

Descriptions of New Genera and Species of Hawaiian
Encyrtidae (Hymenoptera.)*

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The types of the following new species will be placed in the collection of the Hawaiian Entomological Society, and some of the paratypes will be retained by the writer for ultimate deposit in the U. S. National Museum.

ECTROMATINI.

Anagyru *nigricornis* n. sp.

Female: Head shaped nearly as in *A. dactylopii* (Howard) or *A. pseudococci* (Girault), being moderately thin fronto-occipitally with the dorsal surface well rounded; frontovertex nearly twice as long as wide at the posterior ocelli; the ocelli arranged in an equilateral triangle or nearly so, the posterior pair nearly their own diameter from the eye-margins and about twice as far from the occipital margin; eyes rather large, broadly oval, somewhat diverging anteriorly; face and cheeks not over one-half as long as the eyes; the scrobes forming narrow sulci slightly converging above. Antennae inserted close to the clypeal margin; scape broadly expanded beneath with its lower margin nearly uniformly rounded, about one-half as wide as long; pedicel nearly equal to the first funicle joint; funicle cylindrical, increasing slightly in thickness distad with the joints becoming successively shorter, the first three times as long as wide, the sixth a little longer than wide; club oval and nearly as long as the last three funicle joints combined.

Pronotum arcuate, the posterior margin acutely emarginate medially; posterior margin of the mesoscutum sinuate on each side of the middle. Abdomen as long as the thorax, the ovipositor not protruded.

Wings broad, reaching well beyond apex of abdomen; marginal vein fully thrice as long as thick and nearly equal to the slender stigmal, the postmarginal a little longer than the stigmal; speculum broad and widely separated from the posterior margin of the wing.

Sculpture finely granular-alutaceous, finer on the mesopleura, slightly coarser on the abdomen, the venter becoming smoother at apex. Eyes with a short, thick, blackish pile; head and thorax covered with a rather thick, appressed, subsquamous pubescence of short, white hair;

*These descriptions were prepared as an appendix to the preceding paper. Records are brought up to date of publication.

the sides and venter of abdomen clothed with a moderately long, soft, whitish pubescence.

Length: 1.09 to 2.0 mm.

Head dull yellow, the cheeks brownish to blackish, the center and lower part of occiput black; thorax brownish yellow, often darker or becoming decidedly brownish on the axillae and scutellum; propodeum, metapleura and abdomen more or less dark brown or brownish black. Antennae black, the scape with an annulus at base near the radicle joint and an oblique band before the apex white. Legs paler yellowish than the body, the coxae pale brown, the upper margin of the front and hind femora and tibiae often slightly brownish, the apex of the last joint of the tarsi dark brown or blackish. Wings hyaline, the veins dark brown.

Male: Head considerably thinner than in the female; the eyes much smaller and not greatly longer than wide; frontovertex a little wider than long; the ocelli in an obtuse-angled triangle, the posterior pair fully their own diameter from the eye-margins and about one-third as much removed from the occipital margin; face and cheeks proportionately longer than in the female; the scrobes in the form of short, parallel sulci reaching to the middle of eyes. Antennae inserted much more remotely from the clypeal margin or on a level with the lower corners of the eyes; the scape much shorter and narrower, being about a third as wide as long; pedicel hardly longer than thick; flagellum cylindrical, not thickened distad; the funicle joints incised on the upper side at the articulations, the first joint about four times as long as thick, the following joints somewhat shorter; each joint with a full whorl of long hair at the base and a half whorl at apex on upper side; club solid, as long as the last two funicle joints combined, pointed at apex, with hardly verticillate hair gradually shortening towards apex, the lower margin on basal half set with a row of five short, clavate hairs.

Abdomen smaller, depressed and plane above, the venter with a median plica. Wings shorter and proportionately wider, the marginal vein much shorter or about one-half as long as the stigmal. Pubescence of face somewhat thicker, that of the frontovertex a little longer and more erect.

Length: .69 to 1.29 mm.

Head yellow, the frontovertex orange yellow with the ocellar region more or less black; face with a more or less distinct, narrow, transverse brownish band between the lower corners of the eyes; scrobes, ventral margin of the cheeks and most of the occiput black; dorsum of thorax, metapleura and abdomen brownish black, the mesonotal sutures laterally more or less yellowish; mesopleura and sternum brownish yellow, the propleura brighter yellow. Legs and wings as in female; the antennae blackish with apical half of the flagellum often yellowish brown, the basal third of the scape and lower margin at apex white, the two pale areas often connected along the lower margin on the inner side.

Described from 22 females, 19 males (type, allotype and paratypes) all except one pair taken at various localities on Oahu at all elevations (Swezey and Timberlake); one pair (paratypes) taken on Puu Kapele, Kauai (Swezey). The type and allotype were reared experimentally from *Pseudococcus lounsburyi* Brain from a female captured on Kaumuhona, Oahu (Timberlake). It has been reared experimentally also from *Pseudococcus longispinus* (Targ.) and under natural conditions from *P. montanus* Ehrhorn, *P. gallicola* Ehrhorn and *Ripersia palmarum* Ehrhorn. It has been found associated also with *Trionymus insularis* Ehrhorn on *Eragrostis variabilis*. The oldest specimen seen is a female taken in Honolulu, Mar. 10, 1910 (Swezey).

Anagyrus swezeyi n. sp.

Female: Head subhemispherical, rather thin fronto-occipitally, the curvature seen in side view nearly uniform from occipital to oral margin, the outline in frontal view nearly circular, with the eyes somewhat tuberant below; frontovertex about a fourth longer than wide; ocelli in a right-angled triangle, the posterior pair about one-half more than their own diameter from the eye-margins and about one-half as far from the occipital margin; eyes rather narrowly oval, a little wider and very slightly diverging anteriorly; face slightly inflexed and concave below the middle of the eyes, the scorbes in the form of two narrow, deep grooves converging above but not nearly meeting; cheeks short or about equal to the width of the eyes. Antennae inserted close to the clypeal margin; scape compressed and about one-third as wide as long excluding the radicle joint, its lower margin uniformly rounded; pedicel slender and as long as the first funicle joint; funicle slender, cylindrical and increasing slightly in thickness distad, the first joint about three times as long as thick, the following joints about equal and a third shorter than the first; club a little thicker than the funicle, and as long as the two preceding joints and one-half the fourth combined.

General form of body slender and somewhat elongate; pronotum arcuate; posterior margin of the mesoscutum slightly bisinuate on each side of the middle; scutellum not much longer than wide and rather acute at apex. Abdomen about a fourth longer than the head and thorax combined, very narrowly triangular as seen from above; ovipositor sheaths shortly protruded.

Wings reaching slightly beyond apex of abdomen, narrow; marginal vein about twice as long as thick and nearly as long as the stigmal, the latter short and straight, with short, narrow spur at apex, the post-marginal vein very short; discal ciliation very dense, the speculum very oblique and narrow and broadly interrupted below the middle.

Head, pro- and mesonotum opaquely alutaceous; the propodeum and pleura less opaque and microscopically granular-reticulate, the abdomen somewhat more coarsely granular-reticulate, the ventrites much smoother and more or less polished especially on the last segment. Eyes with a short, thick brownish pile; head, notum, metapleura and sides of abdomen covered with a thick, appressed, short white pubescence.

Length: 1.11 to 1.57 mm. (or 1.66 with abdomen distorted).

Head yellow ocher (Ridgway), the clypeal margin, cheeks and post-orbital margin paler; a small dot between eyes and base of antennae, the occiput except dorsally and centrally, and the occipital margin of cheeks black; pro- and mesonotum clove brown (Ridgway) often suffused with yellowish on the sides of the scutum and at apex of scutellum; propodeum nearly black; pleura and sternum yellow ocher, the propleura paler yellowish, the metapleura dusky; prepectal plate and tegulae mostly white; abdomen clove brown, more yellowish brown within the dorsal concavity at base, the sides sometimes suffused with yellowish above, the ventrites when exposed in distorted specimens brownish yellow. Radicle joint of antennae black; the scape white, with a very narrow annulus close to base, a broad oblique band at the middle and the extreme apex black; basal half of pedicel and first funicle joint black, rest of pedicel and next two funicle joints white, last three funicle joints blackish brown, the fourth often paler or even whitish at base; club pale yellow. Legs nearly concolorous with the mesopleura or a little paler, the last joint of the tarsi blackish. Wings hyaline, the veins brown.

Male: Head much thinner than in the female; the eyes much smaller, frontovertex nearly twice as wide as long; the ocelli in a slightly obtuse-angled triangle, the anterior ocellus close to anterior margin of the frontovertex, the posterior pair nearly twice their own diameter from the eye-margin and somewhat less than half as far from the occipital margin; cheeks and face considerably longer, the latter more deeply concave between the lower part of the eyes, the scrobes very shallow, rather indistinct and not convergent. Antennae inserted remotely from the clypeal margin on a level with the lower corners of the eyes, scape proportionately nearly as long as in female but much narrower, being nearly linear; pedicel hardly longer than thick; flagellum slender and cylindrical; first funicle joint about five times as long as thick, the following joints gradually shortening, the sixth about three times as long as thick; club nearly as long as last two funicle joints, acute at apex and solid; the whole flagellum clothed with moderately long erect hair gradually shortening towards apex, arranged somewhat indistinctly in about six whorls on the first funicle joint, in four on following two joints, in three on the

last three funicle joints, and more scattered on the club; the under side of the sixth funicle joint set with a row of about eight or nine short, erect, clavate hairs including one or two on the base of the club.

Abdomen, depressed, triangular, cordate at base and truncate at apex, the ventral plica strongly developed. Wings relatively wider than in female, the disk considerably less densely and more coarsely ciliated.

Head very finely rugosely reticulate on the face and slightly more coarsely rugulose on the frontovertex; mesopleura minutely reticulate; the first tergite of abdomen with much more evident and coarser reticulations than in the female. Head much less pubescent, the face and cheeks with only a sparse pubescence, the frontovertex ^{nearly} bare; the abdomen entirely free from the white, appressed pubescence of female, and with only a few scattered, soft hairs on the dorsum.

Length: .58 to 1.05 mm.

