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NEW NEOTROPICAL WASPS OF THE FAMILY BRACONIDAE
(HYMENOPTERA) IN THE U. S. NATIONAL MUSEUM

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The parasitic Hymenoptera of the Neotropical region are still mostly undescribed; accordingly it is not possible to give specific names for the majority of samples that are received for identification. In the Braconidae alone a very considerable number of new species from Neotropical localities have accumulated in the collections of the U. S. National Museum, most of them received from workers interested in the biological control of various insect pests. For some of these new species, names have been wanted for a rather long time. Finally, a beginning is being made on the task of naming and describing them. For the present paper I have selected forms that, because of their host associations or distribution or because they add significantly to our understanding of the superspecific groups involved, are of more than usual interest. Unfortunately, it is not at present feasible, or possible, to include workable keys to the Neotropical species of such

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large genera as *Apanteles*, *Opius*, and *Meteorus*, but for a few small groups this has been done. In addition, two new genera are described and some new synonymy and new combinations are indicated.

For the drawings I am indebted to Mr. R. A. Cushman, artist of the Entomology Research Branch, U. S. Department of Agriculture.

Genus *Microctonus* Wesmael

The species of this genus often have been assigned erroneously to *Perilitus* Nees, and the single known South American species identifiable as a *Microctonus* was described by Szepligeti as *Perilitus brasiliensis*. It appears to be closely similar superficially to the second of the two new species described here.

Microctonus brasiliensis (Szepligeti), new combination

Perilitus brasiliensis Szepligeti, Termes. Fuzetek, vol. 25, p. 80, 1902.

This species was described from a single male from Brazil in the collection of the Hungarian National Museum.

Microctonus audax, new species

FIGURES 1, k; 4, e

This new species is distinguished from the other known South American species by its large eyes, short malar space, and evenly rugulose, nonareolate propodeum.

FEMALE: Length about 3 mm. Head broader than thorax; face broader than long, minutely punctate; eye longer than narrowest width of face; clypeus punctate, twice as long as malar space, its base defined by a sharply impressed line; frons, vertex, and temples smooth and shining; a dimple-like impression between posterior ocelli; antennae usually 30- to 33-segmented, about as long as body.

Mesoscutum smooth and shining; notaulices foveolate and meeting behind in a rugose area that is divided by a median longitudinal carina; median lobe with short, sparse pubescence; lateral lobes bare; scutellum strongly convex, impunctate, polished; propodeum uniformly closely rugose, without prominent carinae, its posterior face vertical and conspicuously hollowed out in the middle; mesosternal groove coarsely foveate; mesopleuron smooth and shining above, extensively rugulose punctate below; radial cell on wing margin nearly as long as stigma; lower abscissa of basella shorter than nervellus.

Abdomen at widest point much narrower than thorax; first tergite more than twice as long as broad at apex, the petiole polished, the expanded portion finely aciculate; remainder of abdomen polished; ovipositor sheath a little shorter than hind femur.

Head black; temples, cheeks and mandibles more or less brown; antennae dark brown to black; thorax black, sometimes reddish brown

on sides and below; legs including all coxae reddish brown; wings hyaline, stigma yellowish, margined with brown; abdomen reddish brown, first tergite more or less blackish.

MALE: Like the female but usually somewhat darker in color, with thorax entirely black, abdomen mostly piceous, posterior coxae darkened at bases, hind tibiae and tarsi more or less darkened, sometimes all tarsi dark; also the antennae longer than the body, normally 34- to 36-segmented; face broader than eye height; malar space two-thirds as long as clypeus.

TYPE: USNM 63044.

TYPE LOCALITY: Santa Fé, Argentina.

Described from 8 females and 8 males reared from adult weevils of the genus *Listroderes* by H. L. Parker in October 1944. According to Dr. Parker the female has the remarkable habit of ovipositing in the host weevil through the mouth.

Microctonus berryi, new species

This new species apparently is very similar to *Microctonus brasiliensis* (Szepilgeti) but smaller, and is further distinguished by the somewhat shorter antennae, yellow scapes, and reticulate propodeum.

FEMALE: Length about 2.5 mm. Head slightly broader than thorax; face at least $1\frac{1}{2}$ times as broad as long, not distinctly punctate, covered with very short pile; clypeus slightly longer than malar space; frons, vertex, and temples smooth and polished; antennae with about 24 segments.

Mesoscutum smooth and shining; lateral lobes bare; surface of middle lobe with short pubescence; notaulices sharply impressed, foveolate, meeting at posterior margin of mesoscutum; a short median keel extending forward from point of union of notaulices; scutellum slightly convex, impunctate; dorsal face of propodeum reticulate, with two large, transverse, nearly smooth areas at base, posterior face rugulose, excavated in the middle; mesosternal groove finely foveolate; mesopleuron smooth and polished, sometimes with a few coarse punctures below; venation essentially like that of *M. audax*; radial cell on wing margin two-thirds as long as stigma; first abscissa of radius less than half as long as width of stigma; lower abscissa of basella and nervellus subequal.

Abdomen at widest point only slightly narrower than thorax; first tergite much more than twice as long as broad on caudal margin, smooth and polished on basal third, usually striate beyond; remainder of abdomen polished; ovipositor sheath fully as long as hind femur.

Head yellow, with a small blackish spot enclosing ocelli; antennal flagellum brown, paler toward base beneath; scape reddish yellow; dorsum of thorax including propodeum blackish, with scutellum

and areas bounding notaulices reddish; pleura and sternum reddish yellow; wings hyaline, stigma yellowish bordered with brown; legs reddish yellow, all tarsi and posterior tibiae fuscous to blackish; abdomen yellowish brown, first tergite piceous except at base where it is yellowish.

MALE: Differs from the female in the slightly longer antennae, which have around 26 segments, in having the thorax black except for the yellowish prothorax and reddish mesopleura, in the nearly smooth first tergite, and in having the second and following tergites piceous.

TYPE: USNM 63045.

TYPE LOCALITY: Angol, Chile.

Described from 11 females and 7 males reared by Paul A. Berry from a chrysomelid on willow, Mar. 9, 1941, at Angol, Chile; 2 females and 1 male reared by L. Duran from adults of the chrysomelid *Plagioderia erythroptera* (Blanchard), October 1940, at Panquehue, Chile; and 1 female reared by H. L. Parker from the same host at Angol, Chile, Feb. 22, 1941.

Genus *Meteorus* Haliday

Meteorus eacilidis, new species

FIGURES 1, i; 2, b

This new species is closely similar to *townsendi* Muesebeck but distinguished by having the middle lobe of mesoscutum convex rather than shallowly impressed, by the relatively wider cubitellan cell, by the paler tegulae, and by the noninterstitial recurrent vein. Moreover, the cocoons of this species are formed singly whereas those of *M. townsendi* are arranged in a compact mass that is encased in loose silk.

FEMALE: Length about 4 mm. Head a little wider than thorax, smooth; temples gradually receding; occipital carina narrowly interrupted at middle; face $1\frac{1}{2}$ times as broad as long; malar space longer than basal width of mandible; ocellocular line about twice the diameter of an ocellus; antennae a little longer than body, usually 30- to 32-segmented.

Thorax stout; notaulices sharply impressed; middle lobe of mesoscutum convex, not impressed down middle, weakly punctate; scutellum convex, polished, $1\frac{1}{2}$ times as long as the large bifoveate sulcus at its base; propodeum coarsely rugose-reticulate, the posterior declivity deeply excavated medially; side of pronotum smooth and shining except for the median depression, which is crossed by a few strong rugae; mesopleuron mostly smooth but with the broad longitudinal impression coarsely rugose; hind coxae punctate; longer calcarium of hind tibia about as long as second segment of hind tarsus;

radius issuing from beyond middle of stigma; first abscissa of radius as long as, or longer than, second, the latter about half as long as second intercubitus; radial cell nearly attaining extreme apex of wing; recurrent vein joining first cubital cell; lower abscissa of basella longer than nervellus; cubitellan cell at narrowest point at least $1\frac{1}{2}$ times as wide as greatest width of radiellan cell.

Abdomen a little narrower than thorax; first tergite without dorsal fossae, finely, closely aciculate except at base, the ventral margins joined from base to postpetiole; ovipositor sheath shorter than hind tibia.

Honey yellow; palpi paler; antennae black; tegulae brownish yellow, blackish on outer margins; wings noticeably infumated; stigma and veins dark brown; hind tibia black apically; hind tarsus fuscous, basal half of metatarsus pale.

MALE: Differs in no significant details from the female.

TYPE: USNM 63046.

TYPE LOCALITY: São Paulo, Brazil.

Described from four females and one male reared from *Eacles magnifica* Walker by E. J. Hambleton at the type locality June 10, 1935, and 18 females and 11 males reared from an unidentified lepidopterous larva at Tiete, São Paulo, Brazil, in February 1939 by M. Antonio and submitted by L. O. T. Mendes.

Meteorus kraussi, new species

FIGURES 3,d,i

This species immediately suggests *M. vulgaris* (Cresson), but the ventral margins of the first tergite are closely joined from the base to the postpetiole; the postpetiole is more coarsely sculptured, and the malar space is much longer than in *M. vulgaris*.

FEMALE: Length about 3.5 mm. Face very finely roughened, subopaque, at its narrowest point fully as wide as length of eye; malar space distinctly longer than basal width of mandible; vertex and temples polished; temple convex, three-fourths as wide as eye; ocellular line more than twice as long as greatest diameter of an ocellus; antennae a little longer than body, 26- to 28-segmented.

Mesoscutum shining, shallowly punctate, the lateral lobes very weakly so; propodeum coarsely reticulately sculptured; 1st abscissa of radius usually about as long as 2d; recurrent vein interstitial with first intercubitus; nervulus slightly postfureal; lower abscissa of basella much longer than nervellus; legs very slender.

First tergite without dorsal fossae; ventral margins of petiole closely joined throughout; postpetiole closely longitudinally striate; ovipositor

sheath a little shorter than abdomen; ovipositor greatly thickened toward base, as in *M. vulgaris*.

Honey yellow; antennae more or less brownish; postpetiole a little darkened, at least laterally; wings hyaline, stigma hyaline, margined with brown; legs brownish yellow, hind tibiae and tarsi weakly infuscated.

MALE: Like the female in essential details.

TYPE: USNM 63047.

TYPE LOCALITY: Cuernavaca, Mexico.

Described from 23 females and 3 males reared by N. L. H. Krauss Aug. 28, 1944, from a lepidopterous larva on *Eupatorium adenophorum*. Another series of 16 females and 1 male is labeled "Cuernavaca, Mex., Nov. 1944, N. L. H. Krauss," without further data. As in the case of *M. vulgaris*, a number of individuals develop in a single host caterpillar.

Genus *Centistes* Haliday

The genus *Leiophron* was proposed by Nees in 1818 (Nova Acta Acad. Caes. Leop. Carol., vol. 9, p. 303). He showed that he was basing the genus on three species but, unfortunately, he did not name or describe any of them in that paper. All three were described in 1834 (Hymenopterorum ichneumonibus affinium, Monographie, vol. 1, pp. 44, 45) when Nees treated the genus in more detail. In the meantime, however, Haliday (Ent. Mag., vol. 1, pp. 263, 264, April 1833) had placed three new species in *Leiophron*, describing them very briefly in a key, and Curtis (British Entomology, vol. 10, p. 476, November 1833) had included nine, one of which, *pallipes* Curtis, he had designated as type. In 1839 Westwood (Introduction to the modern classification of insects, vol. 2, Synopsis p. 62) selected *ater* Nees as type of *Leiophron*, which permitted use of the generic name in its original sense, and that concept has been generally adopted. However, recently the International Commission on Zoological Nomenclature (Bull. Zool. Nom., vol. 4, pp. 130, 346, 1950) has declared that in the case of generic names proposed before January 1, 1931, without originally included species, only those species which are first referred to such a genus after publication of the name may be considered eligible for type selection. Accordingly, Viereck's designation of *Leiophron apicalis* (Curtis) Haliday (U. S. Nat. Mus. Bull. 83, p. 83, 1914) must be accepted as the first valid designation; and since *L. apicalis* is considered to be congeneric with the type of *Euphorus* Nees, this generic name must be suppressed as a synonym of *Leiophron*. For *Leiophron* of Authors it seems to be necessary to use *Centistes* Haliday, the synonymy of which is as follows:

Ancylus Haliday, Ent. Mag., vol. 1, p. 261, 1833. Preoccupied by *Ancylus* Mueller, 1774, in Mollusca. Type, *A. cuspidatus* Haliday, by designation of Viereck, U. S. Nat. Mus. Bull. 83, p. 10, 1914.

Centistes Haliday, Ent. Mag., vol. 2, pp. 459, 462, 1835. Type, *Ancylus cuspidatus* Haliday, by monotypy.

Ancylocentrus Foerster, Verh. Naturh. Ver. Preuss. Rhienl., vol. 19, p. 254, 1862. Type, *Ancylus excrucians* Haliday, by monotypy.

Euphoridea Ashmead, Proc. U. S. Nat. Mus., vol. 23, p. 116, 1900. Type, *Euphoridea claripennis* Ashmead, by monotypy and original designation.

Liosigalphus Ashmead, Proc. U. S. Nat. Mus., vol. 23, p. 125, 1900. Type, *Liosigalphus politus* Ashmead, by monotypy and original designation.

Pygostolus Haliday, 1833, was proposed as a subgenus of *Leiophron*: It is, however, quite distinct from that genus, being, in fact, properly placed in the Blacinae rather than in the Euphorinae; but although it is very closely related to *Centistes* (which it antedates), I consider it generically distinct. It differs most conspicuously in the long ovipositor sheath, which is half as long as the abdomen, in the presence of a basal median plate on the first tergite, which is defined by carinae that converge caudad, and by having the radius going to the extreme apex of the wing.

Centistes epicaeri, new species

FIGURES 1, l; 3, a

This is apparently the first species of the genus to be recorded from the Neotropical region. It is very similar to the European *C. lituratus* (Haliday) but may be distinguished at once by the lack of a ventral tooth near the apex of the hind coxa. From *C. edentatus* (Haliday), another European species, it differs especially in its much larger and virtually parallel-sided first tergite.

FEMALE: Length about 3 mm. Head strongly transverse; temples receding; frons and vertex polished; face slightly broader than long, with minute and faint punctures; malar space not quite as long as clypeus; antennae filiform, about as long as body, usually 30-segmented; ocellocular line very slightly longer than greatest diameter of an ocellus; occiput completely carinately margined.

Mesoscutum shining; notaulices shallow but distinct, meeting well before posterior margin of mesoscutum; mesonotal lobes faintly punctate anteriorly; scutellum smooth, convex; propodeum basally with two very weak, irregular, slightly divergent, median longitudinal carinae, each extending to posterior declivity and there leading into a transverse carina that extends to the lateral margin; the two large basal areas of propodeum smooth basally toward middle, finely punctate-rugulose laterally and posteriorly; posterior declivity gradual, rugulose; mesopleuron with a long, finely foveolate, longitudinal furrow; wing venation as illustrated.

Abdomen narrower than thorax; first tergite at spiracles fully half as wide as propodeum is wide at base, parallel-sided from spiracles to apex and closely, finely striate; remaining tergites smooth and polished; ovipositor sheath and ovipositor as illustrated.

Black; lower half of clypeus, mandibles, and antennae, basally below, dark brown; legs uniformly brownish yellow except for hind coxae, which are blackish toward bases; wings hyaline, stigma dark brown.

MALE: Unknown.

TYPE: USNM 63048.

TYPE LOCALITY: Santa Ana, El Salvador.

Described from 114 female specimens reared by Paul A. Berry in 1951 from *Epicaerus capetillensis* Sharp, a cureulionid on coffee.

Genus *Leiophron* Nees

Leiophron Nees, Nova Acta Acad. Leop. Carol., vol. 9, p. 303, 1818. No species.

Leiophron Nees, Haliday, Ent. Mag., vol. 1, p. 263, 1833. Three species. Type,

L. apicalis (Curtis) Haliday, by designation of Viereck, 1914.

Euphorus Nees, Hymenopterorum ichneumonibus affinium, Monographie, vol. 2, p. 360, 1834. Type, *E. pallicornis* Nees, by monotypy. New synonymy.

As pointed out in the foregoing discussion under *Centistes*, the type of *Euphorus* is congeneric with the species which must be accepted as type of *Leiophron* under a recent ruling of the International Commission on Zoological Nomenclature. Accordingly, *Euphorus* must be suppressed as a synonym of *Leiophron*.

Genus *Microgaster* Latreille

Five species are now known from the Neotropical region that belong in that section of the genus *Microgaster* in which (1) the habitus is that of *Apanteles*, (2) the propodeum lacks a median longitudinal carina and has, instead, a more or less distinct areola, (3) the mesoscutum is covered with shallow, separated punctures, and (4) the second cubital cell is minute, with the second intercubitus hyaline and arising from the first intercubitus rather than from the end of the first abscissa of radius. After more is known about this group it may prove advisable to set it off as a separate genus. For the present it seems best to keep it in *Microgaster*.

