

New Species of Hawaiian Chalcid-Flies (Hymenoptera).

BY P. H. TIMBERLAKE.

Citrus Experiment Station, University of California,
Riverside, California.

(Presented by title by O. H. Swezey at the meeting of
December 3, 1925.)

The types of the following new species of chalcid-flies will be deposited in the collection of the Hawaiian Entomological Society and paratypes, where available, will be placed in the United States National Museum.

PTEROMALIDAE.

Bruchobius vagabundus n. sp.

This species differs from *B. laticeps* Ashmead and *B. colemani* Crawford by having both mandibles quadridentate, the color of head and thorax of female mainly black, the first funicle joint about as long as pedicel, the stigmal and postmarginal veins equal and about two-thirds as long as the marginal, etc. A comparison with *B. medius* Masi is hardly necessary, as that species was transferred by Masi in 1924 to *Aplastomorpha*.

Female. Head wider than thorax, moderately thick fronto-occipitally, the anterior surface moderately convex; as seen from in front not quite circular, being slightly wider than long and subtruncate at the mouth; as seen from above widest at line touching posterior margin of eyes and with the frons somewhat emarginated by the scrobal impression. Eyes small, oval, not quite twice as long as wide. Malar space about as long as width of eyes. Vertex nearly two-thirds as wide as whole head and slopingly declivous behind ocelli. Ocelli in a very obtuse angle, the posterior pair nearly as far from margin of eyes as their own distance apart. Scrobes in the form of a moderately deep groove reaching nearly to the anterior ocellus. Antennae inserted a short distance above the ocular line, the sockets small, circular and placed only a little more than their own diameter apart. Scape slender, perfectly cylindrical and not quite reaching to anterior ocellus. Pedicel as long as the first funicle joint. First ring joint very short and discoid, the second about twice as long as first, yet wider than long, the third rather large, as long as wide and somewhat more than one-third as long as the following joint. Following joints of flagellum increasing slightly in thickness to apex of first joint of club and from

there rapidly tapering to the acute apex. First funicle joint about twice as long as thick, the following joints gradually shortening, the fifth being about one-fourth longer than wide. First joint of club a little longer than preceding joint and one-fourth longer than the following joint, which is about as long as thick; apical joint of club triangular in outline and about as long as its basal width. Both mandibles quadridentate. Maxillary palpi four-jointed; first joint very slightly longer than third, the second a little longer than first and about one-third longer than wide, the fourth elongate oval and about as long as the second and third combined. Labial palpi rather stout, three-jointed; first and third joints about equal and a little longer than wide, the second very short and transverse.

Thorax robust, about one-fourth longer than wide, strongly depressed above except toward the sides, and the outline of notum as seen from the side nearly straight from pronotum to middle of scutellum and thence gently arcuate to apex of scutellum. Pronotum as wide as mesonotum, arcuate, somewhat broadened toward the sides and with the anterior margin sharp. Scutellum a little broader than long, broadly rounded at apex, depressed on disk toward base but convexly rounded toward sides and apex. Neck of propodeum short. Abdomen broadly ovate, depressed, as long as and a little broader than thorax.

Wings broad, reaching somewhat beyond apex of abdomen; marginal fringe absent; discal setae short, fine, moderately dense, sparser and finer on posterior margin of disk opposite the marginal vein and absent on base of disk to distal end of submarginal vein; costal cell with only a few setae irregularly placed and mostly on apical half. Marginal vein somewhat less than one-half as long as submarginal; stigmal and postmarginal veins equal and about three-fourths as long as marginal; stigmal vein slender at base, subovally capitate at apex and provided with a short spur.

Head and thorax finely and closely puncto-reticulate by means of distinctly raised lines, the head slightly more shiny than thorax. Reticulations finer and rounded on pronotum and mesonotum and producing a rather dull surface; similar on vertex, but gradually becoming much lengthened toward center of occiput, and somewhat coarser and longitudinally lengthened on frons and face. Lines on the face gradually becoming more and more striate and converging toward the mouth, the clypeal region having the reticulations entirely replaced by close, distinct striae. Metanotum polished. Propodeum closely puncto-reticulate much like the mesonotum but a little more shiny. Pleura with the reticulations somewhat coarser than those on notum, mostly not rounded and absent on polished triangular area just below base of hind wings and on narrow dorsal margin of mesopleura as far anteriorly as base of fore wings. Coxae more finely and delicately reticulate than body. Abdomen highly polished.

Pubescence of head and mesonotum fine, short, appressed, rather sparse but quite conspicuous on account of its glistening white color. Pubescence of flagellum and legs very fine and appressed, whitish but not conspicuous.

Sides of propodeum with a small tuft of erect, not very long, whitish hair. Abdomen almost bare.

Head and thorax black, not metallic, except on anterior surface of head, which has a slight dark greenish blue luster; the polished metanotum and abdomen very dark green with a brassy luster. Eyes black, mandibles dark castaneous. Scape and pedicel pale brownish yellow, the flagellum darker brown or more or less infuscated. Legs yellowish brown, the coxae concolorous with body, the apex of tibiae and basal half, more or less, of tarsi pale yellowish white. Tegulae rather dark brown. Wings clear hyaline, the veins yellowish.

