsi 4-jointed.

Type.—Cat. No. 51684, U. S. National Museum.

Described from the type female, collected by the writer sweeping grass and sedges at roadside pond edge near Boquerón, P. R., Sept. 5, 1935; a paratype female taken sweeping grassy path in dense coffee glade at 1,000 ft. in mountains at Las Vegas, P. R., Jan. 2, 1936; a paratype female sweeping low vegetation in an irrigation ditch at the Experiment Station, Mayagüez, P. R., February 28, 1936; and a paratype female taken sweeping grass at swampy edge of roadside, Lake Guánica, P. R., July 13, 1936.

#### *Gonatocerus portoricensis*, new species

Closest in general appearance to *Gonatocerus fasciatus* Girault on account of the cross-band on forewing but distinguished at once by its yellowish-orange abdomen, transversely banded with brown.

Female.—Length, including ovipositor 0.774 mm., expanse 1.72 mm., greatest width of forewing 0.222 mm. Head and entire thorax, black; antennae with flagellum dark grayish brown, the scape and pedicel lighter brown; abdomen yellowish-orange in life, fading to a soiled yellowish in balsam mounts, with the tip and four distinct cross-bands or vittae along the anterior margins of segments brown; legs yellowish-brown, the tibiae more deeply infuscated.

Head slightly wider than thorax. Antennae long and rather slender; scape distinctly flattened, three times as long as its greatest width and about twice as long as the pedicel; pedicel narrower than the scape but distinctly wider than the funicle joints, all subequal in length, widening slightly, the first barely perceptibly the shortest; club solid, twice as wide as the last funicle joint and about three times as long. Forewings long, slightly over three times as long as the greatest width; hyaline, the venation and a very distinctive cross fascia near apex of venation brown; rather uniformly ciliated, the ciliated area delimited by a line of cilia which runs from the base of the marginal vein obliquely outward to the posterior margin. Abdomen somewhat ovate, slightly longer than thorax, ovipositor slightly but distinctly exerted; transverse rows of very distinct strong setae arranged along each of the four brown cross vittae and tip in a very characteristic manner.

Male.—Length 0.86 mm. Differs from the female by the long, brown, 13-jointed antennae, distinctly flattened; all joints except the scape and pedicel with longitudinal sensoria; the first funicle slightly the shortest, the others subequal in length and narrowing only slightly, the tip somewhat pointed.

Described from single female specimens collected by the writer in Porto Rico as follows:—Swept from cotton at Isabela, August 1935, sweeping low grass, etc., at roadside, Boquerón, Sept. 5, 1935; sweeping shrubby hillside pasture at 1,000 ft., Mayagüez, Oct. 3, 1935; sweeping hillside weeds in mountains at 1,300 ft., Villalba, Oct. 25, 1935; sweeping bamboo at river edge, Hormigueros, Oct. 31, 1935; swept from pure stand of coffee seedlings in bed near Mayagüez, Nov. 17, 1935; sweeping hillside shrubbery at 1,800 ft., Maricao, Dec. 19, 1935; two females, sweeping grass and weeds at sides of drainage ditch in canal, at Guayama, Jan. 17, 1936; male taken in pasture at Guanajibo, Sept. 11, 1935, and another from roadside weeds at Ensenada, Dec. 5, 1935; a male and a female taken sweeping weeds along Añasco river near Las Marías, July 28, 1936.

Type.—Cat. No. 51678, U. S. National Museum.

Holotype female from cotton at Isabela, P. R., Aug. 19, 1935, allotype male from roadside weeds at Ensenada, Dec. 5, 1935, and the paratype female from Hormigueros, P. R., Oct. 31, 1935 are deposited in the U. S. National Museum collection.

#### *Gonatocerus antillensis*, new species

Closest to *Gonatocerus koebeli* Perkins but differentiated immediately by the darker legs and antennal difference.

Female.—Length, including ovipositor, 0.832 mm.; expanse 1.635 mm., greatest width of forewing 0.158 mm. Black, the abdomen narrowly banded with yellow at base, the scape and pedicel a shade lighter than the flagellum in color; legs fuscous.