The structural differences between the five Neotropical species are rather subtle and not easily defined, but the following color key will distinguish these forms.

1. Thorax black 2
At least mesoscutum testaceous 3
2. Hind coxa black, at least on basal half; abdomen black, with second and third tergites sometimes testaceous **eclytlophae** Muesebeck
Hind coxa entirely reddish yellow; abdomen reddish yellow, with apical tergites usually black or blackish **jocarae**, new species

3. Thorax entirely testaceous; abdomen testaceous except at apex. **imitator** (Ashmead)
 At least propodeum black; first tergite black or piceous 4
4. Wings somewhat smoky **blanchardi**, new name
 Wings clear hyaline, iridescent **diaphaniae**, new species

***Microgaster ecdytophae* Muesebeck**

Microgaster ecdytophae Muesebeck, Proc. U. S. Nat. Mus., vol. 61, Art. 16, pp. 21, 24, 1922.

This species, which is widely distributed in the Nearctic region where it occurs from Nova Scotia to Texas, has also been reared in Cuba from *Hippia insularis* (Grote) and in Guatemala from *Rhobondo guarisana* Walker.

***Microgaster jocarae*, new species**

This new species is very similar to *M. diaphaniae* but with the thorax black and the abdomen pale yellow except for blackish median spots on the fourth and following tergites.

FEMALE: Length about 3 mm. Face closely punctate and subopaque; clypeus slightly longer than malar space, punctate; vertex and temples punctate and rather dull; frons weakly punctate toward sides and directly below ocelli; head abruptly declivous behind ocelli; occiput polished, impunctate; antennae about as long as the body.

Mesoseutum more densely punctate than in *M. diaphaniae* and less shining, the punctures larger and almost or quite contiguous; disc of scutellum polished, with only a few scattered, weak punctures; polished area on lateral face of scutellum large, broadly triangular; propodeum finely rugulose, with a fairly well defined, more or less pentagonal areola, and weakly delimited, largely smooth and shining, apical lateral areas; mesopleuron polished but with sharp punctures anteriorly and below as well as a few in upper posterior angle; metapleuron polished except at posterior margin where it is rugulose; hind coxa with an elongate, flattened, finely rugulose area on dorsal edge toward base, punctate on outer face; inner calcarium of hind tibia much longer than outer and more than half as long as metatarsus; stigma short and broad, shorter than metacarpus, emitting radius from beyond its middle; first abscissa of radius arched and joining first intercubitus in an even curve; second intercubitus very short, inconspicuous; second cubital cell minute; nervellus nearly straight and nearly perpendicular to anterior margin of wing.

Abdomen much narrower than thorax; first tergite broadening very slightly caudad, longer than broad, smooth and shining except for a few scattered punctures on posterior half; second and following tergites smooth and polished, the plate of the second three times as broad on posterior margin as long and defined laterally by oblique grooves,

its posterior margin arcuate; ovipositor sheath slender but broadening gradually to near apex, about as long as hind tibia.

Head and thorax black; clypeus, labrum, mandibles, and palpi yellow; scape yellow with a dark streak outwardly toward the front; flagellum dark brown; tegulae and wing bases yellowish white; wings hyaline, stigma and most of veins brown, second intercubitus hyaline; anterior and middle legs entirely yellow; posterior leg yellow except apex of femur, apical two-fifths or more of tibia, and tarsus, which are black; abdomen entirely yellow above and below except for median blotches on fourth and following tergites which are sometimes joined to form a median dark streak.

MALE: Like the female but with the apical abdominal tergites more extensively black.

TYPE: USNM 63049.

TYPE LOCALITY: Santiago de las Vegas, Cuba.

Described from four females and three males reared by A. Otero from the larva of *Jocara ferrifusalis* Hampson. The U. S. National Museum has, in addition, nine males of the same species reared from *Pilocrosis inguinalis* Guenée, at Cayey, Puerto Rico, Jan. 7, 1941, by L. F. Martorell.

Microgaster imitator (Ashmead)

Urogaster imitator Ashmead, Trans. Ent. Soc. London, 1900, pt. 2, p. 288, 1900.

Microgaster imitator (Ashmead), Wilkinson, Bull. Ent. Research, vol. 21, p. 157, 1930.

This species is known only from the unique type, described from St. Vincent, which is in the British Museum.

Microgaster blanchardi, new name

Apanteles areolaris Blanchard, Arthropoda, vol. 1, No. 1, p. 6, 1947.

Although this species belongs in a group whose members have the habitus of *Apanteles*, it falls in *Microgaster* as that genus is currently defined. With its transfer to *Microgaster* the specific name needs to be changed, since it is preoccupied by *Microgaster areolaris* Thomson, 1895.

The species is known to me only from the original description. Apparently the type is the only known specimen. It is recorded as having been reared from an unidentified larva of Gelechiidae on *Solanum bonariensis* in Buenos Aires, Argentina.

Microgaster diaphaniae, new species

This new species is exceedingly similar to *M. blanchardi* Muesebeck, which I know only from the original description, but apparently it may be distinguished by its clear hyaline, iridescent wings. In *M. blanchardi* the wings are said to be a little smoky.

FEMALE: Length about 3 mm. Face much broader than long, closely punctate and subopaque; malar space slightly shorter than clypeus; temple narrow, rounded, punctate; head evenly hollowed out behind, descending vertically directly behind the ocelli; antennae about as long as the body.

Mesoscutum shining, with sharp, but shallow, separated punctures, those on posterior half being more than a puncture's width apart; precutellar furrow finely foveolate; disc of scutellum flat, impunctate, polished; polished area on lateral face of scutellum large, triangular; propodeum weakly rugulose at base, and with a rather well defined areola and large apical lateral areas that are smooth and shining; mesopleuron smooth and shining except for well-separated punctures anteriorly and below; metapleuron polished; hind coxa smooth and shining except on dorsal edge which is finely rugulose; inner calcarium of hind tibia much longer than outer and more than half as long as metatarsus; first abscissa of radius slightly arched, much longer than first intercubitus; second cubital cell minute; second intercubitus very weak; nervellus straight.

Abdomen slender; plate of first tergite broadening very slightly caudad, much longer than broad at apex, and with a few large, scattered punctures on caudal half; second tergite much shorter than third, smooth and polished, the median plate set off by lateral, oblique grooves; remainder of abdomen smooth and polished; ovipositor sheath slender but broadening gradually apically, about as long as hind tibia.

Head black; clypeus, labrum, mandibles, and scape except for a dark blotch outwardly, reddish yellow; antennal flagellum dark brown; thorax black except prothorax and mesonotum which are testaceous or reddish; tegulae and wing bases pale yellow; wings hyaline, costa, stigma and most of the veins brown; anterior and middle legs entirely yellow, posterior leg yellow except femur at apex, apical two-fifths or more of tibia and the tarsus, which are blackish; abdomen black, sometimes third tergite more or less reddish toward apex, and occasionally third and fourth tergites largely reddish.

MALE: Like the female except that the mesoscutum tends to be dark red rather than testaceous.

TYPE: USNM 63050.

TYPE LOCALITY: San Pedro de Montes de Oca, Costa Rica.

Described from 2 females and 8 males reared from *Diaphania nitidalis* (Stoll), February 1935, by C. H. Ballou; 5 females from La Ceiba, El Salvador, received from Vera Wellborn; and 8 females and 2 males (most of the specimens headless) collected by J. Camelo-G. at Tuxtepec, Oaxaca, Mexico, in June 1934. The U. S. National

Museum also has 4 female specimens reared from *D. nitidalis* in Federal District, Brazil, July 1945, by C. R. Gonçalves, that differ from the material from Central America and Mexico in having the scutellum testaceous. Structurally all are essentially the same and I do not believe that even subspecific rank for the Brazilian specimens is warranted.

Genus *Promicrogaster* Brues and Richardson

Promicrogaster Brues and Richardson, Bull. Amer. Mus. Nat. Hist., vol. 32, p. 499, 1913. Type, *P. terebrator* Brues and Richardson, by monotypy and original designation.

This genus is very similar to *Microgaster* Latreille, and when more species are known it may prove to be untenable. For the present, however, it seems best to recognize it as a separate genus distinguished from *Microgaster* by the following combination of characters: Head very thin, the temples strongly receding; clypeus not separated from face; labium protruding conspicuously and deeply bifurcate at apex; areolet of forewing minute; longer calcarium of hind tibia not more, usually less, than half as long as metatarsus; disc of scutellum longer than broad, the polished area each side of disc occupying nearly all of lateral face; hypopygium large, plowshare-like; ovipositor sheath much longer than abdomen. Distribution, Neotropical.

Key to the known species of *Promicrogaster*

1. Propodeum with a prominent median longitudinal carina; first tergite not narrowing caudad, smooth and shining; malar space at least half as long as eye; length about 6 mm. 2
- Propodeum without a median carina; first tergite narrowing caudad and rugulose or coarsely punctate on apical half; malar space much shorter; length usually 4 to 5 mm. 3
2. Middle and hind legs beyond coxae largely black.

terebrator Brues and Richardson

Legs reddish yellow **miranda**, new species
3. Abdomen largely reddish yellow above and entirely so below; hind coxae not black basally; length about 5 mm. **munda**, new species
- Abdomen black, the third and following segments narrowly white on posterior margins; hind coxae black basally; length not over 4 mm.

polyporicola, new species

Promicrogaster terebrator Brues and Richardson

Promicrogaster terebrator Brues and Richardson, Bull. Amer. Mus. Nat. Hist., vol. 32, p. 500, 1913.

This species is known from a single specimen collected at Chenopowu, British Guiana. It is apparently exceedingly similar to *P. miranda*, from which it differs most conspicuously in the color of the legs, the middle and hind legs beyond the coxae being black.

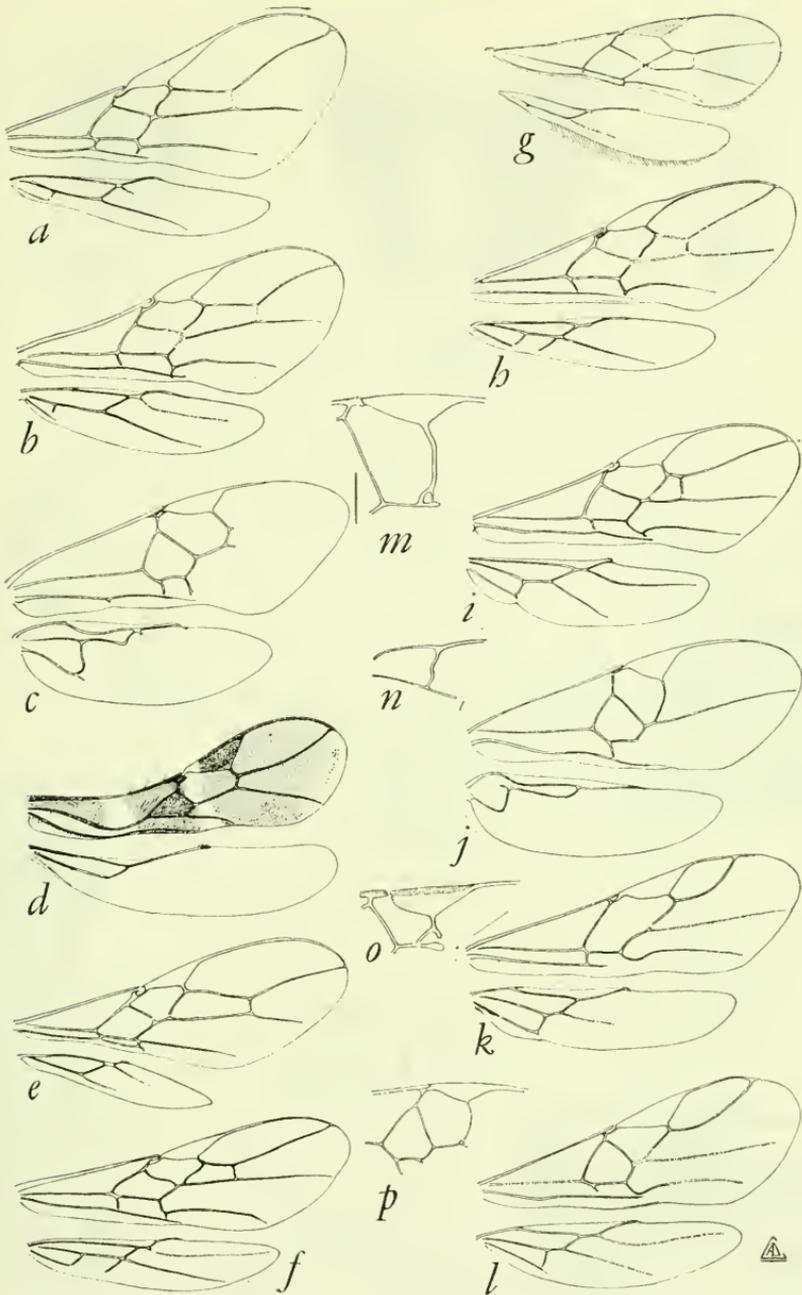


FIGURE 1.—a-l, Anterior and posterior wings of: a, *Opius aldrichi*, new species; b, *O. divergens*, new species; c, *Fornicia balloui*, new species; d, *Percnobracon secundus*, new species; e, *Phaenocarpa anastrephae*, new species; f, *Opius toxotrypanae*, new species; g, *Leurinion primum*, new species; h, *Opius capsicola*, new species; i, *Meteorus eaclidis*, new species; j, *Apanteles coffeellae*, new species; k, *Microctonus audax*, new species; l, *Centistes epicaeri*, new species. m, n, *Dasyllagon argeriae*, new species: m, stigma and first and second cubital cells; n, nervellus. o, *Microplitis minutalis*, new species: stigma and first and second cubital cells. p, *Promicrogaster miranda*, new species: portion of anterior wing.

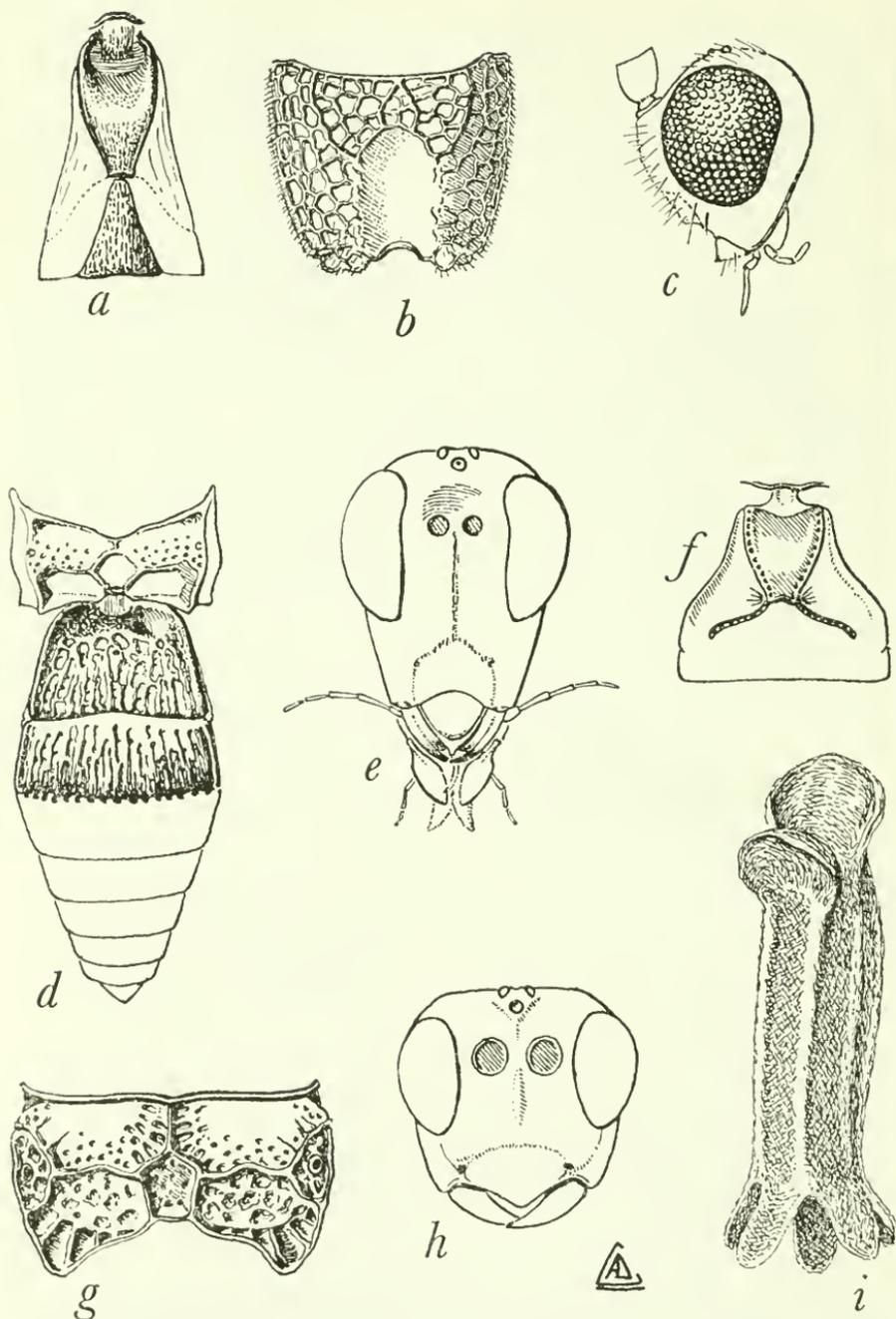


FIGURE 2.—a, First and second tergites of *Apanteles concinnus*, new species; b, propodeum of *Meteorus ealidis*, new species; c, lateral view of head of *Leurinion primum*, new species; d, propodeum and abdomen of *Apanteles paradoxus*, new species; e, front view of head of *Promicrogaster miranda*, new species; f, first and second tergites of *Apanteles coffeellae*, new species; g, propodeum of *Darylagon aegeriae*, new species; h, front view of head of *Opius toxotrypanae*, new species; i, cocoon of *Apanteles concinnus*, new species.