Length of body (1.77 to 2.63) 2.37; length of head, 0.704, width of head, 0.860; thickness of head, 0.435; length of antennae (without the very short radicle joint) 1.136; width of mesoscutum, 0.730; length of fore wing, 1.563; width of fore wing, 0.762 mm.

Male. Very similar to the female in many respects. Head, relative to the thorax, a little larger than in female; antennae hardly increasing in thickness toward apex, the apex of club rounded; abdomen much smaller than in female, about one-fourth longer than wide, about two-thirds as long and not as wide as thorax, very strongly depressed and suborbicular, except that it is strongly narrowed toward the short petiole. Sculpture similar to the female, but the reticulation of mesonotum coarser, being no finer than that on frons and not producing a dull surface. Pubescence nearly the same as in the female, but less conspicuous.

Head and thorax dark green with a strong luster on anterior surface of head and on mesonotum. Abdomen testaceous yellow on basal half, bluish black above on following part except apical tergite, which, with the apical half of venter, is greenish. Antennae brownish yellow, the basal half of scape yellowish white, the last three or four joints of flagellum more or less fuscous. Legs brownish yellow, distinctly paler than in the female, but apex of tibiae and base of tarsi yellowish white as in that sex.

Length of body (1.61 to) 1.87; length of head, 0.631; width of head, 0.757; thickness of head, 0.378; length of antenna (without the short radicle joint) 0.977; width of mesoscutum, 0.662; length of fore wing, 1.323; width of fore wing, 0.664 mm.

Described from thirty-eight females and thirteen males (holotype female, allotype and paratypes) reared May 2 to 14, 1923, from a mixed infestation of *Mylabris quadrimaculatus* (Fabricius) and *M. chinensis* (Linnaeus) in pigeon peas, collected by O. H. Swezey in Honolulu; one female (paratype) in laboratory at Honolulu, April 25, 1923, and probably an escape from the above material; one female (paratype) on laboratory window, Honolulu, September 13, 1916 (Timberlake); and one female (paratype) reared from *Mylabris*, Bangalore, India, February, 1921 (Subermanian).

Pachyneuron eros Girault.

Pachyneuron eros Girault, 1917, Descr. Hym. Chalc. var. cum Observ., 5, Glendale, Md., p. 1.

This species was so briefly described by Girault that a fuller description will not be out of place. It is easily distinguished from other species of *Pachyneuron* by the transverse, smooth and shining propodeum, the smooth petiole of abdomen with a prong on each side about at the middle, and by the tridentate left mandible. There are no true carinae on the propodeum, contrary to Girault's statement, although the outer margin of the foveae simulates the appearance of a carina in certain lights.

Pachyneuron eros has been made the type of the genus *Nepachyneuron* by Girault (l. c., p. 9) on the basis of the tridentate left mandible, but I do not believe this character is valid.

Female. Head rather thin fronto-occipitally, considerably broader than long, widest a little above middle and with the cheeks strongly converging toward the mouth, the frontal surface depressed medially, the occiput concave, the temples not very wide and with the posterior angle rounded. Clypeal margin with a moderately large and deep semicircular emargination with a median tooth. Vertex a little more than one-half as wide as whole head, the ocelli forming a very obtuse angle. Thorax of usual structure, except the surface of metanotum and propodeum, as seen in profile view, is very strongly declivous and forms an angle of about 110 degrees with plane of mesonotum. Propodeum transverse and without a distinct neck at apex. Abdomen much compressed, deeper dorso-ventrally than broad, fusiform in outline as seen from above, broadest between the base and the middle and very acutely pointed at apex; petiole short and with a small prong or tooth on each side near middle, the part behind the prongs slightly wider than long, the anterior part much narrower but about as long as posterior part.

Antennae inserted very close together on middle of face, the sockets less than their own diameter apart, the scapes when in position in the scrobal depression touching each other nearly to their bases. (In most species of *Pachyneuron* the scapes in such position diverge toward their bases, as the sockets are more widely separated.) Scape slender, cylindrical, not nearly reaching to anterior ocellus; pedicel about one-half longer than wide; funicle joints about as thick as long, the first joint not ring-joint-like; club joints, except apical one, a little wider than long; flagellum moderately increasing in thickness distad. Left mandible tridentate, the right quadridentate. Maxillary palpi four-jointed, the labial palpi three-jointed.

Wings of usual shape, but rather small and hardly surpassing apex of abdomen. Discal setae moderately dense, very short and absent on area

beneath submarginal vein; marginal fringe very short and absent on apical margin. Marginal vein about twice as wide at apex as at base and a little more than twice as long as wide at apex; stigmal vein distinctly longer than the marginal, apical knob small, rounded and with a distinct prong directed toward apex of postmarginal vein; postmarginal vein somewhat longer than the stigmal.