Antennae rather long, the scape about twice as long as the pedicel, three times as long as wide; funicle joints subequal in length except 5 and 7 which are slightly longer; club solid, equal in length to the last three funicle joints combined. Thorax short and broad, longer than wide. Forewings rather slender, almost five times as long as wide; hyaline, with a very distinct large smoky spot or infumation occupying most of the apical fifth but not quite touching the margins; rather uniformly covered with cilia except a small clear area just distad of stigma, the ciliation terminating towards base at an oblique line running to origin of marginal vein. Abdomen elongate, nearly twice as long as wide, petiolate but petiole very short and inconspicuous; ovipositor distinctly exerted for about a sixth of the abdominal length; ovipositor valves gray.

Male.—Unknown.

Type.—Cat. No. 51679, U. S. National Museum.

Described from the type female, collected by the writer sweeping roadside vegetation at 1,000 ft. near Mayagüez, P. R., Oct. 14, 1935; a paratype female taken sweeping steep roadside slopes, covered with

fern, shrubs, etc., at Miradero, P. R., Sept. 13, 1935; and three paratype females taken sweeping "cohitre", *Commelina longicaulis*, etc., in mountains at 650 ft., Las Vegas, P. R., Dec. 26, 1935.

### ***Erythmelus longicornis*, new species**

Recognized easily by the unusually long antennae and the pale, dirty yellowish legs.

Female.—Length, exclusive of ovipositor, 0.674 mm., expanse 1.047 mm., greatest width forewing 0.0789 mm. General color fuscous-black, the basal half of the abdomen pale yellowish; antennae grayish-brown, the scape, pedicel, and first funicle barely perceptibly lighter; legs pale, dirty yellowish, front trochanters distinctly pallid, the hind femora darker.

Antennae 9-jointed, unusually long and slender for the genus, the sixth funicle joint distinctly the longest funicle joint, nearly twice as long as the others and distinctly thicker, the scape elongate, subequal to the club in length; pedicel short and stout; funicle 1 distinctly the shortest antennal joint, about half as long as funicle 3, 4, and 5, which are subequal in length; funicle 2 barely but perceptibly shorter than 3, 4, and 5; club solid, only moderately stout, being four times as long as wide. Thorax elongate, slightly shorter than abdomen. Forewings nearly six times as long as greatest width, infumated at base; marginal vein with two prominent setae near anterior margin and two small setae present, placed just distad of the larger prominent ones; distal third of forewing with short discal cilia; marginal cilia along outer posterior margin, longest and a third longer than greatest width of blade. Abdomen somewhat elongate, the pale ovipositor exerted but the hypopygium covers the ovipositor to the apex of the abdomen, as is characteristic for the genus.

Type.—Cat. No. 51755, U. S. National Museum.

Described from a single female taken by the writer sweeping low weeds, etc., in the sandy beach association at Mani Beach, near Mayagüez, P. R., August 11, 1935.

### ***Erythmelus miridiphagus*, new species**

Closely allied to *Erythmelus longicornis* Dozier but distinguished immediately by the shorter antennae, fuscous legs, and different arrangement of discal setae of forewing.

Female.—Length, exclusive of ovipositor 0.574 mm., expanse 0.932 mm., greatest width of forewing 0.0789 mm. General color black, basal half of abdomen pale yellowish; antenna fuscous, the pedicel a trace lighter; legs for the most part distinctly fuscous, the tibiae, tarsi, and distal tips of femora of front legs pallid; basal third of hind tibiae pallid.

Antennae slightly shorter and stouter than those of *E. longicornis* Dozier, the sixth funicle joint being about twice as long as any other funicle joint; scape four times as long as its greatest width slightly shorter than the club; pedicel short and stout, less than half as long as the scape; first funicle very short, half as long as the second; funicles 2, 3, 4, and 5 subequal in length.

and increasing barely perceptibly in width slightly narrower than the 6th; club moderately enlarged, almost five times as long as greatest width. Thorax and abdomen elongate, the latter slightly the longest, with the ovipositor distinctly exerted. Forewings five times as long as their greatest width, slightly infumated at base; marginal vein gray, with two large prominent marginal setae and two smaller ones; distal third of forewing rather sparsely covered with short cilia, with a few inconspicuous ones arranged in an irregular, median line extending basally.