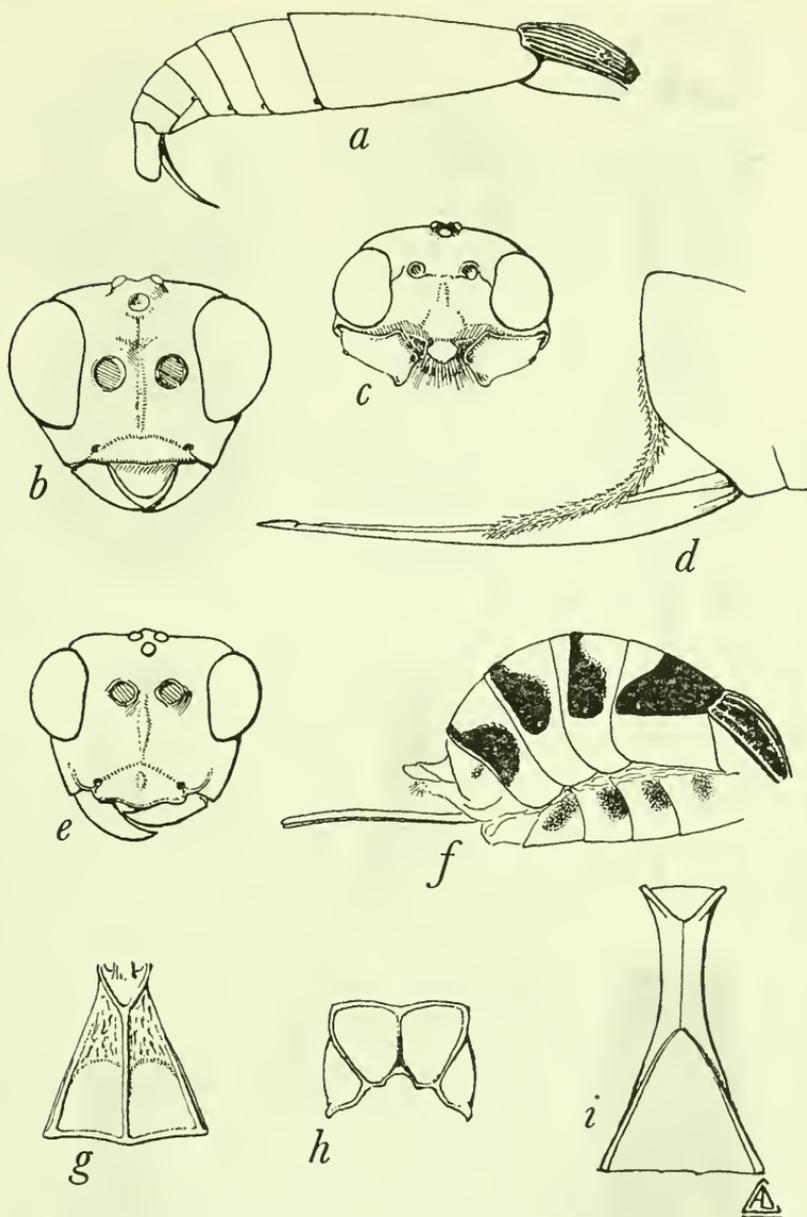


FIGURE 3.—*a*, Lateral view of abdomen of *Centistes epicaeri*, new species; *b*, front view of head of *Opius divergens*, new species; *c*, front view of head of *Phaenocarpa anastrephae*, new species; *d*, ovipositor of *Meteorus kraussi*, new species; *e*, front view of head of *Opius capsicola*, new species; *f*, lateral view of abdomen of *Opius aldrichi*, new species; *g*, first tergite and, *h*, propodeum of *Leurinion primum*, new species; *i*, ventral view of first abdominal segment of *Meteorus kraussi*, new species.

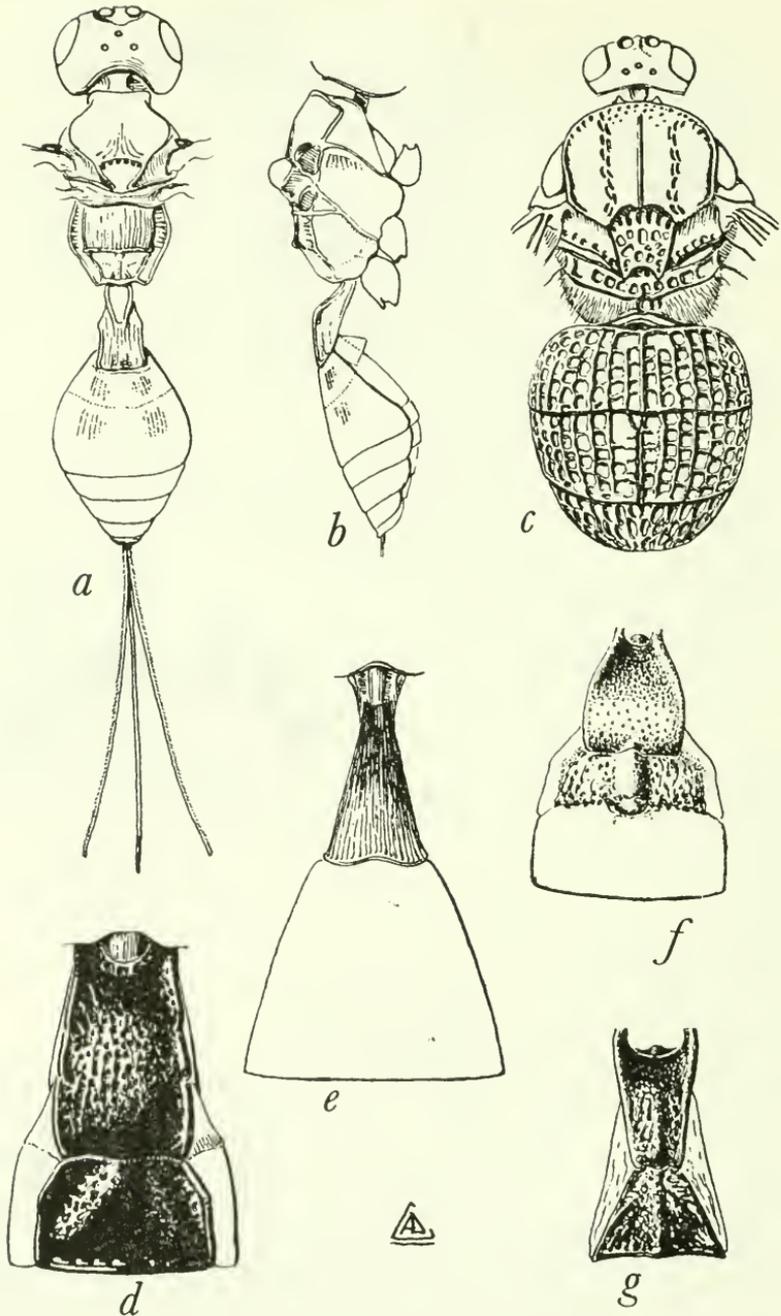


FIGURE 4.—*a*, Dorsal view and, *b*, lateral view of *Percnobracon secundus*, new species; *c*, dorsal view of body of *Fornicia balloui*, new species; *d*, first and second tergites of *Apanteles schini*; *e*, base of abdomen of *Microctonus audax*, new species; *f*, first, second, and third tergites of *Apanteles alius*, new species; *g*, first and second tergites of *Apanteles malthacae*, new species.

Promicrogaster miranda, new speciesFIGURES 1,*p*; 2,*e*

This species is known to me from a single female specimen. It is very similar to the genotype, *P. terebrator* Brues and Richardson, 1913, but may be distinguished by its reddish yellow legs.

FEMALE: Length 6 mm. Head much narrower than thorax; clypeal foveae below level of lower eye margins; malar space more than half as long as width of face; clypeus unusually long, rather flat, broadly emarginate at apex; face and clypeus closely punctate and thickly hairy; vertex and temples finely and closely punctate, the punctures in large part concealed by the dense pilosity; antennae a little shorter than the body.

Thorax very stout; mesoscutum closely punctate and densely pilose; disc of scutellum longer than broad at base, with a few scattered punctures and with a fringe of long hairs along the sides; polished area each side of the disc triangular and occupying nearly all of the lateral face of scutellum; propodeum finely roughened toward base, with coarse rugae apically and with a complete, prominent median longitudinal carina; mesopleuron punctate and hairy anteriorly and below the longitudinal impression, smooth and virtually bare in the impression and above it, posterior groove foveate; metapleuron coarsely punctate and thickly hairy; hind coxa nearly as long as femur, smooth and shining; inner calcarium of hind tibia not quite half as long as metatarsus; stigma very narrow, at least three times as long as its greatest breadth, much shorter than metacarpus; first abscissa of radius about as long as 1st abscissa of cubitus, evenly arched, five times as long as first intercubitus; second cubital cell minute; second intercubitus very weak.

Abdomen large; first tergite parallel-sided, gently and broadly excavated on basal half, emarginate at apex, its lateral margins prominent, its lateral apical angles rounded, its surface smooth and shining; second tergite smooth and shining, at least three times as broad as long down the middle where it is much longer than at the sides; third and following tergites smooth and polished; hypopygium large and plow-share-shaped; ovipositor sheath slender, 4 mm. long.

Head and thorax black; clypeus reddish yellow except at base; labrum and scape testaceous; pedicel and flagellum of antenna dark brown; tegulae and wing bases white; wings whitish hyaline; costa yellowish white; stigma brown, pale at base and apex, most of the veins hyaline; legs, including all coxae, yellowish red; posterior legs a little more reddish than the others and having the apices of tibiae and the tarsi blackish; abdomen reddish yellow with black blotches medially on tergites 4 to 8, those on tergites 5 and 6 the largest.

TYPE: USNM 63051.

TYPE LOCALITY: Barro Colorado Island, Canal Zone.

Described from a single female collected by James Zetek early in 1944.

Promicrogaster munda, new species

In habitus and size this species approaches *P. miranda*, but in the sculptured first tergite, the lack of a median carina on the propodeum, and the relatively short malar space it is more similar to *P. polypori-cola*, from which it is easily distinguished, however, by the color characters given in the key.

FEMALE: Length 5 mm. Face and clypeus with shallow, closely placed punctures; malar space longer than clypeus but less than one-third as long as eye or width of face; antennae about as long as body.

Mesoscutum shining but covered with closely placed, shallow punctures and fine hair, the hair longest and most conspicuous in the converging, shallow depressions of posterior half that represent the undeveloped notaulices; propodeum finely rugulose, without a median carina, not or barely longer than scutellum; mesopleuron finely, closely punctate and shining except posteriorly where it is polished and impunctate; metapleuron smooth at base, finely rugulose at apex; hind coxa large, fully twice as long as propodeum, shining, weakly punctate; stigma three times as long as broad; metacarpus much longer than stigma; outer side of first cubital cell strongly arched; nervellus a little curved.

Abdomen compressed, much narrower than thorax; sclerotized plate of first tergite narrowing gradually from base to apex, finely rugulose on apical half; median plate of second tergite smooth and shining, defined laterally by oblique grooves, more than twice as wide on posterior margin as long down the middle, about half as long as third; third and following tergites smooth and polished; ovipositor sheath $1\frac{1}{2}$ times as long as abdomen; ovipositor decurved at apex.

Head and thorax black; scape reddish brown at base in front; lower edge of clypeus and the labrum reddish yellow; palpi and labium a little paler; tegulae transparent yellow; wing bases pale yellow; wings hyaline, stigma dark brown; legs, including all coxae, reddish yellow (hind tarsi missing); abdomen reddish yellow, median plate of first tergite apically, and the fourth and following tergites medially, piceous; ovipositor sheath blackish.

TYPE: USNM 63052.

TYPE LOCALITY. Tegucigalpa, Honduras.

Described from a single female specimen collected July 23, 1917, by F. J. Dyer.

Promicrogaster polyporicola, new species

This new species may be distinguished from *P. terebrator* and *P. miranda* by its smaller size, lack of a median carina on the propodeum, sculptured first tergite and relatively shorter malar space; from *P. munda* it is easily separated by its smaller size and by the color characters given in the key.

FEMALE: Length about 4 mm. Face and clypeus strongly shining, covered with closely placed, very shallow punctures; malar space about as long as clypeus, less than one-third as long as width of face; ocellular line hardly twice as long as greatest diameter of an ocellus; antennae a little shorter than body.

Mesoscutum shining, closely punctate and covered with short pubescence; disc of scutellum smooth and shining, with only a few scattered punctures, the polished area each side of the disc triangular and occupying nearly all of the lateral face; propodeum finely rugulose, with two rather weak, irregular, posteriorly convergent carinae that meet near the middle; stigma about twice as long as wide; second cubital cell minute, barely noticeable, smaller than in any of the other known species of the genus; nervellus straight; hind coxa about as long as hind femur but not nearly twice as long as propodeum, smooth and polished, with only a few punctures on outer upper edge toward base; inner calcarium of hind tibia not nearly half as long as metatarsus.

First tergite narrowing slightly caudad, its basal width about equal to median length of propodeum, finely rugulose; sclerotized plate of second tergite nearly four times as broad on posterior margin as long down the middle, much shorter laterally than at middle, smooth and polished but sometimes with a row of indefinite punctures just before caudal margin; the following tergites smooth and polished; ovipositor sheath longer than abdomen or hind tarsus; ovipositor strongly decurved at apex.

Black; labrum, mandibles and scapes yellow; clypeus more or less reddish on lower half; wings hyaline; stigma dark brown except for a small yellow spot at extreme base; tegulae testaceous; wing bases pale yellow; legs brownish yellow, hind coxa black above at extreme base, hind femur blackish at extreme apex and hind tibia narrowly yellow at base.

MALE: Like the female in essential particulars.

TYPE: USNM 63053.

TYPE LOCALITY: Barro Colorado Island, Canal Zone.

Described from six females and three males reared by James Zetek October and November 1941 from a lepidopterous larva infesting a polyporaceous fungus of the genus *Fomes*.

Dasyllagon,² new genus

Dasyllagon, new genus, resembles *Promicrogaster* Brues and Richardson in its relatively short tibial spurs, long ovipositor and in not having the clypeus distinctly separated from the face; it resembles *Microgaster* Latreille in general habitus and in having the labium not prominently protruding and not deeply bifurcate. From both genera it differs in its very coarsely areolated propodeum and sinuate nervellus, and in having the head, thorax, and coxae, especially the sides of the thorax, conspicuously hairy.

Head much narrower than thorax, immargined behind; antennae 18-segmented, long and thick; eyes hairy; thorax stout; both head and thorax, and the coxae also, conspicuously hairy; prescutellar furrow coarsely foveate; propodeum areolated, the separating carinae very prominent; prepectus immargined; second cubital cell minute; nervellus sinuate; wings very weakly hairy basally; longer calcarium of middle tibia much shorter than middle metatarsus; that of hind tibia less than half as long as hind metatarsus; abdomen broad basally; first tergite very large; hypopygium large, plowshare-like; ovipositor much longer than abdomen.

TYPE: *Dasyllagon aegeriae*, new species.

Key to the two known species of *Dasyllagon*

- A prominent median carina from base of propodeum to base of areola; nervellus postfurcal by not more than its length **aegeriae**, new species
 Propodeum with a small median area instead of a median carina basad of areola; nervellus postfurcal by much more than its length **simulans**, new species

Dasyllagon aegeriae, new species

FIGURES 1,m,n; 2,g

D. aegeriae is distinguished from the only other known species as shown in the preceding key.

FEMALE: Length about 5.5 mm. Head noticeably hairy, about two-thirds as wide as thorax; face at least as wide as eye height, smooth and shining with only extremely shallow punctures; malar space as long as clypeus, weakly punctate; ocellular line twice as long as diameter of an ocellus; antennae as long as the body, the apical third tapering noticeably.