Head brownish black, slightly shiny, the facial ridge more brownish, face and clypeal margin below the antennae and most of the cheeks strontian yellow (Ridgway); thorax and abdomen black, the notum slightly shiny, the dorsum of abdomen with an iridescent luster. Antennae brownish black, the flagellum more brownish, the base of scape yellow. Legs pale yellow; the coxae fuscous except at apex; the front and hind tarsi somewhat brownish on the upper side, becoming darker at apex; the last two joints of the middle tarsi rather dark brown. Wings as in the female.

Described from 31 females, 38 males (type, allotype, and paratypes) from various parts of Honolulu, Oahu, either reared from *Trionymus insularis* Ehrhorn or swept from Bermuda grass on which the mealybug is commonly found (Swezey and Timberlake); 9 females, 11 males (paratypes) reared from the same host on *Sporobolus*, Oahu Plantation, Oahu; one pair (paratypes) swept from Bermuda grass at Lihue, Kauai (Timberlake); and one female (paratype) from Lupe Ditch, 1200 feet, Maui (Giffard and Fullaway). The oldest specimen seen is a male (paratype), collected at Waialua, Oahu, Aug. 24, 1910 (Swezey).

***Xanthoencyrtus apterus* n. sp.**

Female: Head somewhat wider than thorax, very thin fronto-occipitally, the face and frontovertex lying in one plane, as seen from in front nearly circular; occiput concave above, with the neck inserted considerably above the center; space between the eyes from the antennal sockets to the occipital margin a little longer than wide, rather deeply concave with a triangular, raised area on the dorsal half, the vertex but little

narrower than the pronotum; ocelli very small, probably not functional, arranged in a small, obtuse-angled triangle, the posterior pair close to the occipital margin and their distance apart equalling the distance to the eye-margins; the latter acute; eyes elongate oval, lying parallel with the longer axis of head; cheeks about as long as wide, and as wide as the eyes. Antennae inserted slightly above the clypeal margin; the scape flattened but hardly expanded below, including the radicle joint about four times as long as wide; pedicel somewhat shorter than the first two funicle joints combined; and wider at apex than the following joint; flagellum cylindrical, increasing distinctly but not greatly in thickness distad; funicle joints all nearly equal in length, the first and sixth slightly longer, the first somewhat longer than wide, the last nearly as wide as long; club nearly as long as the three preceding joints combined, a little wider and rounded at apex, distinctly three-jointed, the first and third joints slightly longer than the second.

Thorax short and much depressed; pronotum but slightly declivous although prolonged and constricted towards the apex, the posterior portion transverse, and about two-thirds as long as the mesoscutum, its posterior margin but slightly arcuate; the mesoscutum twice as wide as its median length, its posterior margin perfectly truncate; axillae wider than long, acutely meeting medially; scutellum small, shorter than the mesoscutum, a little wider than long and broadly rounded at apex; propodeum very short in the middle and longer at the sides, the metapleura very small and obliquely transverse. Abdomen nearly twice as long as the head and thorax combined, acute at apex and somewhat wider at base than the thorax; the vibrissal plates situated half way or a little more from the middle towards the base and often concealed beneath the first tergite; ovipositor not protruded. Wings rudimentary, the front pair not reaching beyond the apex of the scutellum.

Surface of head, thorax and abdomen smooth and shining with a fine reticulation on the mesoscutum barely perceptible. Eyes with a short, sparse pile; head and thorax with a short dark-colored, inconspicuous pubescence that is nowhere abundant.

Length: .94 to 1.36 mm.

Head and thorax about yellow ocher (Ridgway) varying to tawny especially on the head; the underparts of the thorax and legs a little paler yellow; abdomen black or piceous, becoming brownish at the base of the first tergite; scape and pedicel concolorous with the face, the flagellum black, more dilutely at base, the first funicle joint appearing somewhat yellowish in balsam mounts.

Male: Head wider and shorter than in the female, being wider than long; space between eyes from the antennal sockets to the occipital margin about as wide as long, the face and frons concave as in the female but without the triangular elevation on the upper part; scape and pedicel very nearly the same, the flagellum much longer, cylindrical and not thickened distad; first funicle joint nearly four times as long as thick, the following joints gradually shortening, the sixth about twice

as long as thick; the club somewhat longer than the last two funicle joints combined, solid, and acute at apex; funicle with moderately long, verticillate hair, the first joint with four whorls, the following joints with three, the club with similar less distinctly verticillate hair gradually shortening towards apex; the last funicle joint set with a row of four short, clavate scale-like hairs on the under side, the base of the club with two more. Thorax and wings as in the female, except that the scutellum is slightly longer and a little acute at apex. Abdomen a little longer than the thorax, very broadly ovate or nearly circular in outline as seen from above, and very strongly depressed. Face very finely reticulate, mesoscutum more distinctly reticulate than in female, and the basal tergite of abdomen with a comparatively coarser reticulation.

Length: .69 to .88 mm.

Coloration distinctly more reddish, especially on the abdomen, which is not black as in the female; antennae and legs as in the female.

Described from 6 females, 3 males (type, allotype and paratypes) collected on *Eragrostis variabilis* at Nuuanu Pali, Oahu, Oct. 8, 1916 (Swezey and Timberlake) and 2 females, 2 males (paratypes) from the same locality, Nov. 12 and 19, 1916 (Giffard and Fullaway). The species is probably parasitic on *Trionymus insularis* Ehrhorn, as the grass on which the parasite was found is commonly infested with this Coccid.

***Xanthoencyrtus laysanensis* n. sp.**

Female: Differing from *X. apterus* as follows: Head perfectly circular as seen from in front; the space between the eyes from the antennal sockets to the occipital margin as wide as long, the depression with a rather narrow median ridge on the upper part instead of a triangular raised area; the ocelli absent. Antennal scape somewhat expanded beneath and over a third as wide as long excluding the radicle; pedicel no wider at apex than the following joint; flagellum distinctly stouter and increasing but very slightly in thickness distad, the relative proportions of the funicle joints remaining about the same; club not distinctly wider than the funicle, its middle joint the shortest. Posterior margin of the pronotum somewhat more arcuate, making the mesoscutum slightly longer medially. No reticulations on the mesoscutum apparent under highest magnification of the Zeiss binocular.

Length: .90 to 1.35 mm.

Coloration the same as in *apterus*, the flagellum rather deeper black and not at all paler at the base of the funicle, the basal tergite of the abdomen somewhat more yellowish at base.

Male: Similar to the male of *apterus* with the scape a little wider, and the abdomen no longer than the thorax and much less circular.

Head and mesoscutum smooth and not reticulate, the basal tergite distinctly reticulate.

Length: .71 to .86 mm.

Coloration as in the female, not reddish as in *apterus*, the abdomen black.

Described from 3 females, 3 males (type, allotype and paratypes) collected on Laysan Island, December, 1912 (Fullaway).

Xanthoencyrtus semiflavus n. sp.

Female: Similar to *X. apterus* and differing as follows: Head a little wider, being considerably wider than the thorax and in frontal view distinctly wider than long; the space between the eyes from the antennal sockets to the occipital margin a little wider than long, with a transversely oval depression on the lower part somewhat above the antennae, the vertex fully as wide as the pronotum; ocelli rather more minute, the posterior pair distinctly more remote from the eye-margins than their distance apart. Antennae more nearly as in *laysanensis* in thickness or width; the scape considerably wider than in *apterus*; the pedicel not so distinctly wider at apex than the following joint; the flagellum stouter but increasing in thickness distad in about the same proportion, the first funicle joint relatively longer, the apical funicle joint slightly wider, the last two being as wide as long; the club as in *apterus*. Thorax and abdomen about as in *apterus*, the scutellum rather more acute at apex, the ovipositor slightly protruded. Sculpture smooth, with no reticulations apparent on the mesoscutum.

Length: 1.38 mm.

Coloration similar to *apterus* except that the abdomen is not yellowish at base although somewhat brownish, the funicle yellow instead of black, with the last joint somewhat dusky and the club black, the tarsi yellowish white and distinctly paler than the rest of the legs.

Male: Unknown.

Described from 1 female (type) collected on the southern slopes of Diamond Head, Oahu, in the spring of 1917 (Fullaway).

Xanthoencyrtus fullawayi n. sp.

Female: Head very thin fronto-occipitally, seen from in front nearly circular, the entire anterior or dorsal aspect lying in one plane; the occiput strongly concave above with the neck inserted far above the center; space between the eyes from the antennal sockets to the occipital margin about a fifth longer than wide, and very slightly convex from

side to side; ocelli well developed, arranged in a very obtuse-angled triangle, the anterior ocellus somewhat closer to the occipital margin than to either of the posterior ocelli, the latter almost touching the occipital margin and about equidistant from the anterior ocellus and the eye-margins, being remote from the latter; occipital margin acute; eyes subovate, somewhat elongate, being broadest anteriorly; cheeks strongly narrowed towards the mouth, as long as wide at base, which equals the width of the eyes. Antennae inserted slightly above the clypeal margin and a little farther apart than in *apterus*; the scape not flattened but moderately thickened, being thickest a little beyond the middle, the under side somewhat furrowed towards the apex; pedicel slightly longer than the first two funicle joints combined; flagellum cylindrical and slightly clavate; first funicle joint distinctly longer than thick, the following increasing gradually in size, all somewhat transverse and shorter than the first joint; club as long as the last five funicle joints combined, a little wider than the sixth, somewhat acute at apex, and distinctly two-jointed, the first joint about one-half as long as the second.

Thorax very strongly depressed and longer than in *apterus*; pronotum long at the sides but not prolonged anteriorly into a neck, its posterior margin with a very deep angular emargination at the middle; mesoscutum as wide as its median length, the portion lying behind a line drawn between the posterior corners of the pronotum transverse and as narrow as the same area in *apterus*, its posterior margin perfectly truncate; axillae strongly narrowed and meeting within, prolonged and narrowed on the sides posteriorly, their scutellar margin somewhat arcuate; scutellum large, as wide as long, posteriorly triangular with the apex rounded; propodeum very short at the middle and much longer at the sides; the metapleura subtriangular and moderate in size. Abdomen a little wider than the thorax and nearly a third longer again, widest at the middle, strongly narrowed posteriorly with the apex rounded; the vibrissal plates located at or considerably before the middle, with the vibrissae not conspicuous; ovipositor not protruded.