Sculpture of the usual reticulate type and the lower part of face with converging striae. As compared with *P. virginicum* Girault, the reticulations are finer, nearly uniform in size and not distinctly coarser on middle of mesoscutum as in that species. Portion of pleura behind the oblique, strong angulation reaching from base of tegulae to anterior margin of base of middle coxae, reticulate on the antero-inferior half but entirely smooth on remaining part. Hind coxae, propodeum, petiole and gaster of abdomen smooth and polished. Propodeum with two pairs of foveae on each side of the middle, the basal pair rather close to the spiracular sulcus, the apical pair much closer together. Area enclosed by the foveae delicately reticulate but shiny; the area on each side between foveae and spiracular sulcus polished; the area exterior to the spiracular sulcus very minutely sculptured and not quite as shiny as rest of propodeum.

Pubescence nearly obsolete, except for a short fringe of whitish hairs on sides of propodeum, short, fine setae on sides of apical part of abdomen, and the usual minute setae on legs and antennae.

Body shining black, with a more or less bluish tint but without any metallic luster, except slightly on pleura and more distinctly on abdomen. Scape brownish yellow, pedicel shining dark brown, the flagellum dull fuscous with grayish pubescence. Front and middle coxae and femora brownish fuscous, the hind coxae and femora similar but with a purplish blue luster; apex of all the femora narrowly, base and apex of tibiae and the tarsi except apical joint yellowish white; front tibiae otherwise yellowish or pale brown, the middle tibiae and the hind tibiae, except narrowly at base and broadly at apex, brownish fuscous. Wings hyaline; marginal vein and knob of stigmal vein fuscous, the remainder of venation paler.

Length of body, 1.52 (to 1.99); length of head, 0.474; width of head, 0.556; width of mesoscutum, 0.478; length of antenna (without the short radicle joint) 0.577; length of fore wing, 1.035; width of fore wing, 0.530 mm.

Redescribed from the following material: two females reared from puparia of *Leucopis nigricornis* Egger, Honolulu, Oahu, August, 1919 (H. T. Osborn); one female reared from same host at Honolulu, September 14, 1919 (Timberlake); two females reared from material of *Lecanium corni* Bouché, San Gabriel Canyon, California, July 13 to 20, 1911 (Timberlake); two females reared by the writer from material of *Pseudococcus auri-*

lanatus (Maskell), Santa Ana, California, October 25, 1911 (Roy K. Bishop); one female, San Diego, California, October, 1914 (C. P. Clausen); one female reared from material of *Pseudococcus adenostomae* Ferris, collected near San Diego, California, September 10, 1920 (Ferris); one female reared from *Leucopis bella* Loew, Riverside, California, August 4, 1924 (H. Compere); and one female reared from *Leucopis* sp. on *Aphis atriplicis* Linnaeus, Salt Lake City, Utah, September 1, 1914 (Timberlake). I do not have much doubt that the parasites reared from coccid material really issued from *Leucopis* puparia, as *Leucopis* is known to have been present in the material handled by the writer.

One specimen from Honolulu differs from the other specimens in having the mandibles with only two and three teeth, the labial palpi with only two joints and the parapsidal furrows less evident.

ENCYRTIDAE.

Aphycus terryi Fullaway.

Mercet has shown (Eos, Rev. Esp. Ent. 1, p. 15-18, March 30, 1925) that *Aphycus terryi* is congeneric with *A. apicalis* (Dallas), hence the genus *Pseudococcobius* falls as a synonym of *Aphycus*.

Metaphycus alberti (Howard) and **Metaphycus claviger** (Timberlake).

These two species belong, I believe, to the group *Euaphycus* Mercet, which Mercet has recently elevated to generic standing. I am, however, skeptical of the validity of *Euaphycus* and prefer to group the species of *Euaphycus* and *Metaphycus* under the latter name.

APHELINIDAE.

Prospaltella bicolor n. sp. Figure 1.

Easily distinguished from most described species of *Prospaltella* by the piceous color and yellowish white scutellum. In Girault's table of Australian *Coccophagus* (1915) it runs to *P. clariscutellum* (Girault), from which it differs by having only the scutellum yellowish white and the wings without a cross band.

It differs from *P. peruviana* Rust by the piceous instead of brownish yellow color, the wings almost uniformly and faintly tinted with fuscous, etc.