Thorax and coxae covered with long, conspicuous hair; mesoscutum strongly shining, with small, separated punctures; prescutellar furrow divided into six or seven large foveae; disc of scutellum longer than broad, flat, with some weak punctures laterally; lateral face of scutel-

² From the Greek *dasys*, hairy, and *lagon*, side.

lum with a large, triangular, hairless, polished area which is separated from the disc by a coarsely foveate groove; metanotum with a few strong rugae and a sharply defined ovate median area; propodeum with two large basal areas separated by a median longitudinal carina that extends to the areola; areola pentagonal, flanked on each side by a large, coarsely rugose area; spiracular area small but sharply delimited; all carinae of propodeum very prominent; mesopleuron smooth and polished, weakly punctate anteriorly; metapleuron rugose; stigma three times as long as broad; outer side of first cubital cell strongly arched; second cubital cell tiny, the second intercubitus very short and slender; nervulus postfurcal by not more than its length; forewing very sparsely hairy on basal half, the submedian cell almost entirely glabrous; nervellus strongly sinuate; inner calcarium of middle tibia only a little more than half as long as metatarsus, that of hind tibia about one-third as long as hind metatarsus.

Abdomen broad basally, narrowing strongly from second tergite to apex, entirely smooth and polished; first tergite very large, broader than propodeum is long, nearly parallel-sided behind the spiracles, somewhat narrowed in front, usually with five or six weak punctures near lateral margin well before apex, posterior margin strongly sinuate; second tergite strongly transverse, its posterior margin straight; hypopygium prominent, plowshare-shaped; ovipositor sheath slender, about as long as head and thorax combined and with a small hook at apex.

Black, the long and abundant hair of head, thorax, and coxae contrastingly pale; labrum red; palpi and labium yellowish brown; antennae entirely black; wings hyaline, stigma nearly black; legs reddish brown, the coxae and trochanters black and the middle and hind tarsi blackish; ovipositor sheath black.

MALE: Essentially like the female.

TYPE: USNM 63054.

TYPE LOCALITY: Medellin, Colombia.

Described from three females and one male reared by F. Luis Gallego from an unidentified aegeriid larva in March 1954.

Dasylagon simulans, new species

This new species is very similar to *D. aegeriae*, but it may be distinguished without difficulty by use of the characters given in the key. In addition, the face is noticeably smoother and the scutellum more strongly sculptured.

MALE: Length about 6 mm. Head much narrower than thorax, densely hairy; face wider than eye height, smooth and shining, impunctate; malar space about as long as clypeus; ocellocular line less than twice as long as diameter of an ocellus.

Thorax and coxae conspicuously hairy; mesoscutum strongly shining, covered with minute, shallow, separated punctures; prescutellar furrow divided into five or six large pits; disc of scutellum longer than broad, rather strongly, in part confluent, punctate; the large polished area of lateral face of scutellum separated from disc and from mesoscutum by coarsely foveate grooves; propodeum rugose, with a small, nearly square, basal median area followed by a large, more or less obovate arcola; on each side of these a large basal lateral area, and a still larger apical lateral area the apical lateral angle of which extends prominently caudad; spiracular area nicely defined and rather large; all carinae of propodeum very prominent; mesopleuron closely, finely punctate except for a narrow polished strip along caudal margin; metapleuron coarsely rugose; stigma three times as long as wide; radius curved outwardly, more than three times as long as first inter-cubitus and four times as long as second; nervulus postfurcal by considerably more than its length; wings very sparsely hairy basally; nervellus slightly sinuate; hind coxa smooth and shining; inner spur of middle tibia about two-thirds as long as middle metatarsus; inner spur of hind tibia less than half as long as hind metatarsus.

Abdomen much narrower than thorax, entirely smooth and polished; first tergite very large, longer than broad, broader than propodeum is long, narrowed from spiracles to base, parallel-sided behind spiracles, slightly emarginate behind; second tergite much shorter than third, three times as broad as long, its posterior margin nearly straight.

Black, with the abundant pubescence of head and thorax silvery; clypeus, mandibles and palpi reddish yellow; wings clear hyaline, stigma dark brown; legs reddish yellow, with all coxae and trochanters and the hind tarsi black.

FEMALE: Essentially like the male; ovipositor as long as head and thorax combined. The only available female specimen has part of its abdomen destroyed, for which reason the male is selected as holotype.

TYPE: USNM 63055.

TYPE LOCALITY: Tegucigalpa, Honduras.

Described from one male and one female collected June 13, 1918, by F. J. Dyer.

Genus *Microplitis* Foerster

Microplitis minutalis, new species

FIGURE 1,0

This is the smallest species of *Microplitis* known to me. It is, further, unusual in having all femora somewhat thickened and in having a narrow, triangular, median plate on the second tergite set off by oblique grooves.

FEMALE: Length about 1.6 mm. Head as broad as thorax; temples convex, about as broad as eyes; face broader than eye height, minutely, closely punctate; clypeus very short, about one-fourth as long as face; malar space about as long as clypeus; antennae as long as head and thorax combined.

Thorax depressed, wider than high; mesoscutum smooth and shining, sparsely and very weakly punctate anteriorly, impunctate posteriorly; prescutellar furrow very fine, with numerous minute foveolae; disc of scutellum flat, smooth and polished; propodeum only slightly declivous, largely smooth and shining, with only a little weak, indefinite sculpture; mesopleuron smooth and shining, its posterior groove coarsely foveate; metapleuron smooth and shining; stigma about as long as metacarpus; radius perpendicular to anterior margin of wing and not longer than first intercubitus; second intercubitus weakly developed; hind coxae a little longer than propodeum, smooth and shining; all femora noticeably thickened; inner spur of hind tibia longer than outer and half as long as metatarsus.

First tergite narrowing from base to apex, less than half as wide at apex as at base, smooth and shining, with only a little, very weak sculpture laterally near apex; second tergite with a narrow, triangular, median plate, which is more than twice as long as wide at base and slightly longer than wide at apex, smooth and polished; ovipositor sheath slightly exerted, slender.

Piceous black; mouthparts piceous; antennae black; tegulae brownish black; wings hyaline, stigma dark brown without a pale spot at base; all coxae, trochanters, and femora black; tibiae and tarsi brown.

MALE: Like the female except for the antennae, which are as long as the body.

TYPE: USNM 63056.

TYPE LOCALITY: Angol, Chile.

Described from 7 females and 5 males reared from a lepidopterous leaf miner March 13, 1941, by Paul A. Berry.

***Microplitis sordidus* (Ashmead), new combination**

Apanteles sordidus Ashmead, Trans. Ent. Soc. London (1900), p. 279, 1900.

Microplitis carinata Ashmead, Idem, p. 293, 1900. New synonymy.

Upon examination of the type of *sordidus* in the British Museum some years ago I found it to belong to the genus *Microplitis* and to be identical with *M. carinatus*, over which it has page priority. Both were described from the island of St. Vincent.

Genus *Fornicia* Brullé

Fornicia Brullé, In Lepeletier, Histoire naturelle des insectes. Hyménoptères, vol. 4, p. 511; pl. 44, fig. 3, 1846.

Odontofornica Enderlein, Ent. Mitteil., vol. 1, p. 260, 1912.

In the venation of the forewing, in the hairy eyes, and in the 18-segmented antennae, this genus is like *Apanteles* Foerster, but it differs conspicuously from that genus, as well as from all other known Microgasterinae, in having the basal three tergites fused into a large, convex carapace within which the remaining abdominal segments are retracted. It is further distinguished from all other Microgasterinae except *Dirrhope* Foerster in having the prepectus carinately margined. In some species the scutellum is unidentate at the apex, in others it is bidentate, which is the case for all the known Neotropical species. The nervellus is strongly sinuate in all species I have seen.

Key to the Neotropical species of *Fornicia*

1. Median keel of mesoscutum complete 2
 Median keel of mesoscutum present on posterior half but vanishing anteriorly. 3
2. Mesoscutum finely alutaceous and dull, not punctate or rugulose; pleura not unusually hairy *balloui*, new species
 Mesoscutum shining, not alutaceous but rather punctate or rugulose, especially before posterior margin; pleura so densely hairy that integument is obscured. *pilosa* Cushman
3. Mesopleuron smooth and shining; mesoscutum smooth, impunctate before posterior margin; notaulices shallow but distinct *clathrata* Brullé
 Mesopleuron punctate over most of its surface; mesoscutum strongly, confluent punctate or rugose before posterior margin; notaulices not distinct. *surinamensis*, new species

Fornicia balloui, new species

FIGURES 1,c; 4,c

This new species is distinguished from the other known Neotropical species of *Fornicia* by its finely alutaceous and mat mesoscutum.

FEMALE. Length about 4 mm. Face much broader than long, smooth and shining, with only very shallow setigerous punctures; clypeus with a conspicuous rounded tubercle medially at base; malar space equal to basal width of mandible; frons polished, impressed; temple gradually receding directly from eye margin; occiput polished, impunctate; antennae at least as long as body.

Thorax very stout, only slightly longer than broad; mesoscutum alutaceous and dull, with a small rugulose area each side anteriorly at origin of notaulices; notaulices shallow but rather broad and longitudinally rugulose, nearly parallel throughout; midway between notaulices a well defined and complete longitudinal carina; prescutellar furrow broad and deep; disc of scutellum coarsely rugose, strongly bidentate at apex; mesopleuron polished except narrowly along anterior margin where it is punctate rugulose; metapleuron rugose; hind coxa

polished; inner calcarium of hind tibia slightly more than half as long as the broadened metatarsus.

Abdomen very stout; the three tergites comprising the carapace rather well defined; first tergite vertical in front, the declivity margined above by a scalloped carina, from which there is a median longitudinal keel that is distinct to apex of first tergite and more poorly defined beyond; surface of all three tergites very coarsely longitudinally rugose reticulate; apex of third tergite very weakly emarginate; hypopygium not surpassing apex of third tergite; ovipositor usually concealed.

Black; labrum and palpi brown; antennae entirely black; wings hyaline, stigma and veins dark brown; anterior and middle legs yellowish brown beyond trochanters, except extreme bases of tibiae which are whitish and the apical segment of each tarsus which is dark brown or black; hind leg entirely black except for a conspicuous white annulus covering basal third of tibia and the white calcaria.

MALE. Like the female in all significant particulars except in the color of the hind legs, the femur being yellowish brown with the apex broadly black, and the tibia tricolored, as usual in males of this genus, with approximately the middle third black, the basal third whitish, and the distal third yellowish brown.

TYPE: USNM 63057.

TYPE LOCALITY: Caracas, Venezuela.

Described from 19 females and 6 males reared from larvae of an unidentified species of the cochlidiid genus *Sibine*, by C. H. Ballou, for whom the species is named. This is the longest series of any species of *Fornicia* I have seen.

Fornicia pilosa Cushman

Fornicia pilosa Cushman, Proc. U. S. Nat. Mus., vol. 79, Art. 14, p. 12, 1931.

This is an unusually hairy species. It is still known only from the holotype female, from Costa Rica.

Fornicia clathrata Brullé

Fornicia clathrata Brullé, In Lepeletier, Histoire naturelle des insectes. Hyménoptères, vol. 4, p. 512, pl. 44, fig. 3, 1846.

Although the author expressed uncertainty concerning the sex of the specimen, the description leaves little doubt that the type is a male. The type locality is Bahia, Brazil. I am treating as this species five males taken by E. J. Hambleton on March 27, 1930, at Vicosa, Minas Geraes, Brazil, although they have been identified only by comparison with the original description and that description is not altogether satisfactory.

Fornicia surinamensis, new species

F. surinamensis is distinguished from *F. clathrata* Brullé, as I understand that species, by its closely and strongly punctate mesoscutum and finely punctate mesopleuron.

MALE. Length about 4 mm. Head about half as wide as thorax; face very finely but closely punctate; clypeus smooth and shining; ocellocular line a little longer than diameter of an ocellus; distal third of antenna tapering strongly.

Thorax very short and stout; mesoscutum closely punctate, confluent so anteriorly and also before posterior margin; median keel of mesoscutum weak and incomplete, being distinct only on posterior half; notaulices not distinct; scutellum rising a little caudad, coarsely rugose, strongly bidentate at apex; propodeum with a small, subtriangular, smooth and polished, basal median area; each side of this a transverse, basal lateral area that widens laterally and is defined behind by a sinuate carina; laterad of the basal lateral area a small, sharply defined spiracular area; areola very broad and largely smooth; mesopleuron very finely punctate and subopaque over most of its surface, smooth and polished along caudal margin; metapleuron coarsely rugose except for a small polished space at base; radius longer than intercubitus; stigma and metacarpus subequal; inner side of stigma at least twice as long as outer; nervellus strongly sinuate; hind coxa shining but finely, closely punctate; inner calcarium of hind tibia a little more than half as long as hind metatarsus.

Abdomen extremely convex, very coarsely reticulate rugose, with a median longitudinal keel from basal declivity to end of abdomen, this keel irregular and not well defined on second and third tergites; third tergite shorter than first or second, medially sharply emarginate at apex.

Black; palpi pale except at bases; antennae brownish yellow on basal half, dark brown beyond; tegulae and wing bases black; wings hyaline, stigma dark brown with a small pale spot in the membrane at base; all coxae black; trochanters blackish; all femora red, the posterior pair black at apices; fore and middle tibiae and tarsi yellow; hind tibia white on basal third, black on middle third and red on distal third; hind metatarsus black.

TYPE: USNM 63058.

TYPE LOCALITY: Paramaribo, Surinam.

Described from a single male reared from a cochliidiid larva on coconut Feb. 2, 1954.

Genus *Apanteles* Foerster

Apanteles aciculatus (Ashmead)

Urogaster aciculatus Ashmead, Trans. Ent. Soc. London (1900), p. 289, 1900.

Pseudapanteles sancti-vincenti Ashmead, Idem, p. 291, 1900. (Not *Apanteles sancti-vincenti* Ashmead, idem, p. 279.) New synonymy.

Apanteles thoracicus Muesebeck, Proc. U. S. Nat. Mus., vol. 58, p. 534, 1921.

New synonymy. This name was proposed to replace the preoccupied *sancti-vincenti*.

Study of the types of *Urogaster aciculatus* and *Pseudapanteles sancti-vincenti* in the British Museum showed them to be the same species. The replacement name, *A. thoracicus*, was proposed before there had been an opportunity for examination of the types. *A. aciculatus* was described from Grenada and *A. sancti-vincenti* from St. Vincent, both in the British West Indies.

Apanteles carpatus (Say)

Microgaster carpatus Say, Boston Journ. Nat. Hist., vol. 1, p. 263, 1836.

Urogaster solitarius Ashmead, Trans. Ent. Soc. London (1900), p. 287, 1900.

Preoccupied by *Microgaster solitarius* Ratzeburg, 1844, which has been transferred to *Apanteles*. New synonymy.

Protapanteles hawaiiensis Ashmead, Fauna Hawaiiensis, vol. 1, p. 362, 1901.

Apanteles piceoventris Muesebeck, Proc. U. S. Nat. Mus., vol. 58, p. 515, 1921.

Replacement name for the preoccupied *Urogaster solitarius* (Ashmead). New synonymy.

Apanteles igae Watanabe, Ins. Mats., vol. 7, p. 97, 1932.

This species, which is a parasite of the clothes moths and certain other related Tineidae, is virtually world-wide in distribution. I saw the type of *Urogaster solitarius* (Ashmead) in the British Museum and found it to be *Microgaster carpatus* (Say). It was described from the island of Grenada, British West Indies.

Apanteles balthazari (Ashmead)

Urogaster balthazari Ashmead, Trans. Ent. Soc. London, 1900, p. 284, 1900.

Urogaster meridionalis Ashmead, Idem, p. 285, 1900. New synonymy.

Examination of the types in the British Museum showed that these names apply to the same species. Accordingly, *Urogaster meridionalis* is suppressed as a synonym of *Apanteles balthazari*, which has page priority. The former was described from St. Vincent and Grenada, the latter from Grenada.

Apanteles coffeellae, new species

FIGURES 1,j; 2,f

This species runs to *Apanteles laevicoxis* Muesebeck in my key to the Nearctic and West Indian species,³ but it differs from that form

³ Proc. U. S. Nat. Mus., vol. 58, p. 488, 1921.

most conspicuously in its smoother mesoscutum, in having well-developed costulae on the propodeum, and in having the plate of the first tergite strongly narrowed apically and the second and third tergites confluent, in its dark tegulae, and in its much smaller size. *A. leucochiloneae* Cameron, which is closely related, is at once separated by its whitish tegulae and hyaline stigma and by lacking costulae on the propodeum.

FEMALE: Length barely 2 mm. Face shining, faintly punctate; frons polished; vertex and temples weakly punctate; temples rounded, not receding from eye margins; antennae about as long as the body.