Wings fully developed, rather narrow and reaching beyond the apex of the abdomen; the disk uniformly ciliated to the base, the speculum rather wide, reaching from the base of the stigmal vein very obliquely towards the posterior margin, connected there with a submarginal basal hairless streak, and indistinctly divided just below its middle; marginal cilia short; the nervures reaching nearly to the middle of the wing, the marginal vein thick, a little longer than wide, the postmarginal almost absent, the stigmal a little longer than the marginal, constricted at base and enlarged somewhat triangularly at apex. Legs showing no marked peculiarities, the tibiae and tarsi slender and cylindrical, the middle tibial spur no longer than the first tarsal joint.

Head and thorax smooth and somewhat shining, the face and frons finely and somewhat sparsely punctate, the mesoscutum with similar slightly closer punctures, the pronotum duller, with punctures not so distinct, scutellum smoother with the punctures fainter and sparser;

tergites of abdomen with a very fine, delicate reticulated surface sculpture.

Eyes with a short, rather sparse pile; the pubescence on head and thorax short, yellowish, rather sparse and not conspicuous.

Length: 1.07 to 1.23 mm.

Coloration of body uniformly yellow, nearly ochraceous orange (Ridgway), the underparts of thorax and the legs paler yellow, the apex of the last joint of the tarsi blackish; antennal scape and pedicel fuscous, becoming testaceous at apex of the latter, flagellum darker or inclining to blackish; wings hyaline with the veins fuscous.

Described from a female (type) reared Sept. 2, 1916, from *Pseudococcus saccharifolii* (Green) from Pahala, Hawaii (Swezey), and another (paratype) found in a vial with a specimen of *Pseudococcobius terryi* (Fullaway) without data. This specimen may be the type of Fullaway's description of the supposed male of *terryi*.

Pauridia n. g.

Female: Head in frontal view nearly circular in outline, in side view subtriangular, with occipital side much the longest, the dorsal side the shortest and rounded; the facial and occipital sides forming an acute angle at the mouth; head in other words strongly convex dorsally with the face abruptly reflexed; frontovertex about a half longer again than wide; ocelli in an obtuse-angled triangle, the posterior pair close to the eye-margins; eyes moderate in size, about a fourth longer than wide, and widest anteriorly, their long axis oblique to the plane of the frontovertex; occiput very slightly convex with the neck inserted near the center; face and cheeks long, the latter as long as the dorsal orbits of eyes; the face deeply hollowed out above to form the scrobes which nearly meet in an acute angle just below the facial angulation and separated below by a low, triangular prominence between the antennae. The latter inserted moderately far apart close to the clypeal margin; scape cylindrical and just reaching to the frons; pedicel twice as long as thick or nearly as long as the first four funicle joints combined; flagellum moderately clavate, and finely pubescent; first four funicle joints very small, short and transverse, and also much narrower than the apex of pedicel, the fifth a little larger and somewhat transverse, the sixth considerably longer and subquadrate; club large, oval, acute at apex, wider than funicle and as long as the five preceding joints combined, its three joints about equally long. Mandibles thick at base, rather short, narrow at apex with two short, equal, not very acute teeth. Maxillary palpi short, two-jointed, the basal joint no longer than thick, the apical nearly twice as long.

Thorax moderately convex, the scutum, axillae and scutellum in one

plane; pronotum arcuate; the scutum about a third wider than long; the axillae nearly meeting medially; the scutellum triangular, with apex slightly rounded, but slightly elevated and convex, its sides abruptly declivous; propodeum short or transversely linear. Abdomen as long as the thorax, triangular in dorsal view, acute at apex, with the dorsum deeply concave, and the sides strongly compressed; ovipositor issuing from apex, the sheaths not visible, the fifth ventrite reaching to apex; the vibrissal plates situated at the basal fifth.

Wings not long and rather wide; the marginal cilia short, the discal ciliation uniform and moderately thick; speculum much narrowed above and meeting the stigmal vein; submarginal vein much thickened just before its apex and very slender before the thickening; marginal vein a trifle longer than thick, the stigmal somewhat more than twice as long as the marginal and moderately enlarged at apex, the postmarginal tapering and nearly as long as the marginal. Hind wings narrow, with the costal cell absent.

Legs slender, of moderate length, showing no particular peculiarities, the middle tibiae longer than their femora, very slender at base and moderately thickened at apex, the spur slender and almost as long as the first joint of the tarsi; hind tibiae thicker than the middle pair, tapering towards the base, the apical spur short and slender.

Sculpture opaque and alutaceous on the frontovertex with very fine scattered punctures; very finely reticulate on the mesonotum, mesopleura and abdomen with microscopic setiferous punctures on the former. Pubescence fine and inconspicuous throughout.

Male: Very similar to the female differing chiefly in the antennae and abdomen. The former slightly longer and much less clavate; the pedicel but slightly longer than thick and a little shorter than the first two funicle joints combined; flagellum but slightly increasing in thickness towards apex with a very fine, minute pubescence as in the female; first four funicle joints as wide as the pedicel, as long as wide and equal to each other throughout; the next two joints increasing distinctly in size but remaining very nearly quadrate; club solid, ovate, acute at apex, but slightly wider than the funicle and a little longer than the two preceding joints combined. Abdomen very small, not over one-half as long as the thorax, much depressed and sub-triangular with the base and sides equal, the basal corners and apex bluntly rounded.

Genotype: *Pauridia peregrina* n. sp.

This genus is considerably like *Blepyrus* Howard (which is not a Mirine but an Ectromatine genus) in general form and appearance although quite distinct in the structure of the head, antennae and venation. In Ashmead's tables it runs to *Anagyrus* Howard which, however, it does not closely resemble.

In Girault's tables it runs to *Coccidoxenus* Crawford and *Fulgoridicida* Perkins, with neither of which is it closely allied, both of these genera falling more naturally in the Mirini.

***Pauridia peregrina* n. sp.**

Female: Fifth funicle joint varying to hardly larger if any at all than the preceding joints although typically distinctly larger. Eyes with a fine, short, moderately thick pile; the frontovertex with a few longer scattered hairs, the mesonotum with more numerous similar hairs, the vestiture not conspicuous being dark-colored and nowhere abundant.

Length: .56 to .89 mm.

Black throughout, somewhat shining except on head, but hardly metallic; legs concolorous, all the tarsi except at apex, the trochanters, knee articulations, and apex of the middle tibiae yellow, the middle tarsi and tibial spur paler yellow; antennae dull black; wings hyaline, the veins fuscous.

Male: The only male seen is mounted on a slide and seems to be identical with the female throughout in coloration and structure except as brought out in the generic description.

Length: .79 mm.

Described from 74 females (type and paratypes) all reared from *Pseudococcus krauhniae* (Kuwana) or associated with this mealybug, Honolulu, Oahu (Timberlake); 1 female (paratype), Waiamao Valley (part of Palolo), Oahu, Apr. 9, 1916 (Timberlake); 1 male, 4 females (allotype and paratypes) reared from mealybugs on pigeon peas, Honolulu, June 20, 1911 (Ehrhorn); 3 females (paratypes) reared from mealybug on *Cassia fistula*, Honolulu, Dec. 4, 1913 (Ehrhorn); and 1 female, Olowalu, Maui, May 15, 1918 (Giffard and Fullaway). Also from the following foreign material: 5 females (paratypes) reared from mealybug, Amoy, China (C. P. Clausen), California State Insectary No. 3306; 1 female (paratype), Fiji, 1905 or 1906 (F. Muir); and 7 females (paratypes) reared from mealybug, Alhambra, California, Nov. 1, 1918 (H. S. Smith), California State Insectary No. 3451.

This species is common in Honolulu, and in the several thousand specimens that I have reared no males have been detected.

ENCYRTINI.

Encyrtus barbatus n. sp.

Very closely allied to *bicolor* (Howard) and similar structurally except as follows: Face in the female distinctly transversely lineolate, the beard on the cheeks considerably longer and more conspicuous, the bristles on the sides of the abdomen and towards the apex somewhat longer and more prominent.

Female: Head shaped as in *bicolor* (Howard), *infelix* (Embleton) and allied species; the transverse carina separating the frons and face extending outward to the lower corners of the eyes, the middle portion of the median indentation of this carina curved slightly downward towards the mouth; the longitudinal carina on the cheeks and postorbital region, very distinct and extending considerably in front of the eyes; carina connecting the posterior ocelli straight or slightly arcuate; antennae, thorax, wings, legs and abdomen as in allied species.

Frontovertex finely, transversely lineolate with distinct, scattered and remote punctures; face more coarsely, transversely rugoso-lineolate and more or less reticulate on the median part, but becoming smoothish above within the indentation of the transverse carina; thorax finely granular alutaceous, with the propodeum smooth and polished except at the sides; the pro- and metapleura and abdomen delicately reticulate; the mesopleura microscopically reticulate or appearing smooth and polished under moderate magnification.

Frontovertex with a fine whitish scattered pubescence arising from the punctures, the face with a similar pubescence; cheeks with a beard of long, black, bristle-like hair, apex of clypeus and base of mandibles with somewhat shorter black hairs, posterior margin of the pronotum, and the mesoscutum rather densely covered with recumbent black hair changing to white on the posterior half of the scutum; axillae and tegulae with moderately long, black, bristle-like hair; base of the scutellum with a fine, soft, whitish pubescence with a few much longer pale-colored hairs in front of the apical black fascicle; sides of the abdomen with several very long black hairs besides the vibrissae, the apex with shorter whitish hair.

Length: 1.67 to 2.13 mm.