Female. Head broader than long, rather thin fronto-occipitally, well rounded on sides and below, more transverse above, and distinctly less broad than the thorax. Vertex rather more than one-third the total width of head. Antennae of ordinary length. Scape slender, a little fusiform, the radicle comprising a little more than one-fourth the total length, the scape proper about as wide as the third funicle joint. Pedicel about twice as long as thick and about equal to the second or third funicle joint. First funicle joint much shorter than pedicel or following joints and just barely longer than wide; next two funicle joints subequal, but increasing slightly in width distad, each somewhat less than twice as long as the first. Club slightly wider than funicle, the first joint barely shorter than the second, the third distinctly the longest and tapering to a rather acute point. Flagellum as a whole a little fusiformly swollen and widest at second joint of club. Thorax of normal structure, the scutellum much broader than long, broadly rounded on apical margin and slightly rounded on basal margin. Abdomen nearly as long as thorax, subovate and rather broadly rounded at apex. Ovipositor a little protruded, sometimes protruded nearly one-fifth the length of abdomen, its prominence apparently depending on various degrees of shrinkage. Fore wings moderately narrow; very narrow and of nearly uniform width to end of submarginal vein, then gradually widening, about equally on each side, to end of venation, and from there to apex widening distinctly more on costal side of disk; the apex evenly rounded. Discal setae very distinct, of a moderate degree of sparsity, becoming slightly denser near base of marginal vein and nearly absent on narrow area of disk below submarginal vein. Marginal fringe short, the longest setae not more than one-sixth the width of disk. Marginal and submarginal veins about equal, stigmal vein longer than in most species, appearing at low magnification almost as a direct continuation of the marginal, nearly as wide as marginal for a little more than half its length, tapering much on apical part and recurved toward costal margin. Hind wings nearly as in Masi's figure of *P. berlesii* (Howard), but with the discal setae a little sparser.

Thorax moderately shiny, the mesoscutum distinctly but very finely reticulate, the scutellum indistinctly reticulate; abdomen smooth and very shiny. Eyes rather densely covered with short, erect setae. Vertex and mesoscutum with only a few setae, those on the scutum being rather coarse. Scutellum provided with two pair of fine, moderately long setae. Apex of ovipositor sheaths with a ring of very fine, short, spreading setae.

Body piceous, or slightly brownish piceous in part, the scutellum pale yellowish white. Antennae, legs and mesosternum rather pale yellow, the flagellum a little dusky, and the hind femora sometimes slightly infuscated toward base. Wings almost clear, being very slightly and almost

uniformly tinted with fuscous; veins pale fuscous, except submarginal which is nearly colorless.

Length of body (0.517 to 0.591) 0.555; length of antenna, 0.461; length of scape, 0.154; length of pedicel, 0.050; length of first joint of flagellum, 0.028; length of fore wing, 0.631; width of fore wing, 0.262; length of marginal fringe of fore wing, 0.041 mm.

Described from eighteen females (holotype and paratypes) reared from *Aspidiotus cydoniae* Comstock, on sugar-cane, Honolulu, Oahu, March 17 to April 1, 1924 (Swezey); one female (paratype) collected in Honolulu, December, 1908 (Doctor Perkins); one female (paratype) reared January 19, 1916, from coccid material on *Straussia*, Tantalus, Oahu (Timberlake); and one female (paratype) collected from *Dubautia*, Mount Kaala, Oahu, May 18, 1920 (Timberlake).

P. bicolor is very similar in size and coloration to another Hawaiian aphelinid, *Pseudopteroptrix imitatrix* Fullaway, but the latter species has marginal fringe longer, the stigmal vein without a long beak, the tarsi four-jointed, etc.

***Prospaltella transvena* n. sp.** Figure 2.

In Mercet's key to *Prospaltella* (1912) and in Doctor Howard's key (1908) *transvena* runs to *P. maculata* (Howard), but is decidedly different from that species in coloration and in many other ways. In Girault's key of Australian species (1915) it comes very near *P. sophia* (Girault and Dodd), but the second funicle joint is distinctly, although not very much, longer than the first funicle joint or the pedicel. Other species of *Prospaltella* that are entirely, or almost entirely, yellow are *P. lahorensis* Howard, *P. leucaspidis* Mercet, *P. lutea* Masi, and *P. clara* (Dodd), but *transvena* is different from these in antennal and wing characters.

Female. Head about as wide as thorax, thin fronto-occipitally, much broader than long, the outline strongly rounded and with the cheeks converging in a broad curve to the mouth. Eyes rather small, protuberant. Vertex nearly one-half the total width of head. Antennae about as long as thorax and abdomen combined, slender, nearly filiform but with the club slightly wider than the funicle. Scape about as long as pedicel and first two funicle joints combined, cylindrical and a little swollen at middle of the scape proper, the radicle joint about one-third the total length. Pedicel about twice as long as thick, as long as first funicle joint and considerably wider than any of the funicle joints. Funicle joints much

longer than wide, the middle one longest and nearly thrice as long as wide, the first joint slightly shorter than the third and nearly two and one-half times as long as wide. Club a little longer than the funicle, the middle joint a little the longest and widest and nearly twice as long as wide, the other two fully twice as long as wide and the apical one gradually tapering to a rounded point. All joints of flagellum, except first funicle joint, provided with fine linear sensoria running the whole length, or almost, of the joints, there being about one on each of the last two funicle joints and two or three on each joint of club. Thorax practically as in *P. bicolor*. Abdomen as long as thorax, rather rounded at apex and with the ovipositor slightly protruded. As in many other small species of *Prospaltella* and *Encarsia*, both thorax and abdomen are fully as deep dorso-ventrally as broad.