Thorax stout; mesoscutum with sharp, though shallow, closely placed punctures over most of its surface, becoming progressively smoother caudad, impunctate and polished before posterior margin; prescutellar furrow a fine punctate line; disc of scutellum nearly flat, impunctate, polished; polished area on lateral face of scutellum triangular, large, extending nearly to base of disc; propodeum largely smooth and shining with distinct costulae and a weakly defined, broad, pentagonal areola; mesopleuron and metapleuron impunctate, polished, the fine impressed line between them not punctate or foveolate; hind coxa impunctate, polished and with an elongate flattened area outwardly above at base; inner calcarium of hind tibia hardly half as long as basitarsus; stigma unusually short, only two-thirds as long as metacarpus; first abscissa of radius about as long as intercubitus, not angled with the latter but joining it in an even curve; petiole of first discoidal cell about as long as recurrent vein; nervellus straight, perpendicular to mediella, not curving behind toward base of wing.

Abdomen short, entirely smooth and polished; plate of first tergite narrowing strongly to apex where it is only one-third as broad as at base; second tergite confluent with third and with a short, oblique groove on each side at base; hypopygium large, prominent; ovipositor sheath very slender, as long as hind femur.

Black; labrum pale yellow; palpi white; antenna dark brown above, yellowish brown beneath, pedicel usually darker than scape and first flagellar segment; legs yellow with base of middle coxa and the hind coxa black, and posterior tibia apically and posterior tarsus more or less dusky, posterior femur immaculate; tegulae and wing bases brownish black, wings hyaline, stigma brown, costa pale yellow, veins hyaline except outer side of first cubital cell; membranous margins of first tergite and venter of abdomen toward base dark brown or piceous.

MALE: Differs from female only in the darker legs, the middle femur being slightly dusky, and the posterior femur, together with the posterior tibia except at base, piceous.

TYPE: USNM 63059.

TYPE LOCALITY: Guadeloupe, French West Indies.

Described from 7 females and 8 males reared from *Leucoptera coffeella* (Guérin-Méneville), Sept. 29, 1937, by F. Sein, Jr.; and 1 female and 7 males reared by Mr. Sein in Puerto Rico from *Acrocercops dives* (Walsingham).

Apanteles lipomeringsis, new species

This species is distinguished from all known related species by being entirely yellow except for the antennal flagellum and by having the first tergite deeply longitudinally channeled and the propodeum provided with an unusually prominent median longitudinal carina.

FEMALE: Length about 2.6 mm. Head noticeably hollowed out behind; temples receding; face and clypeus minutely punctate and shining; malar space not quite as long as clypeus; frons and temples smooth and shining; antennae not tapering to apices, about as long as the body.

Mesoscutum weakly, minutely punctate and shining, like face; prescutellar furrow finely foveolate; disc of scutellum flat, slightly broader at base than long, smooth and shining; propodeum smooth, with a very prominent, complete, median longitudinal carina; mesopluron and metapleuron impunctate, polished; hind coxa smooth and polished; inner calcarium of hind tibia longer than outer but hardly half as long as metatarsus; metacarpus longer than stigma; first abscissa of radius about as long as intercubitus and strongly angled with it; nervellus oblique but not curved toward base of wing.

Abdomen much narrower than thorax; first tergite narrowing from base to apex, at widest point about half as wide as propodeum, deeply, longitudinally channeled along middle line from base almost to apex, mostly smooth with only a few weak punctures on apical third; median plate of second tergite defined laterally by strongly oblique grooves, broader at base than long, about twice as wide at apex as at base, impunctate, polished; remainder of abdomen polished; ovipositor sheath slender, about as long as hind tarsus.

Entirely yellow, with only flagellum and a blotch on front of scape brown; wings subhyaline; stigma, costal margin, and veins brown.

MALE: Like the female except for the longer, somewhat tapering antennae and the relatively slightly longer second tergite.

TYPE: USNM 63060.

TYPE LOCALITY: Summit, Canal Zone.

Described from 1 female (type) and 6 males reared from the larva of *Lipomerinx prismatica* Walsingham, Apr. 14, 1927, by James Zetek, under his No. 2793.

Apanteles alius, new species

FIGURE 4,f

This species is very similar to *Apanteles glomeratus* (Linnaeus), and is easily confused with that species. It may be distinguished, however, by the paler coxae, the darker costa, the less shining and more evenly sculptured mesoscutum, the absence of a median longitudinal impression at the base of the propodeum, and the relatively broader second tergite, the sculptured part of which is not defined laterally by oblique grooves as in *A. glomeratus*. From *A. opsiphanis* Schrottky, which is known to me only from the original description, it differs in the much paler legs and the smoother second tergite. In both *A. glomeratus* and *A. opsiphanis* all coxae are black or blackish.

FEMALE: Length about 2.5 mm. Face smooth and shining, faintly punctate each side of middle; antennae slender, at least as long as the body. Mesoscutum closely, evenly punctate and subopaque; prescutellar furrow sharp, foveate; disc of scutellum smooth and polished, with only a few scattered, shallow punctures; propodeum strongly rugulose, the median longitudinal carina incomplete or wanting, the spiracles prominent; mesopleuron largely smooth and polished, posterior groove finely foveolate; metapleuron impunctate and polished on basal half, rugose and dull on apical half; hind coxa smooth and shining but with a small, flattened, punctate area on upper edge at base; inner calcarium of posterior tibia not, or barely, longer than outer and not distinctly half as long as metatarsus; metacarpus slightly longer than stigma; first abscissa of radius perpendicular to anterior margin of wing, longer than intercubitus and joining it in a weak angle; nervellus strongly oblique but straight.

Abdomen rather stout, almost as broad as thorax; sclerotized plate of first tergite broadening gradually from base to apex, a little longer than broad at apex, smooth on basal half, punctate apically; second tergite rectangular, more than twice as broad as long, much shorter than third, smooth and polished medially, usually finally rugulose toward sides; second suture very fine; third and following tergites impunctate, polished; ovipositor sheath subexserted.

Black; labrum and mandibles brown; palpi pale yellow; antennae wholly brownish black; wings hyaline; stigma and veins brown; anterior and middle legs, including coxae, yellow, immaculate; hind leg yellow with basal half of coxa, apex of femur, apex of tibia and the tarsus, black; abdomen bright yellow on sides and beneath on basal half.

MALE: Differs from the female only in its considerably longer and more slender antennae.

TYPE: USNM 63061.

TYPE LOCALITY: El Valle, Venezuela.

Described from 14 females and 1 male reared from *Opsiphanes c. cassiae* (Linnaeus) on *Musa sapientum* at the type locality, Mar. 16, 1939, by C. H. Ballou; and 4 females and 1 male reared from *Opsiphanes* sp. at Campinas, São Paulo, Brazil, July 27, 1937, by H. F. G. Sauer.

Apanteles ornatricis, new species

This species is very similar to *Apanteles orobenae* Forbes and *A. glomeratus* (Linnaeus), but differs from the former in not having the mesoscutum confluent punctate, in the paler coxae, in the narrower first tergite and in the straight nervellus, and differs from the latter in the more completely sculptured first tergite and the shorter radius.

FEMALE: Length about 2.3 mm. Head about as wide as thorax; face closely, shallowly punctate, about as wide as eye height; malar space as long as clypeus; antennae as long as body.

Mesoscutum rather uniformly punctate, the punctures contiguous but not confluent; prescutellar furrow with around eight foveae; scutellum large, smooth and shining; propodeum rugose, usually with a more or less distinct median longitudinal carina; mesopleuron smooth and polished except for a small area below tegula which is confluent punctate; metapleuron rugose except for a small polished space at base; radius issuing from slightly beyond middle of stigma and not longer than intercubitus, with which it is sharply angled; nervellus strongly oblique but perfectly straight; hind coxae smooth and polished, impunctate; inner calcarium of hind tibia barely longer than outer and less than half as long as hind metatarsus.

Abdomen much narrower than thorax; first tergite distinctly longer than broad, broadening only very slightly from base to apex, closely rugulose, the apical angles somewhat rounded off, membranous margins broad apically; second tergite much shorter than third, with a central rugulose area that is twice as wide on posterior margin as long; laterally second tergite smooth and shining, without sutures delimiting the sculptured part; third and following tergites smooth and polished; ovipositor sheath subexserted.

Black; labrum reddish yellow; antennae brownish black with scape sometimes pale beneath; tegulae and wing bases dark brown; wings hyaline, stigma brown; anterior coxae piceous; middle coxae yellow, piceous at bases above; hind coxae black, yellowish apically below; remainder of legs honey yellow, except extreme apices of hind femora above, hind tibiae apically and hind tarsi, which are weakly infuscated; abdomen black, yellow beneath on basal half, also lateral unsculptured margins of first and second tergites yellowish and sometimes the third tergite more or less reddish yellow apically.

MALE: Like the female but with the middle and hind coxae more completely piceous or black.

TYPE: USNM 63062.

TYPE LOCALITY: Chincina, Colombia; altitude 1380 meters.

Described from 6 females (including holotype) and 6 males reared from *Utetheisa ornatix* (Linnaeus) at the type locality by A. Cabal-O. May 14, 1942; 9 females and 2 males reared from the same host at La Esperanza, Colombia, by R. Paul Roba, Jan. 26, 1938; 16 females reared from *U. ornatix*, "Valle de Medellin y Atlantico," Colombia, and 9 females and 12 males, also from that host, reared by R. de Tella at Campinas, Brazil, in 1952.

Apanteles politiventris, new species

This new species may be readily recognized by the combination of a large, apically squarely truncate, and completely polished central plate of the first tergite and an ovipositor sheath that is nearly $1\frac{1}{2}$ times as long as posterior tarsus.

FEMALE: Length about 2 mm. Head thin; malar space a little longer than clypeus; clypeal foveae represented by two sharp punctures which are on or below lower level of eyes; face, clypeus, frons, and vertex smooth and shining; temples faintly punctate posteriorly; antennae about as long as the body.

Thorax stout, a little broader than high; mesoscutum largely very finely, contiguously or confluent punctate and opaque, but smooth and shining at posterior margin, thickly covered with short pile; disc of scutellum flat, impunctate and polished; polished area on lateral face of scutellum semicircular, rather small; propodeum punctate and shining on dorsal face, but with some rugae on posterior face, and with a large, roughly circular areola which is smooth and shining and sharply margined; costulae not distinct; mesopleuron smooth and polished, the posterior furrow minutely foveolate; metapleuron smooth and polished except narrowly at apex; hind coxae smooth and polished; inner calcarium of hind tibia barely longer than outer and not half as long as metatarsus; metacarpus a little longer than stigma; first abscissa of radius slightly curved, much longer than intercubitus which it joins in a very weak angle; nervellus slightly curved.

Abdomen smooth and polished with no trace of sculpture; median plate of first tergite large, parallel-sided, only slightly longer than broad, squarely truncate at apex, with no indication of a median fovea but slightly impressed in the apical lateral angles; plate of second tergite more than four times as broad as long, much shorter laterally than at middle, its posterior margin very faint; ovipositor sheath very slender, distinctly longer than the abdomen.

Black; scape black; flagellum dark brown; palpi somewhat infuscated; legs black or blackish; trochanters, apical half of fore femur, fore tibia and tarsus, bases of middle and hind tibiae, and middle

tarsus except last segment brownish yellow; tegulae and wing bases whitish; wings whitish hyaline; costa yellowish white; stigma hyaline margined with brown; metacarpus brown; other veins hyaline.

TYPE: USNM 63063.

TYPE LOCALITY: Santurce, Puerto Rico.

Described from 13 females reared by A. S. Mills on May 19, 1934, from lepidopterous larvae on *Pluchea purpurascens*.

Apanteles impiger, new species

Most similar to *Apanteles pseudoglossae* Muesebeck but without distinct costulae on the propodeum, with ovipositor sheath relatively much longer and with the male legs and tegulae darker.

FEMALE: Length 2.3 mm. Face closely shallowly punctate; clypeus punctate; malar space as long as clypeus; temple rounded; vertex and temples closely punctate; antenna about as long as body and covered with conspicuous, short, white pubescence.

Thorax stout; mesoscutum closely, in part confluent, punctate, more or less rugulose posteriorly, mat; scutellar furrow deep and broad, strongly foveolate; disc of scutellum flat, shining, smooth although sometimes with a few very weak punctures; polished area on lateral face of scutellum semicircular, remainder of lateral face traversed by numerous carinae radiating from polished area; propodeum rugulose and dull except in the areola which is large, more or less pentagonal, and open at base, costulae incomplete or wanting, posterior lateral angles not prominent; mesopleuron smooth and shining except anteriorly and below where it is closely punctate and dull, impressed line along posterior margin very fine and faintly foveolate; metapleuron smooth except at extreme apex; hind coxa smooth, shining; inner calcarium of hind tibia slightly more than half as long as basitarsus; first abscissa of radius slightly curved, very slender, longer than intercubitus which it joins in an even curve; metacarpus longer than stigma; nervellus curved below toward base of wing.

Abdomen rather narrow, shorter than thorax; plate of first tergite large, parallel-sided to apical fourth and then narrowing a little to apex, closely rugulose and dull except for a narrow, shallow, and sometimes poorly defined, median longitudinal impression on apical half which is shining; plate of second tergite about twice as wide at base and nearly four times as wide at apex as long down the middle, mostly smooth and polished, but sometimes a little rugulose along apical margin; hypopygium acute at apex, extending slightly beyond apex of last dorsal segment; ovipositor sheath about as long as hind tibia.

Black; palpi yellow; antenna entirely black, including scape; tegulae and wing bases yellow; wings hyaline, costa yellow, stigma

and outer side of first cubital cell pale brown, other veins hyaline; legs entirely bright yellow except anterior coxae piceous, middle and hind coxae black and apices of posterior tibiae and the posterior tarsi infuscated; hind femora with no suggestion of infuscation at apices; abdomen entirely black above and below.

MALE: Essentially like the female, but tegulae and wing bases brownish, trochantines of all legs, middle and hind femora, and apical half of posterior tibia piceous.

COCOONS: Solitary, pure white.

TYPE: USNM 63064.

TYPE LOCALITY: Mayaguez, Puerto Rico.

Described from 8 females and 7 males reared from the melonworm, *Diaphania hyalinata* (Linnaeus), Nov. 10, 1943, by H. K. Plank. I have also seen 3 specimens reared from the same host at Santiago de las Vegas, Cuba, by A. Otero, Sept. 28, 1931.

Apanteles croceicornis, new species

This new species is recognizable by the unusual color combination of the antenna, the scape being black and the flagellum orange yellow, and by the strongly tuberculate lateral angles of the propodeum.

FEMALE: Length about 2.6 mm. Face and clypeus minutely punctate and shining; temples strongly convex; malar space as long as clypeus; antennae slightly shorter than body.

Mesoscutum evenly and contiguously punctate and rather dull, the punctures minute and very shallow; disc of scutellum smooth and shining; polished area on lateral face of scutellum large, semicircular, the area anterior to it crossed by numerous strong rugae; propodeum entirely rugose, with a distinct areola that is margined by strong carinae on posterior half, costulae incomplete, posterior lateral angles very prominent, tuberculate; mesopleuron polished above and posteriorly, closely strongly punctate and dull below and anteriorly; metapleuron mostly smooth but rather dull; hind coxa smooth and shining; inner calcarium of hind tibia not distinctly half as long as metatarsus; first abscissa of radius and intercubitus subequal, meeting in a strong angle.

Abdomen narrower than thorax; plate of first tergite nearly parallel-sided on basal half, narrowing strongly from middle to apex, about as wide at apex as second tergite is long, closely rugulose except at base and with a poorly defined, elongate, impressed area in middle of posterior half, extreme apex smooth and polished; lateral membranous margins of first and second tergites very broad; plate of second tergite strongly transverse, nearly three times as broad at apex as it is long or broad at base, defined laterally by sharp, oblique grooves, faintly alutaceous and opaque; remainder of abdomen smooth and shining; ovipositor sheath nearly as long as hind femur.

Black; scape black, pedicel and basal two-thirds of flagellum orange yellow, apical fourth of flagellum brownish; tegulae and wing bases entirely yellow; wings hyaline, stigma and veins light brown; legs including all coxae and tarsi golden yellow; plates of first and second tergites black, the membranous margins yellow; third tergite mostly yellowish, usually blackish at base and sometimes at apex; venter of basal three abdominal segments bright yellow; abdomen beyond third segment entirely black.

MALE: Like the female except in having the antennae yellow almost to the apices, in the relatively narrower plate of second tergite and in the largely piceous third tergite.

COCOON: Pure white, solitary.

TYPE: USNM 63065.

TYPE LOCALITY: Cañete, Peru.

Described from two females and two males reared by E. J. Hambleton from *Asciodes anormalis* (Guenée) on sweet potato.