Head nearly raw sienna (Ridgway) but more or less infuscated especially on the frontovertex which becomes brownish to quite fuscous, the cheeks on and just below the carina black; pleura of thorax nearly pure raw sienna, always clearer yellowish than the head; notum of thorax about ochraceous orange (Ridgway) with the posterior margin of the pronotum, usually the anterior margin of the scutum, posterior half or more of the scutum and declivous portion of the axillae black, the basal margin of the scutellum often blackish; rest of the scutum more reddish

or about xanthine or Mars orange (Ridgway), forming a narrow, more or less arcuate transverse band on the anterior part; in paler specimens the band is wider or reaching practically to the anterior margin of the scutum, and the axillae and scutellum are entirely orange yellow; propodeum concolorous, somewhat dusky with a bright luster; abdomen shining blue black above with a strong luster, and with a greenish luster beneath. Antennae dark brown to black, the scape pale yellowish or whitish with its dorsal margin and the lower margin of the radicle joint black. Front and hind coxae, most of the front and middle femora and of the hind tarsi white or yellowish white; dorsal and ventral margins of the front femora, their tibiae and tarsi fuscous; middle coxae, upper side of middle femora and base of their tibiae blackish, the tibiae changing to brownish yellow at apex with the spur and tarsi concolorous; hind femora brownish yellow becoming blackish on the dorsal margin or almost entirely blackish, the hind tibiae and basal half or sometimes only the basal fourth or fifth of the first joint of their tarsi black; apex of the middle and hind tarsi blackish. Wings deeply infuscated with the usual hyaline area beyond the transverse fascicle of hair, the hind wings entirely hyaline; the veins fuscous, but the apical part of the submarginal vein hyaline, coterminous with the hyaline area of the disk.

Male: Quite dissimilar from the female in many respects. The head much thinner fronto-occipitally, with the eyes much smaller; carinae of the face, cheeks, and vertex entirely absent; frontovertex about twice as wide as long with the ocelli arranged in an extremely obtuse triangle, the median ocellus being hardly more than twice as far from the occipital margin as the posterior pair which are rather remote from the eyes. Antennae inserted higher up on the face; the scape short, flattened and widened towards apex; pedicel short or no longer than thick; flagellum cylindrical and slightly thicker than the pedicel; funicle joints nearly equal in length, about twice as long as thick, incised at the articulations and each with two whorls of long hair; club solid, nearly as long as the two preceding joints combined, tapering towards the acute apex, and clothed with long hair which gradually shortens towards the apex.

Thorax nearly as in the female, but the axillae much less elevated and not so strongly or abruptly declivous posteriorly; abdomen a little shorter than the thorax, strongly depressed, subtriangular with the sides equal and the basal corners and apex rounded. Wings without the transverse band of hairs on the basal half, the disk uniformly ciliated; the speculum widening towards the posterior margin and interrupted below the middle; marginal vein slightly longer than in the female, the postmarginal proportionately much longer, the stigmal, although by no means short, is relatively somewhat shorter than in the female, and hardly longer than half the postmarginal.

Sculpture as in the female, except that the head is granular alutaceous and opaque like the thorax. Pubescence on the face and frontovertex similar, but the black beard on the cheeks, clypeus and mandibles entirely absent; mesoscutum and axillae with short, recumbent black hair, the

posterior margin of the pronotum with similar whitish hair; scutellum with scattered black hair and a fine, silky, pale pubescence on the basal margin, the apical fascicle of hair very much shorter and sparser than in the female; abdomen provided with a fine, soft, sparse pubescence above, and with three long, bristle-like, blackish hairs on each side behind the middle, which shorten toward the apex; the vibrissae subbasal and very long.

Length: .91 to 1.45 mm.

Frontovertex deep chrome (Ridgway), face and cheeks creamy white; center of occiput and postorbital region connecting with a spot on cheeks next to the eyes black; notum of thorax ochraceous orange (Ridgway) with the pronotum except laterally, an oval to subtriangular mark on the anterior part of the scutum usually reaching about to the middle, more rarely to the base, sometimes the axillae medially and scutellum on basal margin, a spot on apex of scutellum sometimes connecting with the basal spot, the metanotum and the middle part of the propodeum black; abdomen black, with the lateral margins from the vibrissal plates to apex yellow. Antennae dusky yellowish, the scape pale yellowish with the lower margin at base including the whole radicle joint and the dorsal margin on apical half black, the base of pedicel blackish. Front legs, the middle legs except coxae, and the hind coxae and femora yellowish white; upper margin of the front femora dusky, their tibiae and tarsi slightly more brownish; the middle tibiae on basal half except at the extreme base somewhat fuscous; the middle coxae, apex of the last joint of the front and middle tarsi, dorsal margin of the hind femora except at base, and the hind tibiae and tarsi black. Front and hind wings entirely hyaline, the veins very pale or dilutely fuscous.

Described from 1 female, 4 males (type, allotype and paratypes) reared from *Saissetia hemisphaerica* (Targ.), on ferns, Honolulu, Oahu, March, 1905 (Alexander Craw); 7 females, 6 males (paratypes) reared from *Saissetia nigra* (Nietner) on ferns, Honolulu, Nov., 1917, to Feb., 1918 (Fullaway); 1 pair (paratypes), Palolo Valley, Oahu, Dec. 26, 1914 (Swezey); 2 females (paratypes), Honolulu, Oct. 10, 1915, and Dec. 10, 1917 (Swezey, Timberlake); 7 females (paratypes) from *Saissetia hemisphaerica* on coleus, and 3 females, 5 males (paratypes) from *Saissetia nigra* on ferns, Honolulu, May 6-18, 1919 (Timberlake).

Also from the following foreign material: 1 female, 1 male (paratypes), Manila, Philippine Islands (G. Compere); 4 females (paratypes), Larat, Dec., 1907 (F. Muir) and 1

female (paratype), Pekalongan, Java (F. Muir). The specimens from Java and Larat have the first joint of the hind tarsi black only at the base, and the hind femora are variable in the extent of infuscation as in the local specimens.

MIRINI.

Bothriencyrtus n. g.

Female: Head moderately thin fronto-occipitally, subhemispherical, the curvature as seen in side view nearly uniform from oral to occipital margin with the eyes anteriorly somewhat protuberant, and facial outline sinuate; in frontal view appearing considerably wider than long, the frons and each eye about equally wide, the occipital margin transverse, the cheeks rounded and convergent towards the broad and truncate oral margin; occiput rather deeply concave, its dorsal margin sharply angled with the vertex; frontovertex flattened, a little longer than wide, the ocelli in an obtuse-angled triangle, the anterior one considerably behind the center, the posterior pair almost touching the occipital margin and a little more than their own diameter from the eye-margins; eyes very broadly oval, broadly rounded at each end, their long axis parallel with the plane of the frontovertex; cheeks not short, and as seen in side view of head wide; face as broad as long, slightly hollowed out, with the upper limit of the concavity gradually passing into the contour of the frontovertex between the anterior corners of the eyes, just below with a shallow but distinct transverse groove connecting the extreme anterior inner corners of the eyes, on each side a rather sharp carina descending towards the mouth from the eyes, the antennal scrobes forming rather deep grooves, hardly convergent, passing into the transverse groove above, and separated throughout by a broad, rounded, and but slightly elevated prominence. Antennae inserted far apart rather close to the clypeal margin, and moderately long, somewhat clavate; scape reaching about to the middle of the eyes, slender, flattened and a little widened towards apex; pedicel nearly equal to the first two funicle joints combined; first funicle joint slender and about a half longer than thick, the following joints about equal and a little shorter than the first, gradually widening distad, the second slightly longer than thick, the last two slightly wider than long; club wider than the funicle and obliquely truncate as in *Bothriothorax*. Mandibles broad at apex, with three strong acute teeth, the middle ^{one} somewhat the longest with other two somewhat diverging from it.

Thorax but slightly convex above, the scutum, axillae and scutellum lying in one plane; axillae transverse, acute within and moderately widely separated; scutellum rather wide and large, a little longer than wide, and rounded at apex, the sides gradually sloping, but becoming abruptly declivous towards apex which is strongly elevated above the

metanotum; propodeum very short and declivous at the middle, also declivous and moderately long at the sides, the metapleura rather large and forming an acute angle with the dorsal surface of the propodeum. Abdomen depressed, broadly ovate, slightly longer than wide and somewhat shorter than the thorax, the apex acute; vibrissal plates situated a little before the middle; ovipositor protruded about one-fourth the length of the abdomen, the sheaths slender and cylindrical; the fifth ventrite reaching to the apex and enclosing the base of the ovipositor.

Legs about normal in length and structure; middle tibiae considerably thickened at apex, the spur short and stout or hardly more than one-half as long as the first tarsal joint, which is a little thickened; the hind tibiae with a small but distinct spur. Wings broad; the marginal vein punctiform and emitting the stigmal before quite reaching the margin, postmarginal vein very short, the stigmal moderately long, not enlarged at apex but with a small spur.

Frontovertex and mesoscutum with shallow, thimble-like punctures as in *Bothriothorax* over a reticulate, shining surface; face delictaely shagreened and lineolate, transversely between the eyes, longitudinally on the prominence between the antennae and obliquely laterad of the antennal sockets, the scrobes and transverse groove smooth or nearly smooth; cheeks and postorbital region more coarsely longitudinally lineolate, enclosing a smooth area at the anterior orbits of the eyes; notum of thorax and the mesopleura finely, regularly reticulate, the axillae showing a slight trace of the thimble-punctures, the scutellum none; prepectal plates and tegulae more coarsely reticulate, the latter also more irregularly; the metapleura more finely reticulate than the mesopleura; abdomen above about as coarsely reticulate as the prepectal plates. Coloration metallic, the head in large part strongly refulgent, the thorax much less shining, the abdomen but little more than the thorax; wings hyaline.

Genotype: *Bothriothorax planifrons*^{perkins} Howard.

This genus without question is closely allied to *Bothriothorax*, but may be recognized by the peculiarities in the shape and structure of the head.

***Bothriencyrtus insularis* (Cameron).**

Encyrtus insularis Cameron, Mem. Manchester Lit. & Phil. Soc., Vol. 10 (3rd Ser.), 1886, p. 243.

Bothriothorax insularis Ashmead, Fauna Hawaiiensis, Vol. 1, Pt. 4, 1901, p. 321.

Blepyrus insularis Perkins, Fauna Hawaiiensis, Vol. 1, Pt. 6, 1913, p. cvi.