Fore wings rather narrow, perfectly straight along costal margin from a point about one-fourth the length of wing from its apex to the proximal end of marginal vein, which meets the submarginal in a very obtuse angle; posterior margin of wing nearly straight from the base to a point opposite apex of marginal vein and then gently curving to the rounded apex of disk. Discal setae, as compared with *P. bicolor*, very fine and rather dense, but comparatively inconspicuous, and absent on area beneath submarginal vein; submarginal row of discal setae distinctly longer than the rest, especially on the posterior margin of disk just beyond the crease. Marginal fringe one-third as long as width of disk. Marginal vein slightly longer than the submarginal and provided with about seven bristle-like setae in addition to two smaller setae at base. Apical truncation of marginal vein variable but generally more or less square. Stigmal vein short and wide, a little wider than marginal vein and nearly a half longer than width of marginal at its apex; shaped like a bird's head, with a short beak, the outer margin slightly curving toward costal margin at apex and forming a more or less gradual curve at base with apex of marginal vein. Hind wings extremely narrow and very acute at apex, being considerably narrower than in *P. berleseii* (Howard); discal setae very sparse and forming hardly more than one longitudinal row; marginal fringe not very long, yet distinctly longer than width of disk.

No sculpture discernible under high magnification. Vertex and mesonotum provided with sparse fine setae. Collar of pronotum with a row of fine setae, one of which on each side is considerably enlarged. Setae of mesoscutum arranged more or less distinctly in three transverse series, the third series composed of two long, bristle-like setae near the posterior margin. Scutellum provided as usual with two pairs of long, bristle-like setae.

Head, thorax and abdomen orange yellow, without any fuscous markings, the sternum, venter, legs and antennae much paler yellow, the antennae becoming slightly dusky at apex. Eyes dark red, the ocelli carmine. Wings perfectly clear, the veins pale yellowish, the discal and marginal setae very pale or nearly colorless.

Length of body (0.364 to 0.704) 0.589; length of antennae, 0.483; length of scape, 0.134; length of pedicel, 0.042; length of second funicle joint, 0.055, length of entire funicle, 0.145; length of entire club, 0.160; length of fore wing, 0.589; width of fore wing, 0.223; length of marginal fringe of fore wing, 0.074 mm.

Male. Similar to the female in many respects, but the antennae quite different and the coloration much duskier. Antennae, in usual slide mount, nearly as long as body. Scape slightly slenderer than in female and a little curved, the radicle joint composing about one-fourth the total length. Pedicel hardly one-half longer than thick, about one-half as long as following joint, and with fine, longitudinal, nearly parallel, or only slightly anastomosing striae. Flagellum six-jointed, filiform, without a distinctly differentiated club; first five joints nearly equal in length and width, the first somewhat more than twice as long as wide, the fifth about two and one-half times as long as wide; apical joint about one-fourth shorter than preceding joint and conically tapering to the blunt apex. Flagellum provided with prominent, longitudinal, linear sensoria extending almost the whole length of the joints, with apparently about seven on each joint, of which three to five are visible in the same focal plane, but the apical joint with only two or three altogether. Wings nearly as in female in regard to shape, length of marginal fringe, etc., but the stigmal vein considerably longer, being nearly twice as long as width of marginal vein at apex. Outer margin of stigmal vein almost straight and parallel with costal margin, the beak consequently obsolete, the base forming a gradual and more distinct curve with apex of marginal vein than in female.

Vertex and upper part of frons with distinct, transverse striations, the striae in front of median ocellus suddenly bent and convergent toward ocellus, those within the ocellar triangle triangularly disposed and with at least three running from each posterior ocellus to the median ocellus. Pronotum finely reticulate; infuscated anterior part of mesoscutum and the parapsides coarsely reticulate. Other parts of body without sculpture. Setae on vertex a little coarser than in female.

Body orange yellow, the face and under parts clear pale yellow, the center of occiput, pronotum, anterior border of mesoscutum, small blotch on parapsides, sides of propodeum and tergum of abdomen more or less infuscated, the dark parts generally being most prominent on the mesoscutum and abdomen. Scape clear yellow, the flagellum dusky yellow. Legs, including coxae, clear pale yellow. Wings hyaline, but appearing slightly darker than in female on account of the fuscous setae; margin of disk of fore wing very narrowly but distinctly infuscated on apical half; membrane of disk perceptibly infuscated at narrow part opposite apex of submarginal vein; veins slightly dusky. Eyes and ocelli as in the female.

Length of body (0.405 to) 0.828; length of antenna, 0.555; length of scape, 0.091; length of pedicel, 0.043; length of first joint of flagellum, 0.070; length of fore wing, 0.619; width of fore wing, 0.244; length of marginal fringe of fore wing, 0.072 mm.

Described from two females and one male (holotype female, allotype and paratype) reared from *Asterochiton vaporariorum* (Westwood), on tomato, Honolulu, Oahu, June 20, 1916 (Timberlake); seventeen females and two males (paratypes) reared in January and February, 1915, from *Pealius hibisci* (Kotinsky) on hau tree, Waikiki, Honolulu (Osborn); sixteen females and one male (paratypes) reared from *Pealius hibisci* on hibiscus, Honolulu, November, 1923 (Giffard); five females (paratypes) swept from grass at Pearl Harbor Peninsula, Oahu, July 4, 1919 (Swezey); two females (paratypes) on hau tree, Waikiki, Oahu, June 22, 1925 (Swezey); three males (paratypes) reared from *Aphis sacchari* Zehntner on sugar-cane, Honolulu, February 27 to 28, 1925 (Swezey); one male (paratype) reared from *Pealius hibisci* on hibiscus, Hilo, Hawaii, January, 1918 (Timberlake); and one male (paratype) reared from coccid material on coffee, but presumably from an aleyrodid, Kona, Hawaii, December, 1915 (Pemberton).