Apanteles malthacae, new species

FIGURE 4,g

Exceedingly like *Apanteles sarrothripae* Weed and rather difficult to distinguish from that species; however, the central plates of the first and second tergites are narrower, and, unlike that of *A. sarrothripae*, the hind coxa has the outer upper edge more or less flattened toward base and confluent punctate; furthermore, the hind femur is blackish at apex whereas that of *A. sarrothripae* is wholly yellow.

FEMALE: Length about 2.5 mm. Face smooth and shining; antenna about as long as body; vertex and temples polished; ocellular line at least twice as long as diameter of an ocellus.

Mesoscutum strongly shining and nearly smooth, with only very minute, extremely shallow, separated punctures; scutellum smooth and shining; propodeum smooth and shining across base, its posterior declivity gradual and weakly roughened; mesopleuron smooth and polished but with some shallow separated punctures below anteriorly; hind coxa with a confluent punctate, more or less flattened area on outer upper edge toward base; inner spur of hind tibia very slightly longer than outer and not, or barely, half as long as metatarsus; radius longer than intercubitus and strongly angled with it.

Abdomen compressed, less than half as wide as thorax; first tergite narrowing gradually caudad, three times as long as broad at apex, finely rugulose on apical half; sclerotized plate of second tergite triangular, nearly twice as long and more than twice as wide on posterior margin, as broad at base, finely rugulose; third and following tergites polished; ovipositor sheath extending slightly beyond apex of abdomen.

Black; antennae blackish, scape brownish yellow beneath; stigma dark brown; tegulae and wing bases yellow; anterior and middlelegs entirely yellow, including coxae; hind legs yellow, with coxae, apices of femora and of tibiae, and more or less of the tarsi black or blackish.

TYPE: USNM 63066.

TYPE LOCALITY: Río Blanco, Vera Cruz, Mexico.

Described from 17 females and 31 males reared by Owen J. Smith in 1951 from the larvae of *Malthaca* sp. on wild grape.

Apanteles concinnus, new species

FIGURE 2, a, i

This new species somewhat resembles *Apanteles muesebecki* Blanchard but it is easily distinguished by the exceptionally long and narrow sclerotized plate of the second tergite, the presence of some sculpture on the plates of both the first and second tergites, and the darkened base of the hind tibia. Reared specimens are easily identified by the very unusual cocoons (fig. 2, i).

FEMALE: Length about 2.5 mm. Face flat, shining, almost impunctate, and with a low median keel above; temple narrow but not sharply receding; malar space at least as long as clypeus; antennae slender, longer than body.

Mesoscutum shining, with numerous, but not contiguous, minute, and very shallow setigerous punctures; scutellum convex, impunctate, polished; propodeum shining, smooth basally, a little roughened behind middle; mesopleuron and metapleuron and hind coxa polished, impunctate; inner calcarium of hind tibia half as long as metatarsus; first abscissa of radius arising from middle of stigma, as long as, or a little longer than, intercubitus.

Abdomen hardly half as wide as thorax; plate of first tergite narrowing from base to apex where it is less than half as wide as second tergite is long, weakly roughened on apical third, smooth at extreme apex; plate of second tergite narrowly triangular, its basal width equal to apical width of first tergite, its apical width about equal to its length, its sides defined by straight, sharply impressed lines that diverge caudad, its surface mostly smooth and polished but with a little very weak sculpture toward lateral apical angles; third and following tergites smooth and shining; ovipositor sheath not surpassing last tergite.

Black; antennae entirely black; palpi pale yellow; tegulae yellow; wing bases brownish; wings hyaline, stigma and veins brown; legs testaceous, hind coxae piceous, extreme apex of hind femur, base and apex of hind tibia and the hind tarsus infuscated; basal half of abdomen yellow on sides and venter.

MALE: Like the female in essential details.

COCOON: White, solitary. Of remarkable form, being 6-sided, with two large concave lobes representing extensions of the cocoon wall at the posterior end, and with the rim of the anterior end ornamented with six slightly flaring elongate lobes, each one nearly as long as anterior width of cocoon.

TYPE: USNM 63067.

TYPE LOCALITY: Campinas, São Paulo, Brazil.

Described from three females and two males reared by H. F. G. Sauer in July and October 1937; and three females and one male reared in July 1937 by L. Mendes. Both series are from the type locality and from larvae of an unknown species of Lepidoptera.

Apanteles stenomae, new species

This new species immediately suggests *Apanteles concordalis* Cameron, which it closely resembles in sculpture and color as well as in general structure. However, it is smaller; it lacks distinct costulae on the propodeum (which are well developed, in *A. concordalis*), and it has a more slender abdomen, with the first tergite about twice as long as broad at apex.

FEMALE: Length about 2.5 mm. Face as wide as eye height, closely and more or less confluent punctate, and subopaque; vertex and frons finely rugulose and largely dull; antennae a little shorter than body.

Mesoscutum strongly, closely, and in part confluent punctate and dull; disc of scutellum flat, faintly shagreened, and with scattered, very shallow punctures; polished area each side of disc rather large but not nearly extending to base of lateral face, the broad depression in front of it largely smooth and shining (in *A. concordalis* it is crossed by a number of strong, longitudinal rugae); propodeum rugose, with a well defined areola which narrows caudad and is open at base; costulae wanting; spiracular area defined by an irregular carina; apical lateral angles of propodeum acute, projecting caudad; mesopleuron mat, confluent punctate anteriorly, but the punctures becoming progressively weaker and more widely separated on a shagreened surface posteriorly; metapleuron polished at base, dull, and sculptured apically; radius nearly perpendicular to anterior margin of wing, somewhat longer than intercubitus and weakly angled with it; nervellus strongly curved behind toward base of wing; hind coxa impunctate but weakly shagreened and mat on outer side; inner spur of middle tibia very nearly as long as middle metatarsus; that of hind tibia much longer than outer and about half as long as hind metatarsus.

Abdomen much narrower than thorax; first tergite nearly parallel-sided, about twice as long as wide at apex, finely longitudinally rugulose, and with a low median tubercle just before middle, behind

which there is a poorly defined median longitudinal impressed area; median plate of second tergite $2\frac{1}{2}$ times as broad on posterior margin as long medially, defined laterally by fine, sharply impressed, posteriorly divergent grooves, the surface of the plate virtually smooth, with only a faint suggestion of sculpture; third and following tergites smooth and polished; ovipositor sheath at least as long as hind tarsus.

Black; antennae, including scape, blackish; maxillary palpi pale except basally; tegulae pale yellow; wing bases piceous; wings hyaline, stigma and veins hyaline; legs black, the anterior femora pale distally, the anterior and middle tibiae and tarsi brownish yellow, and the hind tibia yellowish brown on basal half.

MALE: Like the female but a little smaller and with the antennae a little longer than the body.

TYPE: USNM 63068.

TYPE LOCALITY: El Valle, Venezuela.

Described from 14 females and 5 males reared by C. H. Ballou from larvae of a species of *Stenoma*, Sept. 30, 1941.

Apanteles dentatus, new species

Characterized especially by very prominent posterior lateral angles of the propodeum, sharply margined propodeal areas, a punctate scutellum, a median fovea on the first tergite, a straight posterior margin of the second tergite, and an unusually long ovipositor.

FEMALE: Length about 3.2 mm. Face closely punctate, subopaque, with an indication of a median keel; upper part of frons, vertex, and temples strongly punctate, in part confluent so; antennae about as long as body.

Mesoscutum closely, strongly punctate, the sculpture becoming more or less longitudinally rugulose posteriorly as a result of confluence of punctures and extending to extreme posterior margin; prescutellar furrow deep and broad, foveolate; disc of scutellum with scattered but sharp and distinct punctures, shining; polished area on lateral face of scutellum subtriangular, extending at least halfway toward base of scutellum; propodeum rugose and dull; areola large, obovate, narrowed posteriorly, weakly closed anteriorly; costulae present; apical lateral areas rugose; apical lateral angles acute and strongly produced caudad; mesopleuron coarsely, confluent punctate and opaque on anterior half, mostly smooth and shining behind, the impression with fine, concentric striulae; metapleuron with a small anterior section impunctate and polished, the larger posterior portion coarsely rugulose; posterior coxa largely smooth and subopaque, with a flattened punctate area on outer upper edge at base; inner calcarium of hind tibia about half as long as metatarsus; metacarpus conspicuously longer than stigma; first abscissa of radius much longer

than width of stigma or than intercubitus; nervellus strongly curved toward base of wing.

Abdomen about as long as thorax; plate of first tergite broadening imperceptibly caudad, at least $1\frac{1}{2}$ times as long as broad at apex, apical half rugulose and with a large median longitudinal fovea; plate of second tergite mostly smooth and shining but with a few weak punctures along the practically straight posterior margin, the plate four times as broad as long and half as long as third tergite; third and following tergites smooth and shining; ovipositor sheath uniformly slender, considerably longer than hind tarsus.

Black; labrum brownish; palpi pale; scape pale brown at base; tegulae and wing bases yellow; costa yellow toward base, darkening toward stigma; wings clear hyaline; stigma dark brown; all coxae entirely black, anterior and middle legs entirely testaceous beyond coxae; posterior trochanter and femur deep testaceous, the latter blackish at apex; posterior tibia yellowish white on basal fourth, testaceous beyond except for a broad blackish apical band; metatarsus pale yellow at base, remainder of tarsus blackish.

Cocoon: Solitary; pure white; not cylindrical, but with four or five rather flat surfaces, the posterior end extended nipple-like.

TYPE: USNM 63069.

TYPE LOCALITY: Campinas, São Paulo, Brazil.

Described from 6 female specimens, all from the type locality, the type and 1 paratype reared from *Platynota rostrana* (Wlkr.) by H. F. G. Sauer on Aug. 8, 1937, 2 paratypes reared from an unknown lepidopterous larva by E. J. Hambleton in April 1936, 1 paratype from *Paraptila* sp., reared by Mr. Hambleton on Jan. 5, 1937, and 1 paratype from a lepidopterous larva on citrus reared by Mr. Hambleton on Mar. 6, 1939.

Apanteles hedyleptae, new species

Very similar to *Apanteles parallelis* (Ashmead), which is known only from the unique type from St. Vincent in the British Museum, but distinguished from that species by its sculptured first tergite, yellow tegulae, and darker hind femora.

FEMALE: Length about 2.8 mm. Head smooth and shining; face with some very weak and minute punctures; malar space not quite as long as clypeus; face narrowing slightly below, at narrowest point not quite as broad as eye height; antennae almost as long as body; temples convex, not strongly receding.

Mesoscutum shining, with extremely shallow, separated punctures; disc of scutellum flat, smooth and shining, polished area on lateral face of scutellum semicircular, not large; propodeum convex, smooth and shining, with only scattered punctures on dorsal surface and a

little rugosity in apical lateral angles; mesopleuron entirely smooth and polished; radius arising from beyond middle of stigma, not longer than intercubitus; nervellus very oblique but straight; hind coxa very large, smooth and shining, and with a conspicuous, flattened, weakly punctate area on outer upper edge basally; inner calcarium of hind tibia slightly longer than outer but much less than half as long as hind metatarsus.

Abdomen much narrower than thorax; first tergite parallel-sided, smooth and polished on basal half, very finely roughened and subopaque apically, with a very shallow, poorly defined, median longitudinal impressed area on caudal half immediately in front of which is a low polished tubercle; plate of second tergite very transverse, four times as wide as long, defined laterally by fine oblique grooves, its posterior margin a little curved, so that plate is longer medially than laterally, its surface largely smooth but sometimes with delicate longitudinal roughening; remaining tergites smooth and polished; ovipositor sheath at least as long as hind tibia.

Black; palpi pale; antennae entirely black; tegulae and wing bases yellow; wings hyaline, stigma dark brown; legs brownish yellow, with all coxae black, and hind femora on upper and lower edges, hind tibiae apically, and hind tarsi more or less infuscated.

MALE: Unknown.

TYPE: USNM 63070.

TYPE LOCALITY: Barceloneta, Puerto Rico.

Described from 17 females reared from *Hedylepta indicata* Lederer in beans and 5 females reared from *Maruca testulalis* Geyer, also in beans. All the specimens are from the type locality and were reared in February 1950 by H. K. Plank.

Apanteles conformis, new species

This new species is exceedingly like *Apanteles talidicida* Wilkinson, which was reared from the hesperiid *Talides sergestus* Cramer in British Guiana, but it may be distinguished from that species by its blackish tegulae, nonangulate nervellus, and more extensively blackish hind femora of the female. From *A. disputabilis* (Ashmead), which was described from the island of St. Vincent and which it also closely resembles, it differs most conspicuously in its dark tegulae and stigma and in having the nervellus strongly curved behind, toward base of wing. In all three species the malar space is rather long and is covered with a pale yellow blotch.

FEMALE: Length about 3.7 mm. Head smooth and shining, not distinctly punctate, covered with fine and rather dense pubescence; malar space longer than clypeus and about one-third as long as width of face; antennae as long as body.

Mesoscutum shining, very finely punctate, the punctures separated and posteriorly becoming sparse and very weak; prescutellar furrow with eight or ten foveae; disc of scutellum a little longer than broad, smooth and polished, impunctate; polished area each side of disc fairly large and subtriangular but not extending nearly to base of lateral face; propodeum rugose, completely arcolated, the separating carina very prominent, the areola very large, broadly oval, closed at base by the caudal margin of the small basal median area; mesopleuron smooth and shining, weakly punctate anteriorly, and with a long hair arising from each puncture; metapleuron coarsely rugose except for a small polished space at base; radius directed outward, considerably longer than intercubitus which it joins in a sharp angle; hind coxae smooth and polished; inner calcarium of hind tibia much longer than outer and half as long as metatarsus

First tergite nearly parallel-sided, smooth basally, finely rugulose on posterior half where there is a median longitudinal, slightly impressed area that is sharply margined anteriorly but indefinitely delimited behind; second tergite more than half as long as third, three times as broad as long, its posterior margin straight; second and following tergites polished; ovipositor sheath rather slender, slightly longer than hind metatarsus.

Black; malar space covered by a large, pale yellow spot; labrum and palpi light brown; antennae entirely black; tegulae black, wing bases brown; wings hyaline basally, a little clouded apically; costa, stigma, and veins dark brown; all coxae black and the trochanters largely so; hind femur blackish on apical half; hind tibia at extreme apex and hind tarsus, except metatarsus basally, piceous to black.

MALE: The single available male has the hind femora black only at the apices; otherwise it is similar to the females.

TYPE: USNM 63071.

TYPE LOCALITY: El Valle, Venezuela.

Described from 17 females and 1 male reared Mar. 8, 1939, by V. Obregon from an unknown hesperiid larva on *Canna indica*.

Apanteles megastidis, new species

Very similar to *Apanteles thurberiae* Muesebeck but distinguished by its reddish yellow hind femora and its strongly developed propodeal costulae.

FEMALE: Length about 4 mm. Head uniformly closely and finely punctate and more or less mat; temples receding; clypeus punctate like face; malar space longer than clypeus; antennae a little shorter than body.

Mesoscutum closely, in part confluent, punctate and dull; prescutellar furrow very fine, comprised of about ten small foveae; disc of

scutellum longer than broad, flat, smooth, and polished; a large, triangular, polished area each side of disc covering nearly all of lateral face of scutellum; propodeum finely rugose dorsally, with a large, ovate areola that is open at base, and with strong costulae that set off large, shining, lateral apical areas which are traversed by a few strong, irregular rugae; mesopleuron shining, closely punctate anteriorly, the punctation becoming more sparse behind and vanishing before posterior margin; no longitudinal impression below on mesopleuron; metapleuron posteriorly confluent punctate and dull; radius much longer than intercubitus, the latter only weakly oblique; nervellus very slightly curved; hind coxa smooth and polished outwardly, closely punctate above toward base; inner calcarium of hind tibia much longer than outer and very nearly or quite half as long as hind metatarsus.

First tergite parallel-sided except for the short portion before spiracles which narrows somewhat to the base, nearly $1\frac{1}{2}$ times as long as broad at apex, the surface smooth and polished basally but weakly punctate rugulose on posterior half, and there with a poorly defined median longitudinal area that is rugulose; second tergite three times as wide as long at the middle, about two-thirds as long as third, and, like all the following tergites, smooth and shining; ovipositor sheath a little longer than abdomen or hind tarsus; ovipositor decurved at apex.

Black; palpi pale; antennae entirely black; tegulae and wing bases transparent, pale yellowish; costa yellow; stigma hyaline, weakly margined with brown; metacarpus brown; all coxae black; remainder of legs reddish yellow, with hind trochanters basally, apices of hind femora and of hind tibiae, and the hind tarsi blackish.

MALE: Essentially like the female.

COCOON: Single, pure white, about 6 or 7 mm. long.

TYPE: USNM 63072.

TYPE LOCALITY: St. Augustine, Trinidad, British West Indies.

Described from 6 females and 7 males reared from larvae of an unidentified species of the pyraustid genus *Megastes*, in February 1943, by A. M. Adamson.