Type.—Cat. No. 51682, U. S. National Museum.

Described from a series of 29 females collected by the writer from a pure stand of *Amaranthus* at edge of cane field at Hormigueros, P. R., Oct. 1, 1935. Enormous numbers of *Polymerus cuneatus* Distant were breeding on this weed and without doubt *E. miridiphagus* is a true egg parasite of this mirid. Heretofore nothing has been recorded in literature as to the hosts of species of *Erythmelus*. Although the species was very abundant at the time, no males could be located. The type female and 10 paratype females, mounted in balsam, are deposited in the U. S. National Museum.

#### *Erythmelus nanus*, new species

Most closely allied to *Erythmelus gracilipes* (Girault) of the United States. A small, short, compact species.

Female.—Length, exclusive of ovipositor, 0.573 mm., expanse 0.960 mm., greatest width of forewing 0.086 mm. General coloration, including the antennae, black, the basal third of the abdomen whitish; legs black except the pale yellowish front tibiae and tarsi and the hind trochanters.

Antennae short and stout in comparison with those of other species, the sixth funicle joint only twice as long as wide and subequal to the fourth funicle; scape long, nearly three times as long as the short, stout pedicel; first funicle distinctly the shortest and smallest joint; club stout, nearly three times as long as wide. Thorax and abdomen nearly equal in length and having a more compact appearance than in *E. longicornis* Dozier and *E. miridiphagus* Dozier, and the forewings are broader. Fore and hind wings lightly infumated, slightly paler beneath the marginal vein. Forewings broad, nearly five times as long as wide, the distal fourth with sparse short cilia, arranged in 4-5 lines against the cephalad margin and a line near the posterior margin; marginal cilia very distinct, the longest along the outer posterior margin being just slightly longer than the greatest wing width. Abdomen rather broad, rounded to tip, the ovipositor only slightly exerted.

Type.—Cat. No. 51683, U. S. National Museum.

Described from a type female, collected by the writer sweeping low vegetation along banks of a rocky river at Las Vegas, P. R., Jan. 6, 1936, at 650 ft. elevation in the mountains; and two paratype females taken sweeping low grass and weeds in a pasture at Guanajibo, P. R., Sept. 11, 1935.

## Family TRICHOGRAMMIDAE

*Oligosita magnifica*, new species

Closest to *Oligosita novisanguinea* Girault of Australia but slightly smaller and with the broad basal band of abdomen distinctly yellow instead of white. This species is also closely allied in structure and coloration to the North American *O. sanguinea* Girault but distinguished at once by the characteristic yellow band across the base of the abdomen.

Female.—Length, 0.487–0.674 mm., expanse 0.922 mm., greatest width of forewing 0.086 mm. General color a beautiful bright sanguineous or blood red, the base of the abdomen with a broad transverse band of bright yellow covering nearly half its length (this fades greatly in balsam-mounts, legs dusky; antennae concolorous with the legs, the distal two joints slightly darker.

A rather small species. Head about as wide as thorax. Antennae 7-jointed, including a single minute ring-joint; club slender, 3-jointed, at base wider than the funicle joints, narrowed to a point and with a very distinct terminal spine; proximal joint of club distinctly shorter than second or intermediate. Forewings over four times as long as wide, with a very distinct sooty black substigmatal spot or suffusion; discal cilia almost entirely absent; marginal cilia longest at the rounded apex, slightly longer than the greatest width of the forewing. Abdomen about a fourth longer than the thorax, robust, narrowed to apex, the ovipositor barely exerted.

Male.—Unknown.

Type.—Cat. No. 51680, U. S. National Museum.

Described from the type female collected by the writer sweeping low grass at edge of Cartagena lagoon, P. R., Nov. 11, 1935; a paratype female taken sweeping sedges and grass at low wet roadside near Boquerón, P. R., Sept. 5, 1935; and a paratype female swept from grass near Bayamón, P. R., June 17, 1936.