Insularis is placed in *Bothriencyrtus* somewhat doubtfully as it is known only by description. If Cameron was right in

asserting that his specimen was a male and resembled *Bothriothorax* in some respects it may rightfully belong here, although the venation apparently is quite different, but perhaps not more so ^{than} that sometimes occurs in opposite sexes within certain genera.¹ Cameron states that this species was found by Blackburn on several Islands, and if still present in the Islands and in our collections it can hardly be anything but *Blepyrus*, although I am quite unable to reconcile *Blepyrus* with Cameron's description.

Quaylea n. g.

Female: Head moderately thick, with the dorsal surface strongly convex, the face reflexed but the frons not prominent; in side view appearing triangular except that the dorsal side is rounded, the facial and dorsal sides subequal and considerably shorter than the occipital side; in frontal view appearing fully rounded above but becoming somewhat narrowed towards the mouth below the eyes; occiput slightly concave, with the neck inserted at the center; eyes medium-sized, touching the occipital margin posteriorly, and descending half way to the oral margin as seen in frontal view of head, in shape subtriangular with bulging sides and wider anteriorly, the inferio-posterior margin longest, the other two sides subequal; frontovertex moderately narrow, about two and a half times as long as wide and a little narrowed at the anterior ocellus; ocelli rather large, in an acute-angled triangle, the posterior pair touching the eye-margins and about their own diameter from the occipital margin, the anterior ocellus at the center of the frontovertex; cheeks about as long as the width of the eyes, with a short, delicate genal suture descending from the eyes; face about as wide as long, and as long as one-half of the head, the oral margin moderately wide and arched from side to side, the antennae separated by a low, rounded longitudinal ridge, the scrobes in the form of short, rather broad and deep impressions converging above and meeting acutely between the anterior corners of the eyes. Antennae inserted rather far apart and near the clypeal margin, rather short and slightly clavate; scape short or hardly reaching beyond the facial inflexion, compressed but not expanded beneath, the radicle joint about a third as long as the scape proper; pedicel of usual shape and a little less than twice as long as the first funicle joint, funicle joints except the last somewhat longer than wide and increasing slightly in thickness distad, the first joint shortest, the sixth about as wide as long; club oval, three-jointed, a little wider than the funicle and as long as the last three funicle joints com-

¹For an example of this divergence in venation in the sexes consult the description of the male of *Encyrtus barbatus* above.

bined. Mandibles rather small, short and thick, tridentate at apex, with the lower tooth acute and rather long, the other two less acute and separated by a shallow emargination. Maxillary palpi four-jointed, the first three joints subequal, the first very slender at base, the fourth about twice as long as the third and triangular; labial palpi with three short joints, the first longest, the second shortest.

Thorax rather robust, convex above; pronotum and mesoscutum of usual shape; axillae short, transverse and acutely meeting or nearly so; scutellum rather large and acutely rounded at apex, strongly elevated and depressed on the disk, the sides abruptly declivous towards the base and more convex towards the apex; propodeum short at the middle, but lengthening towards the sides; metapleura not very large but reaching to the hind coxae, the metepimeron visible as a narrow sclerite between the meso- and metapleura; prepectal plates strongly chitinized and separated below from the mesopleura by a narrow sclerite which is probably a part of the mesosternum.

Abdomen triangular, strongly depressed, hardly more than half as long as the thorax; the vibrissal plates located about one-half way between the base and middle; the fifth ventrite not compressed but produced after death beyond the apex of the dorsum and enclosing the base of the ovipositor; protruded portion of the latter nearly as long as the abdomen, the sheaths slender and terete.

Wings with uniform discal ciliation, the marginal fringe short, the speculum distinct and wider below; costal cell rather wide; marginal vein about twice as long as thick, the stigmal about a third longer, the postmarginal a little longer than the stigmal; hind wings with the costal cell narrow throughout but reaching to the hooklets. Legs moderately long and slender; the middle tarsi with well developed spines on the plantar surface, the tibial spur as long as the first tarsal joint; hind tibiae with two apical spurs of which the inner is much the longer.

Sculpture very finely reticulate; the frontovertex with four rows of small punctures, the mesonotum including scutellum with numerous, minute setigerous punctures; scutellum more coarsely reticulate but becoming smoother and somewhat polished on the sides and apex; basal tergite of abdomen about as coarsely reticulate as the scutellum.

Eyes with a very fine, short pubescence; mesonotal pubescence rather long and bristle-like but not conspicuous; propodeum and metapleura bare except for a few whitish, fine hairs just behind and laterad of the spiracles; abdomen rather coarsely pubescent, the apex of the last tergite with a double row of moderately long bristle-like hairs; the ovipositor sheaths finely pubescent.

Coloration metallic black.

Male: Similar to the female with the head thinner and wider, the eyes smaller and more oval; the frontovertex much wider or as wide as long; the ocelli considerably larger, arranged in an equilateral triangle, the posterior pair touching the eye-margins and less than half their diameter from the occipital margin; scrobes converging, nearly meeting,

and then running parallel to each other for a short distance. Antennae inserted slightly higher up on the face yet still considerably below the level of the eyes; scape shorter and not quite so wide; pedicel no longer than thick and about one-half as long as the first funicle joint; funicle slender, the joints decreasing slightly in length distad, the basal joints twice as long as thick; club solid, slender, as long as the last two joints of funicle combined; the funicle and club to a less extent clothed with long, erect and numerous hairs above, and with considerably shorter, nearly decumbent hairs beneath. Sculpture about the same, except that the frontovertex is more coarsely or rugosely reticulate with scattered pin-punctures. Coloration the same with the metallic luster weaker.

Genotype: *Cerchysius whittieri* Girault, which without doubt is Ashmead's manuscript species, *Hemencyrtus crawii*.

This genus, which is dedicated to Prof. H. J. Quayle, who first made known the life-history of the type species, is most closely related to the *Hemencyrtus* Ashmead and much less closely I believe to *Cerchysius* Westwood.

The species belonging here are secondary parasites of Coccidae and parasitize the larvae of various other chalcid-flies such as *Scutellista*, *Tomocera* and *Microterys*. They pupate within the larval skin of their host which they transform into a brown puparium-like shell.

Quaylea aliena n. sp.

Female: Very closely structurally to *Q. whittieri* (Girault), on which the generic description is solely based, and differs only as follows: the frontovertex a trifle wider with the orbital row of pin-punctures less distinct; the pedicel twice as long as the first funicle joint, which is not over one-half as long as the second and about as long as wide, the following four funicle joints subequal in length and increasing slightly in width distad, each a trifle longer than wide, the sixth as wide as long and a trifle shorter than the preceding joint; the double, marginal fringe of hairs on the last tergite very much shorter and inconspicuous.

Length excluding ovipositor: .91 to 1.96 mm.

Coloration as in *whittieri* except that the mesonotum has a bluish and purplish luster instead of greenish; the frontovertex slightly more bluish, and the luster throughout more brilliant. Head deep blue-black, the frontovertex with a blue-green luster; notum of thorax bluish black, the scutellum and metapleura aeneous black with a strong green or bronzy green luster, the smooth sides and apex of scutellum and the metapleura refulgent, the underparts of thorax otherwise shining black; abdomen black, the dorsum and especially the basal tergite with a strong blue and

greenish luster; the ovipositor black. Antennae black, the flagellum appearing somewhat duller on account of the grey pubescence. Legs black with the front knees very narrowly, apex of front tibiae, middle trochanters, a narrow annulus near base and apex of middle femora and apical fourth of the middle tibiae with spur and tarsi yellowish, the fringe of spines at apex of the middle tibiae and the plantar surface of the middle tarsi more reddish brown; front tarsi yellowish brown, the hind tarsi dark brown. Wings hyaline, the veins fuscous with the submarginal more yellowish.

Male: Differs structurally from the male of *whittieri* as follows: Frontovortex a little wider, and the pin-punctures less distinct; antennae considerably shorter, the scape and pedicel about the same, but the first funicle joint hardly longer than the pedicel, no longer and a little narrower than the sixth joint, the second to fourth joints nearly twice as long as wide the fifth a trifle shorter than the sixth, the latter about a half longer again than thick, the club equal to the last two funicle joints combined.

Length: .93 to 1.09 mm.

Coloration similar to that of the female (and practically identical with the male of *whittieri*) but the face except in the scrobes has a greenish luster instead of deep blue, and the metallic luster except on the head, the scutellum and metapleura is somewhat weaker, especially on the dorsum of the abdomen.

Described from 4 females (type and paratypes) collected on weeds infested with *Saissetia nigra* (Nietner), Honolulu, Oahu, July 7, 1916 (Timberlake); 7 females, 5 males (paratypes) reared from the same host, Honolulu, May 22 to June 6, 1919 (Timberlake); 2 females (paratypes, one with head missing) reared from *Scutellista cyanea* Motschulsky, Honolulu, Feb., 1906 (Kotinsky); 2 females (paratypes) reared from *Asterolecanium* species on bamboo, Honolulu, Sept., 1905 (Kotinsky); 2 females, 1 male (paratypes) reared from *Asterolecanium pustulans* (Cockerell), Honolulu, Dec., 1915 (Ehrhorn); 1 male (allotype) reared from the above Coccid, Diamond Head, Oahu, April 7, 1918 (Swezey); 3 females (paratypes) reared from *Coccus viridis* (Green) on coffee, Kona, Hawaii, Dec., 1915, Aug. 25, 1916, and Sept. 8, 1916 (Pemberton); 1 male (paratype) reared from *Saissetia hemisphaerica* (Targ.), Kona, Hawaii, Dec., 1915 (Pemberton); and 1 female (paratype) on *Dodonaea*, Kilauea, Hawaii, June 27, 1917 (Swezey).

This species is parasitic in various Coccids, but I have no doubt that it is always secondary. In the *Asterolecanium* it works undoubtedly on *Tomocera californica* Howard and in *Saissetia* and *Coccus* it probably parasitizes *Microterys kotinskyi* (Fullaway) and possibly both species of *Encyrtus*, as well as the *Scutellista* and *Tomocera*.

Coelopencyrtus n. g.