Apanteles paradoxus, new species

FIGURE 2,*d*

This new species is remarkable for having a distinctly areolated propodeum and at the same time a subexserted ovipositor and a very large, rectangular, coarsely sculptured second tergite. It somewhat resembles *Apanteles aletiae* Riley, a parasite of *Alabama argillacea* (Hbn.) and *Gonodonta nutrix* (Cram.) in the West Indies and southeastern United States, but may be immediately distinguished from that species by its unusually prominent propodeal carinae and by its very large, posteriorly broadening, and closely rugulose first tergite.

FEMALE: Length about 2.3 mm. Face smooth and shining, with only indistinct punctation; malar space much longer than clypeus; vertex smooth and shining; temple with an impunctate and polished band directly behind eye, shallowly punctate and subopaque behind this; antennae longer than the body.

Thorax stout, about as high as broad; mesoscutum dull and with large, closely placed but clean-cut punctures that are not confluent; furrow at base of scutellum deep, strongly foveolate; disc of scutellum a little convex, polished, impunctate or with a few very shallow punctures; polished area on lateral face of scutellum semicircular, the large area in front of it longitudinally rugose; propodeum arcolated, the areas defined by prominent carinae, the two basal areas smooth at base, the broad pentagonal areola and the two large apical areas rugose; mesopleuron smooth and polished except anteriorly where it is closely, strongly punctate and dull, posterior groove very finely foveolate; metapleuron polished on anterior half, rugulose and dull on posterior half; posterior coxa mostly smooth and shining but with some scattered distinct punctures and with an elongate, flattened, punctate area on outer upper edge at base; inner calcarium of hind tibia longer than outer and about half as long as basitarsus; metacarpus longer than stigma; first abscissa of radius slightly longer than intercubitus, a little curved and not strongly angled at the point of junction with it.

Abdomen short and broad; first tergite very large, broadening steadily toward apex, as broad at apex as long, strongly rugulose, and with a narrow median longitudinal fovea beyond the middle; second tergite about as long as third, about three times as broad as long and completely, strongly, longitudinally rugulose; second suture sharp and straight; third and following tergites combined about as long as first, impunctate, polished; hypopygium not projecting beyond apex of last tergite; ovipositor sheath barely exerted.

Black; palpi pale; labrum and mandibles dark brown; scape yellowish brown beneath, otherwise antenna brownish black; tegulae and wing bases yellowish brown; wings hyaline, stigma and veins light brown; anterior and middle legs entirely yellowish except for the black coxae and slightly dusky tarsi; hind coxae black; hind trochanters light brown; hind femora mostly piceous; hind tibiae blackish on distal two-thirds, pale on the basal third; hind tarsi dark brown.

MALE: Like the female in all significant particulars.

COCOONS: Pure white, and gregarious but not embedded in a mass of silk.

TYPE: USNM 63073.

TYPE LOCALITY: Paso Ancho, San Sebastian, Costa Rica.

Described from 28 females and 2 males reared by C. H. Ballou in November and December 1936 at the type locality from a larva of a

notodontid, apparently a species of *Hemiceras*, on *Inga roussoviana*, and 60 females and 16 males reared from *Hemiceras* sp. "on Inga coffee tree," at Santa Tecla, El Salvador, by Paul A. Berry.

Apanteles schini, new species

FIGURE 4,d

This new species is exceedingly like the Nearctic *Apanteles paleacritae* Riley, a parasite of the cankerworms, but differs in having the punctures of the mesoscutum definitely sharper and even anteriorly not contiguous, in the more coarsely sculptured propodeum and first tergite, and in the nearly straight nervellus.

FEMALE: Length about 2.3 mm. Frons and vertex smooth and shining; face about as wide as eye height, indistinctly punctate and subopaque; malar space considerably longer than clypeus; antennae about as long as the body.

Mesoscutum uniformly covered with distinct, separated punctures, shining; prescutellar furrow foveolate laterally, not distinctly so medially; disc of scutellum smooth and shining but with a few scattered punctures; propodeum more declivous than in *A. paleacritae*, finely rugulose except in the large lateral apical areas which are smooth and shining; apical lateral angles of propodeum not projecting at all caudad; mesopleuron smooth and polished except anteriorly where it is weakly punctate and subopaque; metapleuron smooth and shining; radius much longer than intercubitus; nervellus oblique but virtually straight and not curved behind toward base of wing as in *A. paleacritae*; hind coxae very large, twice as long as propodeum, smooth and shining, and with a conspicuous elongate, flattened, punctate area on outer upper edge toward base; inner calcarium of middle tibia a little longer than middle metatarsus; inner calcarium of hind tibia much longer than outer and much more than half as long as hind metatarsus.

Abdomen not more than half as wide as thorax and conspicuously compressed apically; first tergite broadening very slightly caudad, nearly twice as long as broad at apex, closely and finely rugulose; second tergite with its median plate set off laterally by deep, posteriorly divergent furrows, almost as long as broad at base, distinctly broader at apex than long, the surface finely rugulose laterally and behind, smooth medially and toward base, sometimes largely smooth and shining; third and following tergites entirely smooth and polished, with no suggestion of punctation or other sculpture even on third; ovipositor sheath barely exerted.

Black; labrum reddish yellow; palpi pale yellow; antennae more or less brownish beneath toward bases; tegulae and wing bases yellow; wings hyaline, stigma and veins brown; anterior and middle coxae

blackish basally; hind coxae black; remainder of legs reddish yellow except for apex of hind femur, apical half of hind tibia and the hind tarsus, which are black.

MALE: Like the female in all essentials.

TYPE: USNM 63074.

TYPE LOCALITY: Guaratuba, Sao Paulo, Brazil.

Described from 39 females and 5 males reared in March 1954 by N. L. H. Krauss from larvae of an unidentified species of the butterfly family Riodinidae feeding on the Brazilian pepper tree, or Christmas-berry tree, *Schinus terebinthifolius*.

Apanteles kraussi, new species

This new species resembles *Apanteles lunatus* (Packard) but is larger and more coarsely sculptured. It differs further in having the second tergite about as long as the third and in having the hind femora black or blackish.

FEMALE: Length about 3 mm. Head shining, covered with very shallow, minute, setigerous punctures; malar space longer than clypeus or basal width of mandible; face narrower than eye height; antennae a little shorter than body.

Mesoscutum strongly convex, contiguously, and in part confluent, punctate, mat; prescutellar suture with nine or ten foveae; disc of scutellum large, convex, sculptured like mesoscutum; propodeum rugose, with a median longitudinal carina; mesopleuron closely, shallowly punctate anteriorly and below, polished in front of the posterior foveolate furrow; longitudinal impression on lower part of mesopleuron with a short, finely foveolate groove; radius much longer than intercubitus and not sharply angled with it; nervellus strongly oblique but not curved toward base of wing; hind coxa punctate rugulose, and dull; inner calcarium of hind tibia barely longer than outer and less than half as long as hind metatarsus.

First tergite broadening gradually caudad, about as broad on posterior margin as propodeum is long, entirely finely rugulose and dull; second tergite rectangular, twice as broad as long and about as long as third, sculptured like the first; third and following tergites smooth and shining except for a suggestion of weak roughening basally on third; ovipositor sheath barely exerted.

Black; palpi pale yellow; tegulae honey yellow; wing bases blackish; wings hyaline, stigma brown; fore and middle coxae piceous, hind coxae black; remainder of legs reddish brown, with apical segment of hind trochanter, hind femur, apex of hind tibia, and the hind tarsus more or less blackish.

MALE: Like the female in all essential respects.

COCOON: Single, buff in color.

TYPE: USNM 63075.

TYPE LOCALITY: Cuernavaca, Mexico.

Described from 12 females and 17 males reared by N. L. H. Krauss in June 1945 from *Morpheis ehrenbergi* Geyer. I take pleasure in naming this species for Mr. Krauss, who has contributed extensively to our knowledge of the habits and host relations of Braconidae.

Genus *Gnaptodon* Haliday

Gnaptodon minutus (Ashmead), new combination

Liophron [sic] *minutus* Ashmead, Journ. Linn. Soc. London, Zool., vol. 25, p. 132, 1894.

The type, from St. Vincent, which I saw some years ago in the British Museum, is a *Gnaptodon* which has lost the second intercubitus. I have observed, from material in the U. S. National Museum, that in very small specimens of this genus the second intercubitus sometimes drops out.

Genus *Opius* Wesmael

Opius capsicola, new species

FIGURES 1, h; 3, e

This species belongs in the *cereus* group. Structurally it is virtually identical with *Opius cereus* Gahan, but it even more closely resembles *O. fluminensis* Costa Lima, agreeing with that species and differing from *O. cereus* in its definitely infuscated wings and piceous posterior legs. It may be distinguished from *O. fluminensis* by the more or less extensive blackish markings of vertex, frons, and face, by the conspicuously yellow apex of stigma, and by the absence of black markings on the apical abdominal segments of the female.

FEMALE: Length about 5 mm. Head as broad as thorax; temple not receding; malar space distinctly longer than basal width of mandible or median length of clypeus; face smooth except for scattered weak punctures each side of middle line; lower margin of clypeus bisinuate; a distinct opening between clypeus and mandibles; ocellular line nearly three times as long as diameter of an ocellus; antennae a little longer than body, usually 48- to 55-segmented.

Thorax stout; notaulices strongly impressed, smooth; middle lobe of mesoseutum prominent; scutellar sulcus deep and long, and divided by a median, longitudinal keel; propodeum areolated, the carinae strong, as in *O. cereus* and *O. fluminensis*; mesopleuron without a furrow; first abscissa of radius shorter than greatest width of stigma; second abscissa about as long as first intercubitus; radial cell not attaining extreme apex of wing; recurrent vein usually interstitial with first intercubitus; nervulus very slightly postfurcal; radiella

wanting; mediella much longer than lower abscissa of basella; post-nervellus distinct; second segment of posterior tarsus not longer than fifth.

Abdomen stout, smooth, and polished; first tergite with a large, nearly parallel-sided, embossed area which is margined by prominent keels that are obsolescent apically; ovipositor sheath much longer than the abdomen.

Honey yellow; vertex, frons, and middle of face more or less extensively piceous; antennae entirely black; apices of mandibles black; palpi pale yellow; wings rather strongly infumated; hind legs piceous, coxa above and more or less of apical half of femur testaceous.

MALE: Like female except in having head more extensively black and apical tergite black.

TYPE: USNM 63076.

TYPE LOCALITY. El Cermeno, Panama.

Described from 61 specimens reared by James Zetek on Nov. 21, 1939, from puparia of a species of *Anastrepha* in seed capsules of *Manihot esculenta* under Zetek No. 4618. Presumably the hosts were either *Anastrepha pickeli* Costa Lima or *A. montei* Costa Lima, or both.

Opius toxotrypanae, new species

FIGURES 1,f; 2,h

Structurally, this new species is very similar to *Opius crawfordi* Viereck, but it is readily distinguished from that species by its black thorax.

FEMALE: Length about 7.5 mm. Face much broader than long, distinctly, finely punctate, and with a short and broad median keel just below antennae; clypeus weakly punctate, its anterior margin acutely toothed at the middle; a distinct opening between clypeus and mandibles; malar space at least as long as median length of clypeus and longer than basal width of mandible; temple fully two-thirds as wide as eye and not receding; ocellocular line not distinctly three times as long as diameter of an ocellus; antennae longer than body, 56-segmented in the type.

Mesoscutum polished; notaulices sharply impressed anteriorly, obliterated behind; middle lobe of mesoscutum with two shallow impressions at anterior margin; prescutellar sulcus a large semicircular pit that is divided into two parts by a low median longitudinal septum; propodeum polished, with a median area, only the posterior part of which is defined by carinae; mesopleuron polished and without a longitudinal impression; metapleuron polished; radius arising from middle of stigma; radial cell not quite attaining wing apex; second abscissa of radius and first intercubitus subequal; recurrent vein

interstitial; mediella as long as lower abscissa of basella and on a straight line with it.

Abdomen smooth and polished; first tergite with two prominent dorsal longitudinal keels setting off a large, nearly parallel-sided, elevated, median area and extending nearly to posterior margin of the tergite; ovipositor sheath longer than the body.

Head black, extreme apex of malar space brownish yellow, tips of mandibles red, a small brownish yellow spot on each side of frons next to the eye; antennae completely black; thorax piceous black, varied with brownish, especially on mesoscutum and propodeum; propodeum sometimes entirely brown, or even yellowish; legs black, each leg with the apex of the second segment of trochanter and the extreme base of femur yellowish or reddish; anterior and middle tarsi pale except the apical segments; wings deeply infumated, stigma reddish brown except at base, its extreme base and veins of basal part of wing blackish; abdomen entirely yellow; ovipositor sheath black.

MALE: Differs in no significant respects from the female.

TYPE: USNM 63077.

TYPE LOCALITY: Santa Engracia, Tamaulipas, Mexico.

HOST: *Toxotrypana curvicauda* Gerstaecker.

Described from 14 female and 7 male specimens reared from the above host at the type locality by M. McPhail in 1936.

Opius aldrichi, new species

FIGURES 1,a; 3,f

This new species is distinguished particularly by the conspicuous transverse areas of contrastingly pale color before and behind the third, fourth, and fifth abdominal sutures and by the unusually slender legs.

FEMALE: Length about 2.5 mm. Head a little wider than thorax, entirely smooth and polished; face a little wider than long; anterior margin of clypeus recurved, very gently arched; a very narrow, inconspicuous opening between clypeus and mandibles; malar space barely as long as median length of clypeus and a little shorter than basal width of mandible; temple gradually receding, about half as wide as eye; vertex slightly convex; ocellular line at least three times the diameter of an ocellus; antennae very slender and much longer than the body, 40-segmented in the type; basal segment of flagellum much longer than the second and more than three times as long as thick; all flagellar segments longer than broad.

Thorax a little higher than wide; notaulices impressed for a very short distance, completely wanting behind the anterior third of mesoscutum; mesoscutum without a posterior discal fovea, completely

polished; scutellar furrow with eight or ten small pits; scutellum polished and rather flat; propodeum closely rugulose over its entire surface; mesopleuron with a small, shallow, nonfoveolate impression below; metapleuron polished; legs very slender; fourth segment of posterior tarsus nearly twice as long as broad; inner calcarium of posterior tibia more than one-third as long as metatarsus; radius arising from before middle of stigma, its first abscissa only one-fourth as long as first intercubitus, the second gradually thinner toward apex and much longer than first intercubitus, the third slightly arched and going to extreme wing apex; last two abscissae of cubitus subequal; recurrent vein interstitial; nervulus postfureal by nearly its own length; second discoidal cell closed; mediella a little shorter than basal abscissa of basella and at least three times as long as nervellus.

Abdomen as long as head and thorax combined; first tergite about twice as broad at apex as at base, with two low subparallel dorsal ridges bounding a long median area that narrows gradually on apical third; surface of tergite mostly smooth with a little longitudinal roughening adjacent to dorsal ridges on apical half; remaining tergites smooth and polished; the apical margins of the third to the sixth tergites and the basal margins of the fourth to the sixth apparently more weakly sclerotized, these areas usually broadened medially and greatly narrowed at the lateral margins of the tergites; seventh tergite entirely weakly sclerotized; ovipositor sheath about half the length of abdomen, shorter than posterior tibia.

Head black; malar space, clypeus, mandibles except apices, and scape yellow; some rufous shadings around margins of eyes and about antennal foramina; antennal flagellum brownish yellow on basal three-fifths with the apical margins of the segments blackish, black on apical two-fifths; thorax black, prosternum pale brown; tegulae pale yellow; wings hyaline, veins and stigma pale brown; legs entirely yellow except base of posterior tibia and the posterior tarsus, which are dusky; dorsum of abdomen black except on the more weakly sclerotized parts adjoining the third, fourth, and fifth sutures, which are yellowish white; venter of abdomen yellowish white with a row of conspicuous black spots on each side; ovipositor sheath black.

MALE: Like the female in all essential characters.

TYPE: USNM 63078.

TYPE LOCALITY: Antigua, Guatemala.

Described from three specimens of each sex collected May 1 and May 2, 1926, by J. M. Aldrich.

Opius auripennis, new species

This new species very closely resembles *Opius cereus* Gahan, but it differs in the color of the wings. These are definitely yellow except

for the narrow apices of the anterior pair, which are contrastingly infuscated.

FEMALE: Length about 5 mm. Face nearly twice as broad as long, weakly punctate, malar space much longer than clypeus or basal width of mandible; clypeus smooth, its anterior margin bisinuate; a distinct transverse opening between clypeus and mandibles; ocellocular line about three times the diameter of an ocellus; temples about half the eye width, not receding; antennae noticeably longer than body, about 60-segmented in the type.