There are also specimens in the United States National Museum reared by Koebele from an aleyrodid on coffee at Olaa, Hawaii, in December, 1898; and specimens in Mr. Swezey's collection reared at Honolulu from *Asterochiton sonchi* (Kotinsky) on *Sonchus*. It is the species No. 80 and 82 of my list of chalcid-flies of the Hawaiian Islands, which prove to be the same on careful study.

Aphytis chrysomphali (Mercet).

A study of Hawaiian specimens of *A. limonus* (Rust) and Californian specimens of *A. quaylei* (Rust) convinces me that it will be necessary to consider both species synonyms of the earlier described *A. chrysomphali* (Mercet).

Coccophagus hawaiiensis n. sp. Figure 3.

Coccophagus hawaiiensis W. G. Wait, 1893, Planters' Monthly, 12, p. 562 (no description).

Coccophagus hawaiiensis Riley and Howard, 1894, Insect Life, 6, p. 334 (no description).

Coccophagus lecanii Ashmead, 1901 (not Fitch), Fauna Hawaiiensis, 1, p. 328 (excluding description).

This species is closely allied to *C. lecanii* (Fitch) and to

C. japonicus Compere. The characters separating the three species may, perhaps, be more easily understood by means of the following table:

1. Middle legs not entirely pale..... 2
 Middle legs, except a greater part of coxae, pale yellow; coxae, except apex of middle and hind pair, and hind femora, except at base and apex, piceous, the front femora and tibiae sometimes more or less dusky; antennae, including scape, piceous.

japonicus Compere

2. Scape fuscous or piceous, the flagellum brownish yellow, coxae, except extreme apex of middle and hind pair, and femora, except more or less at base or apex, pale yellow, the hind tibiae more or less fuscous on basal third, remainder of legs, except apical joint of tarsi and slight infuscation on front tibiae, pale yellow.

lecanii (Fitch)

Scape dusky yellowish, the flagellum piceous, middle and hind coxae and hind tibiae yellowish white, the front coxae and front femora, middle femora and tibiae in large part and hind femora, except the basal third, more or less brownish or fuscous; antennae longer, the first funicle joint more than twice as long as wide.

hawaiiensis n. sp.

Female. Of the form and structure of *C. lecanii* (Fitch), but slightly more robust and apparently a little larger. Scape slender, subfusiformly cylindrical and somewhat longer than the two following joints combined. Pedicel about one-half longer than thick and a little more than one-half as long as the following joint. Funicle joints all longer than wide, the first one longest, about one-third longer than the third joint and rather more than twice as long as wide, the third joint somewhat more than one-third longer than wide. Club about as long as the last two funicle joints and one-third of the first combined, the basal joint about as long as the preceding joint and a little wider, the next two joints subequal in length and a little shorter than the basal joint, the third joint conically tapering to the blunt apex. Joints of the flagellum provided with fine longitudinal sensoria, most numerous on the club. Thorax about one-sixth longer than wide and having the usual structure. Wings similar to *C. lecanii*, but the marginal vein rather longer than submarginal; the post-marginal vein almost as long as the stigmal, and the stigmal vein about twice as long as wide, tapering into a rather long apical process or beak and the outer margin almost parallel with the costal margin. (In *lecanii* the stigmal vein is nearly equilaterally triangular, or hardly longer than wide and without a distinct apical prolongation. In *japonicus* the stigmal vein is similar to *hawaiiensis*, but less elongate and less nearly parallel with the wing margin). Disk of fore wing with a small roundish bare spot

near posterior margin a little beyond a point opposite base of marginal vein.

Sculpture and pubescence practically as in *lecanii*, the scutellum having three pairs of discal setae, of which the pair close to apical margin is much the largest. Eyes rather more densely and conspicuously pubescent than in *lecanii*.

Body black and rather shiny on thorax and abdomen, the thorax beneath somewhat brownish; scutellum except basal third, and the very narrow metanotum, yellow. Scape dusky yellowish, the pedicel and flagellum piceous. (In *lecanii* the flagellum is paler and more yellowish than the scape). Legs pale yellow or yellowish white, the front coxae, front femora, although paler at apex, middle femora, except narrowly at base, middle tibiae, although more dilutely toward base, and hind femora, except basal third, more or less brownish or fuscous. Wings hyaline and very faintly tinged with fuscous; veins yellowish.

Length of body (0.92 to) 1.15; width of mesoscutum, 0.469; length of thorax, 0.550; length of antenna, 0.738; length of scape, 0.200; length of pedicel, 0.064; length of first funicle joint, 0.164; length of club, 0.194; length of fore wing, 0.981; width of fore wing, 0.457 mm.