Female: Head as wide as the thorax, moderately thin fronto-occipitally, strongly convex above, the occiput slightly concave with the neck inserted near the center, the face inflexed; in side view subtriangular, the facial side hardly longer than the dorsal, the oral angle truncate; in frontal view subcircular, the cheeks but slightly converging below, the oral margin broad and slightly produced medially; frontovertex about two and a half times as long as wide, perceptibly widened at either end and narrowest at the middle; ocelli in a strongly acute-angled triangle, the anterior ocellus at the center of the frontovertex, the posterior pair almost touching the eye-margins and remote from the occipital margin; eyes medium-sized, strongly convex and nearly round except that the postero-ventral orbits are nearly straight; cheeks somewhat longer than half the diameter of the eyes; face about as wide as long, and as long as the eyes, with a nearly semicircular depression forming the scrobes not quite reaching laterally to the lower orbits of the eyes and divided below by a broad, slightly elevated prominence between the antennae. The latter inserted near the oral margin and widely separated, rather small and subclavate; scape slender and moderately thickened apically; pedicel slightly thicker at apex than the following joint and almost as long as the first four funicle joints combined; funicle increasing slightly in thickness distad, the first four joints subequal, transverse, the last two about twice as long as the preceding joints and quadrate, the sixth a little larger than the fifth; the three-jointed club large, oval, much broader than the funicle and as long as the four preceding joints combined. Mandibles medium-sized, strongly depressed, broad at base and with three acute teeth at apex, of which the ventral one is much the longest, the upper one smallest. Maxillary palpi four-jointed, the apical joint slenderly fusiform and nearly as long as the three preceding joints combined; labial palpi two-jointed with the apical joint shorter and slenderer than the first.

Thorax rather robust, moderately convex above, the sclerites of the mesonotum lying in one plane; pronotum short, slightly arcuate; scutum large, about twice as wide as long; axillae short, transverse, and nearly meeting medially; scutellum large, broadly rounded at apex, somewhat longer than wide, the disk flattened but the sides and apex highly elevated and strongly declivous; propodeum short at the middle and moderately long at the sides. Abdomen somewhat more than half as long and a little wider than the thorax, as wide as long, very broadly ovate and

subcordate at base, very strongly depressed, the vibrissal plates situated about half way between the middle and the base; ovipositor very short, not protruded, and enclosed by the fifth ventrite which reaches to the apex but is not at all compressed.

Legs of usual length and without special modifications; the middle tibiae moderately enlarged at apex, the spur as long as the first tarsal joint; the middle tarsi thicker than the other tarsi. Wings with the costal cell wide; the discal ciliation moderately dense, sparser on the basal part before the narrow speculum; marginal fringe very short and thick; marginal vein nearly punctiform or slightly longer than thick; stigmal moderately long or about equal to the marginal and postmarginal veins combined, somewhat enlarged at apex with a spur on the upper side, postmarginal about two-thirds as long as the stigmal; hind wings with the costal cell nearly absent.

Head and thorax very finely reticulate, the abdomen slightly more coarsely reticulate, all parts, especially head and notum, strongly shining; frontovertex with a few scattered, minute and shallow pin-punctures, the mesonotum with minute, seriated, setiferous punctures. Eyes with a fine, rather thick pubescence; rest of head with longer, moderately thick pubescence; mesoscutum and scutellum with numerous seriated, bristle-like hairs; abdomen finely, sericeously pubescent especially on the sides and apical margin; the pubescence blackish throughout and not conspicuous. Coloration metallic bluish and greenish black.

Male: Similar to the female except in the very peculiar and highly specialized head. This is a little longer than wide and subcircular in frontal view, very thin towards the mouth fronto-occipitally and gradually thickening above where it becomes about three times as thick as at the oral margin, the dorsal surface very strongly convex; frontovertex nearly as wide as long, with the frons very prominent and protuberantly produced forward beyond the eyes; the ocelli arranged in a large, equilateral triangle, the anterior one on a line with the anterior dorsal corners of the eyes, the posterior pair close to the eye-margins and remote from the rounded occipital margin; eyes subtriangular with the posterior orbits rounded; cheeks as long as the eyes; face strongly produced upward beyond the eyes and joining the frons in an acute angle, strongly obliquely reflexed and concave from the frontal angle to the antennal sockets as seen in side view, the upper part between and beyond the eyes flat from side to side, the remaining part above the antennae concave from side to side, the part below the antennae moderately convex.

Antennae inserted very far apart on the outer margins of the face next to the cheeks, and half way between the base of the mandibles and the eyes; short and strongly clavate; scape very short and incrassate, but little longer than thick, reaching not more than one-third of the distance to upper margin of face, in cross-section subtriangular, the lower side slightly hollowed to receive the pedicel, the other two sides convex, the outer margin in outline straight, the inner margin forming an arc

somewhat less than a semicircle; pedicel quadrate and somewhat longer than the first funicle joint; funicle joints no longer than wide and mostly transverse, increasing in width distad; the first narrowly transverse with a short, lamelliform projection at base on dorsal side and then obliquely sloping to apex; the second joint a little wider than long, the following two slightly narrower and about as wide as long; the last two joints increasing in width but not in length, the sixth nearly twice as wide as long; club solid, large, very broadly oval and rounded at apex, inclined somewhat obliquely to the funicle, not much longer than wide and as long as the last three funicle joints combined.

Frontovertex somewhat more rugulose reticulate than in the female, with the same scattered, minute punctures; upper part of the face somewhat smoother and more shining, with a delicate, fine reticulation, and more thickly punctate than the frons, becoming somewhat polished medially just above the antennae and without a median carina; the sides of the face in a distinct area above the antennal sockets and reaching upwards narrowly to the eyes much more rugulose shagreened than the rest of face, or closely, longitudinally lineolate next to the cheeks and eyes, more irregularly lineolate medially below, the sculpture on the whole being somewhat fingerprint-like; on each side near the middle of the face contiguous to the peculiarly sculptured area is a slight impression, small and circular; the convex part of the face below the antennae somewhat smoother than the dorsal part of the face, but with a similar reticulation.

Upper part of face with a dense, moderately long, erect, fine pubescence; the rest of face and frontovertex with a shorter, sparser pubescence; pedicel and first funicle joint with a short, dense, silky pubescence on the upper side, the following joints rather densely, and uniformly, pubescent with fine, slightly longer hairs.

Genotype: *Coelopencyrtus odyneri* n. sp.

Besides *odyneri* there is at least another species present in the Islands which differs in the male sex in having a median carina on the face just above the antennae, the pedicel wider than long, and the first two funicle joints very short, transverse and produced on the outer side into short rami.

The species of *Coelopencyrtus* are parasitic in the larvae of *Odynerus*, many of the parasites issuing from a host, which becomes inflated and filled with cells somewhat like lepidopterous larvae which have been parasitized by *Copidosoma*. The species may therefore be polyembryonic, although both sexes usually issue from the same host, which could hardly be the case if all developed from a single egg.

In the female sex *Coelopencyrtus* is similar to *Ageniopsis*, and is apparently most closely allied to that genus but differs in the venation, sculpture, pubescence, etc., while the male because of its peculiar head is entirely different from any genus described in the family. In Ashmead's tables *Coelopencyrtus* (together with *Ageniopsis*) agrees best with the polyembryonic *Copidosoma* group, and runs to *Prionomitus* Mayr which probably does not really belong to this group.

***Coelopencyrtus odyneri* n. sp.**

Female: Structural characters as given in the generic description.

Length: 1.10 to 1.47 mm.

Head blue-black with a metallic purple and greenish luster; mesoscutum strongly metallic green-black, the rest of the thorax and the abdomen black, shining but not metallic except that the axillae and scutellum have a comparatively weak and mostly bluish luster; mandibles brown, the palpi yellow. Antennae black, the flagellum appearing grayish brown on account of the pubescence mostly. Legs black, with the tibiae more fuscous; trochanters, tibiae narrowly at each extremity, and tarsi of front legs, the hind tibiae along the ventral and apical margin and the hind tarsi brownish; trochanters, femora at base, tibiae except towards the base and the tarsi of the middle legs brownish yellow. Wings hyaline with a slight smoky cast most prominent on the basal half, the veins fuscous.

Male: Structural characters as given under the generic heading.

Length: 1.27 to 1.53 mm.

Coloration as in the female except that the frontovertex and the upper part of the face are duller greenish black with a weaker not at all bluish luster, the flagellum more strongly brownish.

Described from 125 females, 2 males (type, allotype and paratypes) reared Feb. 22-23, 1916, from a larva of *Odynerus nigripennis* (Holmgren) collected Feb. 6, Waialae, Oahu (Swezey), and 25 females, 3 males reared April 2-5, 1916, from the same host in reproduction from a female of the above lot (Timberlake). The males in each case issued a day in advance of the females; from the first host a total of 2 males and 136 females (besides 2 or 3 more that escaped) issued, and from the second 3 males and 49 females.

Coelopencyrtus swezeyi n. sp.

Ageniaspis species, Swezey, Hawaiian Sugar Planters' Exp. Sta., Ent. Bull. 5, 1907, p. 52, pl. 6, fig. 6.

Female: In structure and coloration hardly distinguishable from *C. odyneri*, but the pubescence on the head slightly thicker and rather longer on the frontovertex, the pleura often somewhat brownish, the frontovertex in the typical series from Hawaii strongly metallic purple but in the Oahu series rather duller than in *odyneri* and inclining to greenish.

Length: .96 to 1.49 mm.

Male: Differs from the male of *odyneri* in having the head a little thinner above or hardly over twice as thick dorsally as at the oral margin; the frontovertex fully as wide as long with the frons rather more protuberant; anterior ocellus much closer to the anterior margin of the frons, the ocelli otherwise arranged the same; the face with a median carina above the antennae; the area of differentiated sculpture above the antennal sockets regularly and closely lineolate medially and more irregularly lineolate towards the eyes. Scape somewhat narrower with its outer margin slightly but distinctly arcuate; pedicel strongly produced on the outer side so that it is twice as wide as long and subquadrangular as seen from above; flagellum much shorter; first funicle joint thinly discoidal, being very short and transverse, produced upward and also on the outer side into a short ramus; second joint short and transverse but not discoidal, produced on the outer side but not upward, its ramus somewhat shorter than the first; next two joints about twice as wide as long, the third subproduced laterally; last two funicle joints longer and somewhat wider than the fourth, the sixth about a half wider again than long; club nearly as in *odyneri* although somewhat smaller. Pubescence on the upper part of the face slightly longer and the tuft of fine, short hair on the pedicel somewhat thicker. Coloration as in *odyneri* with the pleura and antennae more brownish, the apex of the flagellum becoming distinctly brown.