Thorax short and compact; notaulices smooth, complete, meeting in a broad polished impression; middle lobe of mesoscutum noticeably elevated; scutellar sulcus deep, divided into two large pits by a median septum; propodeum areolated, with a short median basal carina followed by an elongate median area which narrows posteriorly; mesopleuron polished, with a short, shallow, smooth, longitudinal impression; stigma emitting radius from slightly beyond its middle; first intercubitus a little longer than second abscissa of radius and about three times as long as the first abscissa of radius; recurrent vein interstitial; radial cell not attaining extreme apex of wing; last abscissa of radius more than twice as long as first and second abscissae combined; mediella fully as long as basal abscissa of basella; postnervellus weak but distinct.

First abdominal tergite polished, with a large median elevated area defined by two prominent longitudinal keels that extend nearly to the apex of the tergite; remainder of abdomen smooth and shining; ovipositor sheath nearly as long as the body; hypopygium prominent.

Honey yellow; antenna completely black, including scape and pedicel; posterior tibia blackish on apical third; posterior tarsus a little infuscated; wings yellow, apex of anterior wing fuscous; stigma and veins yellow; ovipositor sheath blackish.

MALE: Essentially like the female.

TYPE: USNM 63079.

TYPE LOCALITY: La Campana, Panama.

Described from two females and three males. The two females and two of the males were reared from *Anastrepha serpentina* (Wiedemann) in *Calocarpum mammosum* in August 1936 by James Zetek, under his No. 3714; the remaining male was reared from the same host at Río Abajo near Panama City in April 1935, under Zetek No. 3475.

Opius zeteki, new species

This new species closely resembles *Opius auripennis*, which is described above; however, it is immediately distinguished by its mostly black head and its blackish femora. It is also very similar to *O.*

crawfordi Viereck, but it may be at once separated from that species by the color of its wings.

FEMALE: Length about 5.5 mm. Face about twice as broad as long with minute scattered punctures; malar space slightly longer than basal width of mandible; clypeus subtriangular, its apical margin bisinuate; a rather large opening between clypeus and mandibles; temple very slightly receding, about half as wide as eye; ocellular line at least three times diameter of an ocellus; antennae a little longer than the body, tapering slightly to apex, 59-segmented in the type.

Notaulices smooth, complete, meeting in a broad shallow depression; scutellar furrow divided into two large pits by a median longitudinal septum; propodeum areolated, with a short basal median longitudinal carina which is followed by a long narrow area extending to posterior margin; lateral longitudinal carinae complete, very prominent, and strongly bowed outwardly on posterior half of propodeum; a short basal transverse carina extending from base of the median area on each side to the lateral carina; mesopleuron with a very weak, smooth, longitudinal impression; radius arising from middle of stigma; second abscissa of radius not longer than intercubitus; recurrent vein interstitial; mediella slightly longer than basal abscissa of basella; post-nervellus distinct.

Abdomen narrow at base, broadening to apex of third tergite, polished; first tergite with two prominent dorsal longitudinal keels that nearly attain posterior margin and set off a large parallel-sided area; ovipositor sheath very nearly or quite as long as the body.

Honey yellow; head black with the part below the lower level of the eyes contrastingly yellowish white; tips of mandibles black; antennae black, brownish black basally; anterior and middle coxae and trochanters, also their tibiae and tarsi, pale yellow; anterior and middle femora except at the extremities brownish black; posterior leg brownish black, second segment of trochanter mostly pale yellow, basal two-thirds of tibia concolorous with the body, tarsus weakly infuscated; wings yellow including veins and stigma, apex of anterior wing contrastingly infumated; ovipositor sheath brown to blackish.

MALE: Like the female except in having the dark color of the anterior and middle femora a little less extensive.

TYPE: USNM 63080.

TYPE LOCALITY: La Campana, Panama.

Described from 14 females and 4 males reared by James Zetek from *Anastrepha fraterculus* (Wiedemann) in *Psidium guajava*, and a series of 7 females and 2 males labeled "ex *Anastrepha striata* and *fraterculus*, La Sabanas, Panama City, J. Zetek Coll." I take pleasure in naming this interesting and attractive species in honor of Mr. Zetek, who has

reared many species of *Opius* and has contributed much valuable material in this genus to the U. S. National Museum.

Opius divergens, new species

FIGURES 1,b; 3,b

This new species is structurally almost identical with *Opius vierecki* Gahan. It is readily distinguished from that species, however, by its largely black thorax and darker legs.

FEMALE. Length 4.5 mm. Head a little narrower than thorax, strongly transverse, the temples narrow and receding; face smooth and shining, only a little broader at insertion of antennae than long; eyes very large, diverging below; clypeus only half as long as basal width of mandible and about as long as malar space, its anterior margin not sinuate or toothed; a large opening between clypeus and mandibles; ocellular line not distinctly twice as long as the diameter of an ocellus; antennae longer than the body, 55-segmented in the type.

Thorax stout; mesoscutum polished; notaulices sharply impressed but extending only one-third the distance to posterior margin of mesoscutum; a conspicuous, somewhat elongate, median, dimple-like impression on mesoscutum posteriorly; prescutellar sulcus usually divided into four distinct pits; scutellum broader at base than long, completely polished; propodeum more or less areolated, with a rather conspicuous, somewhat irregular, arched, basal transverse carina, a median area broadening caudad and a large lateral area each side of this; mesopleuron polished with a well defined oblique foveolate impression anteriorly; radius arising from before middle of stigma; second abscissa of radius more than three times as long as first and considerably longer than first intercubitus; third abscissa of radius sinuate, ending in extreme apex of wing; recurrent vein joining second cubital cell; nervulus interstitial; mediella definitely shorter than basal abscissa of basella; postnervellus absent.

Abdomen smooth and polished; first tergite about as broad at apex as long, with two prominent dorsal keels, originating at base, converging gradually as far as middle and then parallel for a short distance, obliterated before apex of tergite; two weaker carinae, one originating on the inner side of each of those keels at the middle of the tergite, converging posteriorly, and sometimes uniting to form a short median keel; ovipositor sheath straight, about as long as the second and following tergites combined.

Head black; malar space, clypeus, and the mandibles except tips yellowish brown; antennae entirely black; thorax blackish with the pronotum anteriorly, scutellum, propodeum, and metapleura brownish to yellowish, the propodeum and metapleura being the palest; wings

strongly infumated; stigma and veins dark brown; legs including the coxae brownish black; abdomen yellow, a fuscous mark on first tergite between the apical third of the dorsal keels; ovipositor sheath black, brownish toward apex.

MALE: Like the female in all important details but with the coxae more conspicuously yellow at bases.

TYPE: USNM 63081.

TYPE LOCALITY: Tamaulipas, Mexico.

HOST: A dipterous larva in persimmon.

Described from 9 females and 11 males reared in May 1936 by M. McPhail.

Genus *Phaenocarpa* Foerster

Phaenocarpa anastrephae, new species

FIGURES 1,e; 3,c

This species differs conspicuously from other species of *Phaenocarpa* known to me by its incomplete notaulices, by its relatively large eyes, by the absence of nervellus, and by having the first brachial cell very weakly defined posteriorly and distally.

FEMALE: Length about 3 mm. Head a little broader than thorax, smooth and shining; face more than twice as wide as long; mandibles broadening apically, the median tooth acute, the lateral teeth broadly rounded off; eyes large, nearly circular in outline, more than twice as wide as the temples; antennae more than $1\frac{1}{2}$ times as long as the body, very slender, 39-segmented in the type, the first flagellar segment a little thickened basally and about half as long as the second, which is much the longest segment; ocellocular line not more than half the diameter of an eye; postocellar line not distinctly as long as diameter of an ocellus.

Thorax compact; notaulices distinct anteriorly, obsolescent posteriorly; a median dimple-like impression on mesoscutum posteriorly; mesopleural furrow curved, foveolate; propodeum largely smooth and shining and with a short basal median carina followed by a narrow, carinately margined, median, longitudinal area; propodeal spiracles small; legs slender, posterior femur weakly thickened toward apex, posterior tibia somewhat curved; radius arising from beyond middle of the rather narrow stigma and going to extreme apex of wing; first abscissa of radius very short, second about twice as long as first intercubitus; cubitus nearly attaining wing margin; second abscissa of cubitus more than half as long as recurrent; subdiscoideus interstitial; hind wing very narrow, radiella incomplete, nervellus wanting.

Abdomen somewhat narrower than thorax, more or less compressed; first tergite longitudinally aciculate, with two nearly complete, posteriorly convergent keels; remainder of abdomen smooth and shining;

hypopygium large but barely extending as far posteriorly as apex of last tergite; ovipositor sheath very slender, a little shorter than thorax and abdomen combined.

Yellow; stemmaticum black, and a fine median longitudinal line extending from stemmaticum across vertex and occiput to the neck also black; scape, pedicel, and base of first flagellar segment yellow; remainder of antenna dark brown except for a subapical yellowish white annulus covering six to eight segments; posterior tibia and tarsus more or less brownish black; wings hyaline; stigma and veins brown.

MALE: Differs in no essential detail from the female, although the apex of the abdomen is blackish, and the antennal annulus is narrower or even wanting.

TYPE: USNM 63082.

TYPE LOCALITY: La Campana, Panama.

Described from 36 females and 42 males reared at the type locality "from *Anastrepha* in *Spondias nigrescens*" by J. Zetek in 1937, and 16 females and 10 males, reared from *Anastrepha mombinpraeoptans* Sein, Taboga Island, Panama, by Mr. Zetek in October 1938.

Leurinion,⁴ new genus

Distinguished from the known genera of Hormiini by the absence of any trace of an occipital carina; and from *Hormius* Nees, which it most closely resembles, it differs further in having the prepectus im-margined and the subdiscoideus arising from about the middle of the outer end of the first brachial cell.

Head transverse; eyes large, protruding, bare; temples very narrow, receding strongly; a distinct circuliform cavity between clypeus and mandibles; occiput gently convex, immargined. Prepectus im-margined; prescutellar furrow wide, propodeum with a complete median longitudinal carina; forewing with three cubital cells; radial cell large, extending to apex of wing; first brachial cell closed, emitting subdiscoideus from about the middle of its outer end; radiella wanting. First tergite widening caudad, with two large, slightly depressed areas of weaker sclerotization occupying most of the posterior half and divided by a median longitudinal keel; the following tergites largely membranous, as in *Hormius* and *Parahormius*; ovipositor short.

TYPE: The following new species.

Leurinion primum, new species

FIGURES 1,g; 2,c; 3,g,h

FEMALE: Length about 2 mm. Head wider than thorax, smooth and polished; malar space a little longer than basal width of mandible;

⁴ From the Greek *leuros*, smooth, and *inton*, occiput.

ocelli minute and close together, ocellar triangle barely wider than length of ocellocular line; antennae a little longer than body, usually 20- to 22-segmented, very slender, even the segments of apical third more than twice as long as wide.

Mesoscutum rather flat, covered with minute, very shallow, closely placed punctures; notaulices sharply impressed anteriorly but vanishing before middle of mesoscutum; furrow at base of scutellum broad and deep, not foveolate; scutellum rather flat, smooth and polished; mesopleuron polished, without a longitudinal furrow below; propodeum smooth and polished but with a strong, median longitudinal carina; legs very slender; shorter spur of hind tibia very short and not easily seen, longer spur barely as long as apical width of tibia; second abscissa of radius a little longer than first and nearly or quite as long as first intercubitus; recurrent interstitial or barely entering second cubital cell; nervulus interstitial or slightly postfureal; nervellus very short; postnervellus wanting or faintly indicated by a short backwardly directed stub.

Abdomen at widest point about as wide as thorax; ovipositor sheath about half as long as hind femur.

Yellow with antennae and mesoscutum more or less piceous; wings clear hyaline, stigma hyaline, veins pale; legs pale yellow.

MALE: Essentially like the female.

TYPE: USNM 63083.

TYPE LOCALITY: Piura, Peru.

Described from 35 females and 10 males reared by P. A. Berry on Aug. 25, 1945, from cotton buds.

Genus *Oncophanes* Foerster

Oncophanes mexicanus, new species

This new species resembles *Oncophanes nigriventris* Muesebeck in having the abdominal segments beyond the third retracted and the second and third tergites forming a solid carapace. It differs from *O. nigriventris* in having the abdomen reddish yellow and completely, strongly striate.

FEMALE: Length about 3 mm. Head as wide as thorax, smooth and shining; face as wide as eye height; malar space longer than clypeus or basal width of mandible; antennae very slender, a little shorter than body, usually 24-segmented, first flagellar segment considerably longer than second.

Mesoscutum smooth and shining; notaulices complete, very fine, meeting in a small, roughened area; disc of scutellum smooth and polished; prescutellar sulcus deep and more than half as long as disc of scutellum, divided into two large foveae by a median longitudinal septum; propodeum completely areolated, the areas smooth and

shining with only occasional weak and short rugae, the areola pentagonal; mesopleuron with a rugulose area in upper anterior angle, beneath tegula, otherwise smooth and polished except for a short longitudinal foveolate furrow below; metapleuron rugulose; radius issuing from middle of stigma; first abscissa of radius about half as long as the second abscissa, which is slightly longer than first intercubitus; recurrent vein interstitial with first intercubitus; nervulus postfural by about its length; radiella represented by a short spur.

Abdomen in widest part as broad as thorax; first tergite broadening gradually caudad, about as broad at apex as long, striate on a granular surface, spiracles prominent; second and third tergites fused, the suture wanting or indicated only laterally, entirely striate on a granular surface; fourth and following segments completely retracted; ovipositor sheath very slender, about as long as hind femur.

Head and thorax black; clypeus and mandibles reddish brown; antennae brownish black with scape and pedicel more or less reddish yellow; tegulae and wing bases yellow; wings hyaline, stigma and veins brown; legs including all coxae yellow, the apices of the hind tibiae and the hind tarsi infuscated.

MALE: A little smaller and more slender; otherwise like the female.

TYPE: USNM No. 63084.

TYPE LOCALITY: Cuernavaca, Mexico.

Described from 15 females and 1 male reared from a lepidopterous larva on *Eupatorium adenoptorum* by N. L. H. Krauss in January 1945.

Genus *Percnobracon* Kieffer

Percnobracon secundus, new species

FIGURES 1,d; 4,a,b

I have not seen the genotype and only described species of *Percnobracon* Kieffer, which appears to belong in the Hecabolini, but the present species is apparently congeneric although it differs from the original description of *P. stenopterus* Kieffer in several significant respects and is clearly a different species. The antennae are 16- to 18-segmented instead of 21-segmented as in the genotype; the anterior margin of the mesoscutum is not rounded but rather truncate and subangulate laterally, while the complete median furrow of the mesoscutum ascribed to *P. stenopterus* is lacking in this new species; and the propodeum is not gradually declivous as it is said to be in *P. stenopterus* but has a nearly horizontal dorsal face which is separated from the abrupt vertical face by a straight carina.

FEMALE: Length about 2.5 mm. Head transverse but at least half as long as wide as seen from above, completely carinately margined behind; eyes slightly divergent below; malar space as long as

antennal scape; face, frons, and vertex finely rugulose striate, the striae transverse; occiput transversely striate; temples and cheeks finely aciculate; opening between clypeus and mandibles small, circular; antenna much shorter than the body, slender, filiform, 16- to 18-segmented, the first and second flagellar segments the longest and subequal.

Thorax short and compact; prepectus margined by a strong carina; mesoscutum finely alutaceous and with a few longitudinal ridges medially on posterior half; notaulices absent except for weak indications just behind the lateral angles of the anterior margin of the mesoscutum; furrow at base of scutellum broad and deep and provided with several longitudinal septa; disc of scutellum subtuberculate, small; dorsal face of propodeum rectangular, defined laterally and posteriorly by low carinae, very delicately irregularly sculptured; abrupt posterior face of propodeum smooth and shining; mesopleuron delicately alutaceous and with a sharply impressed longitudinal furrow below; metapleuron smooth and polished; hind coxa not angulate at base below; calcaria of posterior tibia very short; venation of forewing as illustrated; the first discoidal cell with numerous long bristles; hind wing lacking radiella, cubitella, and nervellus; subcostella incomplete.

Abdomen petiolate; first segment strongly arched, about half as wide at base as at apex, its apical width less than half its length, its surface weakly longitudinally wrinkled posteriorly, the spiracles prominent and situated at about the middle of the segment; confluent second and third tergites broadening caudad, at apex broader than thorax, finely longitudinally aciculate each side of the middle, the aciculations extending beyond the middle; remainder of abdomen smooth and polished; ovipositor sheath very slender, about as long as propodeum and abdomen combined.

Dark brown to piceous, antenna yellowish on basal half; abdomen black toward apex; anterior wing fuscous with two complete transverse hyaline bands, a broad one basad of first discoidal cell and a narrower one across base of stigma and base of first cubital cell; narrow outer margin and also base of the wing behind medius hyaline; hind wing entirely clear hyaline.

MALE: Agrees with female in all significant respects.

TYPE: USNM 63085

TYPE LOCALITY: Piura, Peru.

Described from 8 females and 6 males reared by Paul A. Berry from an unknown host, thought to be either lepidopterous or bruchid, in pods of a species of *Caesalpinia*.