Described from nine females (holotype and paratypes) reared from *Saissetia nigra* Nietner, Honolulu, Oahu (Doctor Perkins). The derm of the host is hardly blackened by the parasite.

EULOPHIDAE, TETRASTICHINAE.

Melittobiopsis new genus.

Melittobiopsis differs from *Melittobia* Westwood by having only two funicle joints and by having the male similar to the female. It differs from *Thripoctenus* Crawford by having a long conical prothorax, no postmarginal vein, the submarginal not greatly shorter than the marginal vein, the marginal fringe of wings rather short, the antennae shorter and much stouter, with the club distinctly three-jointed in the female, the mandible large and with seven teeth diminishing in size inwardly, the parapsidal furrows complete and distinct, the scutellum much broader than long and much shorter and smaller than the mesoscutum. It differs from *Winnemana* Crawford by having no grooves on the scutellum, the prothorax conical, the antennae seven-jointed, without a distinct ring joint, the stigmal vein only about one-fifth as long as the marginal, and the propodeum without a median carina.

Type of genus: *Melittobiopsis ereunetiphila* n. sp.

Female. Head strongly depressed, somewhat longer than wide, well rounded at each end and less rounded at the sides. Eyes narrow, elongate, about three-fourths as long as head and not quite reaching to posterior margin. Space between eyes very broad, occupying almost all of the dorsal surface of head, and considerably sunken in after death. Medially there is a fold or soft-walled groove, forking anteriorly near middle of head and reaching from the anterior ocellus to each antennal socket. Antennal socket situated about one-third the width of head apart in front of ocular line and rather close to clypeal margin. Antennae short, not very much longer than the head, rather strongly clavate, and composed of seven joints, not counting the well-developed pseudanellus with a distinct capitulum. Scape rather stoutly fusiform and considerably longer than the pedicel and funicle joints combined. Pedicel large, more than twice as long as wide, about one-third as long as scape and a little longer than the funicle joints combined. Funicle two-jointed, the first joint distinctly wider than long, the second considerably larger than the first and only slightly wider than long. Club large, ovate, rounded at base and rather pointed at apex, much wider than funicle and nearly as long as pedicel and funicle combined, and distinctly three-jointed, with the first two joints wider than long. Second funicle joint and joints of club provided with well separated, linear, longitudinal, corneous sensoria, of which about 2, 2, 4, and 3 are visible in one focal plane on the respective joints beginning with the second joint of funicle. Mandibles rather large, provided with two relatively large outer teeth and five short blunt teeth on the oblique inner margin. Palpi extremely short, the maxillary pair two-jointed, the labial pair one-jointed.

General form moderately slender and strongly depressed. Thorax fully twice as long as wide and almost as wide as head. Prothorax conical and almost as long as the mesoscutum. Mesonotum without grooved lines, but the parapsidal furrows of scutum well developed and complete. Scutellum nearly twice as broad as long and roundly subtruncate at apex. Propodeum without a median carina, transverse, a little shorter medially than at the sides, the posterior margin bisinuate; spiracles minute and circular. Abdomen relatively large, slightly longer than head and thorax combined and wider than thorax, broadest beyond the middle, sessile at base, and composed of seven nearly equal segments. Ovipositor not protruded, inserted nearly at the middle of the venter, the spicula stout, ensiform and slightly curved on inner margin.

Fore wings narrow, moderately long and reaching a little beyond the apex of abdomen. Marginal fringe about as long as one-fourth of the width of disk; discal setae short and moderately dense, but becoming nearly absent on area beneath submarginal vein. Venation reaching well beyond the middle of costal margin, but not nearly to apex; submarginal vein about three-fourths as long as marginal; postmarginal vein absent; stigmal vein about one-fifth as long as marginal, not much enlarged at apex but provided with a distinct spur or uncus which is directed obliquely

toward costal margin. Submarginal and marginal veins provided with rather long, slender setae, of which there are about four and nine, besides several shorter setae, on each respectively. Hind wings about one-third as wide as fore wings and rather well rounded at apex; marginal fringe about one-half as long as width of disk and a little shorter than fringe of fore wings; discal setae of about the same density as on the fore wing. Legs rather short and stout, the femora a little swollen, the four-jointed tarsi all shorter than their tibiae, and the hind coxae large.

Male. Very similar to the female, but differing as follows: Head more nearly circular in outline; the antennae a little less strongly clavate, the two funicle joints equal in size, the club with the two basal joints almost completely fused, but with a remnant of the suture remaining on one side, encircling at most not more than one-fourth of the circumference of the joint. Sensoria of flagellum rather more numerous, with about 4 on first funicle joint, about 7 on second, about 12 on the fused basal joint of club, and about 5 on the apical joint; two of the sensoria on basal joint of club much thicker than the others, and several continue across the region where the suture would be expected to lie if it were complete. Abdomen smaller than in the female, oval, strongly depressed, about twice as long as wide and as long as head and thorax combined. Wings relatively longer than in the female.