Length: 1.05 to 1.38 mm.

Described from 61 females, 11 males (type, allotype and paratypes) reared from *Odynerus nigripennis* (Holmgren), Pahala, Hawaii, Dec. 7, 1905 (Swezey); 2 females (paratypes) taken on a rock near an *Odynerus* nest, Pahala, Hawaii, Dec. 7, 1905 (Swezey); 40 females, 8 males (paratypes) reared from *O. nigripennis*, Tantalus, Oahu, Dec. 20, 1908 (Giffard); and 56 females, 4 males (paratypes) found dead in *Sceliphron* cells occupied by *O. nigripennis*, Makiki Valley, Oahu, Jan. 16, 1916 (Swezey and Timberlake).

From the Pahala *Odynerus* larva Swezey reared 101 parasites in all, and Giffard reared approximately 275 from three larvae.

Nesencyrtus n. g.

Closely allied to *Coelopencyrtus* and similar except as follows:

Female: Head considerably shorter and thicker, in frontal view noticeably wider than long, subquadrate with the dorsal margin rounded, the oral margin truncate; in side view with the cheeks very thick at the oral margin fronto-occipitally, or nearly one-half as thick as the head at the anterior corners of the eyes; frontovertex rather wide and one-half as wide as long; ocelli in a nearly equilateral triangle, the anterior one not far behind a line connecting the anterior corners of the eyes, the posterior pair close to the eye-margins and rather remote from the occipital margin; eyes relatively smaller with the anterior and dorsal orbits much less rounded; face broader, the scrobal impression not reaching quite so far upwards towards the eyes, the elevation between the antennae a little more prominent, the clypeus broadly produced medially as in *Coelopencyrtus* and nearly discreted as a separate, narrowly transverse sclerite projecting over the mouth-opening; cheeks as long as their own width above or as long as the width of the eyes. Antennae much shorter and very strongly clavate; the scape moderately long, reaching to the upper limit of the face and including the radicle as long as the flagellum, compressed and slightly expanded below, with an excavation on the apical half of the under side to receive the pedicel; the latter strongly thickened at apex, wider than the first and somewhat longer than the first three funicle joints combined; funicle joints all much shorter than wide, increasing strongly in width distad and slightly in length, the sixth nearly twice as wide as the first; club large, broadly oval, rounded at apex, much wider than the funicle and about as long. Mouth-opening very large to accommodate the unusually large mandibles; these are flattened, somewhat curved inward apically, the apex hardly narrower than the base with three strong, acute teeth, the inner tooth somewhat shorter and blunter. Maxillary palpi somewhat shorter, the apical joint considerably shorter than the three preceding joints combined.

Thorax somewhat more depressed, the scutellum less strongly elevated and declivous at the sides especially towards the apex; the axillae meeting medially, abdomen similar, the ovipositor internally longer, and slightly protruded. Wings and legs practically the same; sculpture and pubescence similar to *Coelopencyrtus*.

Male: Head much thinner than in the female, the frons not protuberantly produced beyond the eyes as in *Coelopencyrtus*; frontovertex a little wider than long; ocelli in a right-angled triangle, the posterior pair

nearly touching the eye-margins and not much more than their own diameter from the slightly rounded occipital margin; face no longer than wide and not produced upward beyond the eyes as in *Coelopencyrtus*, although strongly concave lengthwise above the antennae. The latter inserted slightly further apart than in the female although hardly higher up on the face, somewhat longer than in *Coelopencyrtus*, not clavate, but with the first four funicle joints shortly ramose on the inner side; scape much longer, not triangularly thickened but on the contrary rather strongly compressed and somewhat dilated below, with a groove on the outer surface to receive the pedicel; the latter triangular and no longer than wide at apex, the first funicle joint longest, the last two but little shorter, the first four much wider than long, being produced on the inner side into moderately long rami, of which the third is longest, the first shortest; last two funicle joints subtriangular, narrow at base and somewhat wider at apex than long; club solid, oval, no wider than the preceding joint and a little shorter than the last two funicle joints combined.

Sculpture similar to that of *Coelopencyrtus* male, but the area above the antennal sockets not nearly so distinctly differentiated, being extremely finely lineolate; on each side of the middle of the face contiguous to these areas is a lunulate or subangular impression where the separate curvatures of the lower and upper parts of the face meet; these impressions are highly polished and shining and are separated medially by a smoothish, slight ridge, which widens a little above but soon becomes obsolete. Pubescence about as in *Coelopencyrtus*; the pedicel shortly, rather densely pubescent on the upper side, the following joints with much longer, rather abundant pubescence, which is also present on the rami.

Genotype: *Adelencyrtus kaalae* Ashmead.

This genus is only remotely related to *Adelencyrtus* in which Ashmead placed his species, and hardly resembles it even superficially, although it must be remarked that *Adelencyrtus* even at its inception was not at all homogeneous.

Nesencyrtus kaalae (Ashmead).

Adelencyrtus kaalae Ashmead, Fauna Hawaiiensis, 1, Pt. 3, 1901, p. 323.

The male, hithertofore unknown, closely resembles the female except in the points brought out in the generic description.

I have examined 4 females from Oahu: Tantalus (Giffard), Opaaula and Kalihi (Swezey), and one determined by

Ashmead from Kaala (Perkins); also many specimens from Kilauea, Hawaii, one female taken by Swezey, the rest including both sexes reared from larvae of *Nesoprosopis pubescens* Perkins, found nesting in an old rotten log (Williams).

Aphycomorpha n. g.

Most closely related to *Aphycopsis* Timberlake and *Anagyropsis* Girault, although very similar to *Aphycus* Mayr.

Female: Head a little wider than long, rather thick, the cheeks convergent towards the truncate mouth, the face reflexed, the frons rather narrow and not prominent; eyes rather small, very broadly oval; frontovertex two and a half times as long as wide at the middle, being widened both anteriorly and posteriorly; ocelli arranged in an acute-angled triangle, the anterior one at the center of the frontovertex, the posterior pair almost touching the eye-margins and remote from the occipital margin; face and cheeks as long as the eyes, the scrobes in the form of a triangular impression divided below by a median, moderately elevated ridge between the antennae. Antennae inserted close to the clypeal margin and formed much as in *Aphycus*; the scape compressed, but not expanded beneath; the pedicel about as long as the first three funicle joints combined; funicle joints all a little wider than long, increasing distinctly in width and more slightly in length distad; the club large, oval, wider than the funicle and as long as the five preceding joints combined. Mandibles with an acute ventral tooth, and a broad dorsal one.

Thorax robust, the dorsum slightly convex; the collar of pronotum short, narrowly transverse and scarcely arcuate; mesoscutum nearly twice as wide as long, the posterior margin slightly sinuate on either side of the middle which is slightly produced caudad; axillae much wider than long and nearly meeting at the middle; scutellum very large, somewhat longer than wide, the sides slightly rounded in outline and strongly declivous, the apex rounded; propodeum very short at the middle and not greatly enlarged laterally. Abdomen very small, scarcely one-half as long as the thorax, depressed, triangular with the basal corners rounded and the apex rather acute; the vibrissal plates situated a little before the middle just within the lateral margin on the ventral side; fifth ventrite reaching half way between the middle and apex; ovipositor internally reaching nearly to the base of the abdomen, apically free beyond the fifth ventrite and slightly protruded.

Legs stout, moderately long, the middle tibiae much enlarged at apex and the middle tarsi strongly incrassate. Discal ciliation of wings dense and uniform, the speculum widened below, marginal fringe short and dense; submarginal vein broken where it joins the thickened apical part, the basal portion with six long bristles which gradually shorten on the outer side of the longer middle ones; marginal vein nearly twice as

long as thick, the stigmal moderately long, straight, slender with the apex much enlarged, the postmarginal as long as the slender part of the stigmal.

Sculpture of the head very finely alutaceous and opaque; the thorax slightly shiny and microscopically reticulate; the abdomen more shining and more coarsely reticulate. Eyes with a short, rather thick pile; the frontovertex with a very fine, inconspicuous blackish pubescence; collar of pronotum and the mesonotum with much coarser, black bristle-like hairs arranged more or less seriatly on the scutum and scutellum. Coloration non-metallic yellowish.

Male: Head considerably thinner than in the female, the eyes smaller; the frontovertex somewhat wider than long; ocelli arranged in a right-angled triangle, the posterior pair situated rather close to the eyes and the occipital margin. Antennae inserted higher up on the face yet below the level of the eyes; the scape similar, the pedicel short and thick, or hardly longer than wide, the flagellum elongate, not thickened distad and with long subverticillate hairs which are much shorter on the under side; funicle joints all about equal in length and twice as long as wide, deeply incised on the upper side at the articulations; club solid, elongate elliptical, acute at apex, somewhat shorter than the last two funicle joints combined and no wider, the abundant hairs gradually shortening towards the apex.

Thorax, abdomen, legs and wings about as in the female; the abdomen fully as large as in the female; the middle tarsi not much thickened at base although attenuated towards apex, yet nevertheless much more robust than the front or hind tarsi.

Sculpture somewhat similar although the frontovertex is a little more coarsely and rugulosely alutaceous and the mesonotum is very finely and closely rugulosely reticulate; pubescence the same yet much less conspicuous as it is concolorous with the black head and thorax.

Genotype: *Aphycomorpha araucariae* n. sp.

This genus differs from *Anagyropsis* in having the scape narrow, not broadly expanded beneath, in the more opaque, alutaceous and less reticulate sculpture, and in having the general form of the body much less robust. From *Aphycopsis* it differs in having the frontovertex much narrower, the oral margin of face truncate instead of distinctly emarginate, in the compressed, non-clavate scape, in the broken submarginal vein, and the somewhat longer marginal. These three genera all agree in the shape of the mandibles.

Aphycomorpha araucariae n. sp.

Female: For the structural characters consult the generic description.

Length, .79 to 1.03 mm.