Melittobiopsis ereunetiphila n. sp. Figure 4.

Female. Face finely reticulate and duller than rest of head and body; pronotum and mesoscutum finely reticulate and shiny; abdomen distinctly and comparatively coarsely reticulate; cheeks, scutellum, metanotum and propodeum smooth and very shiny. Cheeks and occiput with fine, moderately short setae, the pronotum with similar setae, but about six setae on posterior margin of pronotum, three pairs on mesoscutum, two pairs on scutellum and rather numerous setae on lateral margins of abdomen considerably longer and about equaling those on marginal vein of wings.

Shining submetallic bluish black, the head somewhat greenish, the thorax with a somewhat brassy luster, especially on pronotum and propodeum. Antennae piceous, the scape dusky yellow, except on dorsal margin of apical half. Legs piceous, the tibiae and tarsi yellowish. Wings hyaline, slightly and uniformly tinted with fuscous, veins dusky yellowish.

Length of body (0.85 to) 1.18; length of head, 0.265; width of head, 0.247; width of mesoscutum, 0.232; length of antenna, 0.389; length of fore wing, 0.744; width of fore wing, 0.263 mm.

Male. Hardly differing from the female, except as indicated in the generic description, and the scape much less yellowish.

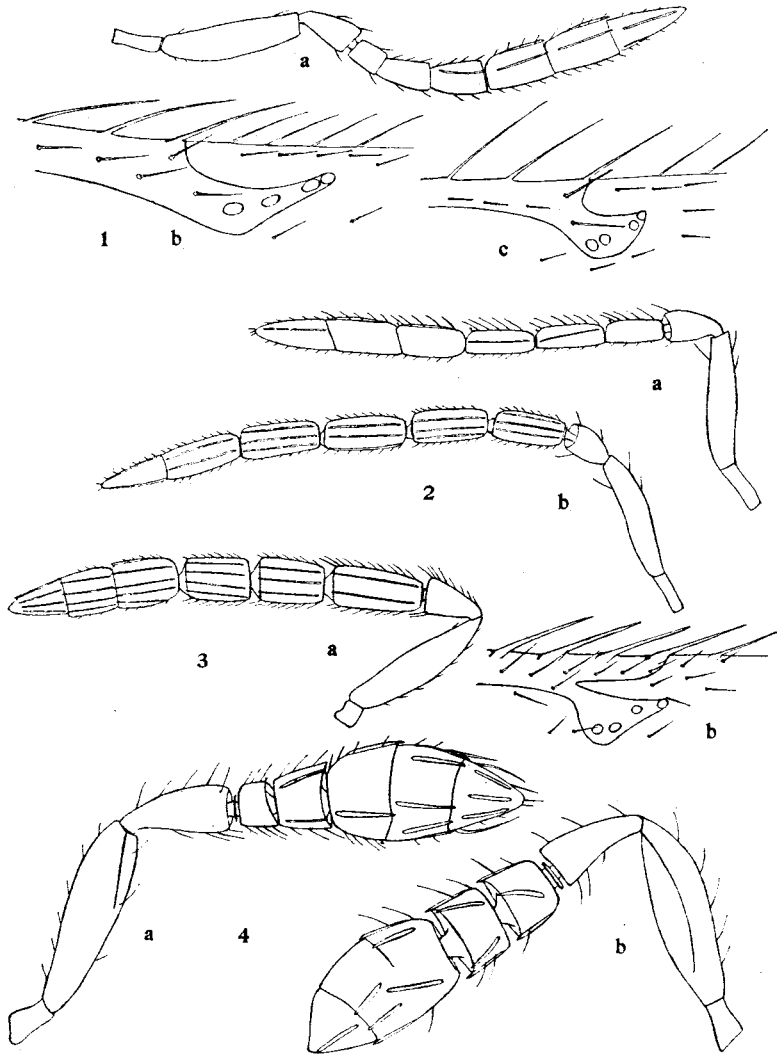
Length of body, 0.764; length of head, 0.242, width of head, 0.232; width of mesoscutum, 0.214; length of antenna, 0.349; length of fore wing, 0.731; width of fore wing, 0.265 mm.

Described from twenty females and one male (holotype female,

allotype and paratypes) reared from larvae of *Ereunetis flavistriata* Walsingham, on sugar-cane, Honolulu, Oahu, January 3 to 9, 1924 (O. H. Swezey); and one female (paratype) from same host on coconut, Grove Farm, Kauai, September 13, 1907 (O. H. Swezey).

EXPLANATION OF FIGURES.

- Fig. 1. *Prospaltella bicolor*.
a. Antenna of female.
b. Stigmal vein of female.
- Fig. 2. *Prospaltella transvena*.
a. Antenna of female.
b. Antenna of male.
c. Stigmal vein of female.
- Fig. 3. *Coccophagus hawaiiensis*.
a. Antenna of female.
b. Stigmal vein of female.
- Fig. 4. *Melittobiopsis ereunetiphila*.
a. Antenna of female.
b. Antenna of male.



Hawaiian Chalcid-Flies