Head, pronotum, metanotum, propodeum and underparts of thorax primuline yellow (Ridgway), a little brighter on the occiput and face, the vertex often darker or nearly like the mesonotum; the latter and the tegulae ochraceous orange (Ridgway); abdomen brownish black with the dorsal apical margin yellowish, the venter blackish or at least dusky in the center, yellowish at apex beyond the fifth ventrite, the base broadly yellow at the middle and more narrowly yellow at the sides. Antennae dusky yellow becoming more infuscated on the first two funicle joints, the club brownish black; legs concolorous with underparts of thorax, the apex of the last joint of the tarsi blackish. Wings hyaline with a slight or inconspicuous smoky cloud on basal half extending to the apex of the stigmal vein, more distinct just below the stigmal and the break in the submarginal vein, and enclosing below the apex of the submarginal a clear oval area which includes the speculum and extends two-thirds of the way across the disk; the veins fuscous.

Male: Structural characters as given under the generic heading.

Length: .688 to 1.05 mm.

Coloration black, the thorax and abdomen slightly shining, the head opaque; the face brownish black with the prominence between antennae, the oral margin and the mandibles yellowish brown. Scape dusky yellow, the pedicel and flagellum translucent fuscous with a yellowish cast; front and middle legs nearly as in the female, the hind legs blackish brown, with the trochanters, apex of the tibiae and the tarsi brownish yellow. Wings entirely hyaline, the veins fuscous.

Described from 5 females (type and paratypes) reared from *Eriococcus araucariae* Maskell, Moanalua Gardens, Oahu, near Honolulu, May 1-7, 1918 (Timberlake); 18 females, 9 males (allotype and paratypes) from the same host and locality, May 26 to June 12, 1919 (Timberlake); and 4 females, 3 males (paratypes), reared from the same host, Honolulu, Nov. 24 to Dec. 1, 1917 (Fullaway). The oldest specimens examined are three females and a male reared from the same host at Honolulu, July, 1906 (Kotinsky) but they are too much broken to serve as paratypes.

Anicetus annulatus n. sp.

Female: Head considerably wider than long and wider than the thorax; the dorsal surface transversely suboval, horizontal and only slightly convex from side to side; eyes rather broadly suboval, the inner orbits nearly straight and moderately arcuately diverging anteriorly; fronto-

large and arranged in an acute-angled triangle, the anterior one somewhat behind the center of the frontovertex, the posterior pair about one-half their own diameter from the eye-margins, a little over their own diameter apart and nearly twice as far removed from the occipital margin; cheeks fully as long as the eyes and very strongly convergent towards the mouth; the face wider than long, strongly obliquely reflexed and meeting the frons in an acute and carinated angle, which is nearly transverse between the eyes and curved forward and downward in front of the eyes to separate the face and cheeks for a short distance, upper part of face rather deeply concave and divided by a broad median elevation ascending from between the antennae. The latter inserted far apart, a little less than half way from the oral margin to the eyes; scape compressed, dilated beneath, triangular in shape, with the base narrow, the apex broad, the apical corners rounded; pedicel somewhat longer than the first three funicle joints combined, about three-fourths as wide at apex as the sixth funicle joint, triangular with the apical ventral corner produced forward and downward so that the ventral margin is noticeably longer than the dorsal, and the apical margin slightly concave; funicle joints all very short and transverse or foliaceous as taken together, the first joint the longest medially, the sixth much longer on the dorsal margin than any of the preceding, the first but slightly narrower transversely than the sixth; club very large, compressed and obliquely truncate on the apical margin about one-half the way to the base, somewhat wider than the funicle and as long as the funicle and pedicel combined, the sutures,

Thorax considerably wider than its depth, the notum moderately conspicuous especially the one between the second and third joints, obsolete.

Prothorax; pronotum very short, transverse and somewhat arcuate, mesoscutum not quite twice as wide as long, its posterior or basal margin nearly straight; axillae short, transverse, nearly or actually meeting medially; scutellum large, a little longer than the scutum or its own width, rather broadly rounded at apex, the sides a little rounded and but slightly elevated or declivous; propodeum very short at the middle, rather long at the sides and obliquely declivous from the base towards the apex, metapleura oblique, rather small and somewhat narrowed below where touching the hind coxae. Abdomen slightly wider than the thorax and two-thirds as long, strongly depressed, very broadly ovate or approaching rotundity, widest just before the middle where the vibrissal plates are situated, the basal corners rounded, the apex obtusely angled or rounded, the ovipositor barely protruded.

Legs rather short; the middle tibiae not much enlarged at apex, the spur as long as the first tarsal joint; the middle tarsi considerably stouter than the other tarsi but not incrassate, cylindrical and not tapering towards apex. A large central area of the disk of fore wings strongly inflated from below as in related species, the area reaching about one-eighth of the wing-length from apex, its apical margin semicircular; disk finely, moderately densely ciliated, the basal part with a group of much coarser or bristle-like hairs just before the speculum and extending a vertex two and a half times longer than the width at the ocelli; the latter

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little more than half way across the disk; the base before these bristles and a narrow longitudinal area beneath the apical part of the venation bare; speculum reaching from the latter area obliquely to the basal area, much narrowed above and overhung by the bristle-like hairs; marginal fringe rather short and moderately dense; marginal vein about twice as long as thick, equal to the stigmal, the postmarginal somewhat shorter and forming an acute angle with the stigmal; marginal and postmarginal veins with a row of six bristle-like hairs of which the one at the apex of the postmarginal is much the longest.

Head, abdomen and thorax except the scutellum smooth and highly polished, the scutellum with an extremely minute, granular alutaceous sculpture; surface of the antennae rather opaque, the scape with relatively coarse reticulations. Eyes with a short, fine and rather thick pile; frontovertex with four rows of very fine, but rather long, pale-colored hair of which the orbital rows are inclined forward, the others backward; mesoscutum with similar, sparse, scattered hairs, the apical margin near the middle with a pair of longer, bristle-like black hairs; scutellum with two pairs of still stouter, longer black bristles, one pair near apex, the other but slightly further apart just behind the middle, the disk also with a few fine hairs. Dorsal margin of the pedicel and flagellum and the ventral apices of the pedicel and funicle joints provided with numerous, black, bristle-like hairs, the sides of the club with similar, shorter hairs.

Length: .78 to 1.18 mm.

General color of head, thorax and venter about ochraceous orange (Ridgway); the face and cheeks paler yellow with a rather wide transverse fuscous to blackish band across their middle, passing through the base of the antennae and curving upward on the median facial prominence; an oblique band on each side of the prosternum extending forward from the coxae, black; frontovertex, mesoscutum and mesopleura washed with a distinct but not very strong purplish luster; propodeum and metanotum blackish on each side of the middle, the metapleura with an oval to oblong spot on the upper part, brilliant, metallic, pale green; abdomen except the venter black with a bluish luster medially at the base, the sides on the basal half brilliant, bright green, the sides very broadly on the apical half about antimony yellow (Ridgway). Antennae concolorous with the frontovertex, the radicle joint and ventral margin of the scape narrowly black. Legs somewhat paler yellow than the thorax with the apex of the tarsi, the first joint of the hind tarsi and two annuli on the hind tibiae black, the first tibial band situated close to the base, the second just beyond the middle. Wings subhyaline; a broad area across the disk opposite the apical third of the venation and the extreme base smoky; apical part of disk beyond the venation slightly infuscated and more deeply so in a narrow band encircling the inflated area, leaving the apical margin clear; veins yellowish with the marginal more brownish.

Male: Much different from the female and considerably like the male

of *Cerapterocerus*; head in general shape similar to the female but much thinner and the frons not so prominent; frontovertex slightly wider than long, the ocelli in a nearly equilateral triangle, the posterior pair about their own diameter from the eye-margins and the occipital margin; cheeks considerably longer than the eyes and very strongly convergent towards the mouth; face wider than long, obliquely reflexed and meeting the frons in an acute angle, with a prominent median ridge from the oral nearly to the frontal margin, and deeply, somewhat triangularly hollowed on either side of the ridge. Antennae inserted moderately far apart near the middle of the face nearly on a line with the anterior corners of the eyes, the scape very short, excluding the radicle no longer than the pedicel and the first funicle joint combined, compressed and twice as long as wide; pedicel no longer than thick; flagellum slender and elongate, not thickening towards the apex, the funicle joints with long, subverticillate hairs, the club with similar scattered hairs shortening towards the apex; the first funicle joint somewhat longer than the second to fourth, the last two still longer, the first a half longer than wide, the fifth about twice as long as wide, the sixth a little shorter, each, especially the second to the fifth, deeply incised at the articulations so that the second to fourth are subtriangular; club nearly as long as the last two funicle joints combined, narrow, acute at apex and solid.

Mesoscutum much larger than in the female and much longer or hardly a fourth wider than long; axillae triangular, being longer and not so wide and more distinctly separated medially; scutellum much smaller or no longer than wide and much shorter than the scutum; abdomen about the same as in the female although hardly wider than the thorax and less rounded on the sides. Wings much wider and shorter; the disk not inflated and uniformly ciliated, with the cilia before the speculum but slightly larger and extending in a group across the disk, the basal bare area much smaller; the marginal, postmarginal and stigmal veins all shorter but keeping about the same proportions to each other.

Face shining and very finely or microscopically reticulate; frontovertex finely, closely granular and rather opaque; mesoscutum finely, transversely reticulate; sometimes appearing minutely rugulose, and but slightly shiny; scutellum crowded with fine granular reticulations somewhat longitudinally lengthened, appearing velvety opaque in some lights and metallic in others, the declivous part of the apical margin becoming smooth and polished; axillae, propodeum, pleura and abdomen comparatively smooth and shining. Pubescence except on the eyes more abundant than in the female; frontovertex with six rows of fine hairs inclined backward, and a few hairs on the occipital margin inclined forward; the pubescence on the mesoscutum more distinctly arranged seriatly; the fine hairs on base of scutellum longer, the anterior pair of bristles more widely separated.

Length: .68 to .86 mm.

General color black and weakly metallic in large part; frontovertex brown; the face with a slight greenish luster; scutellum slightly metallic;

greenish in some lights and more strongly so on the apical margin; mesopleura with a rather strong purple luster, the metapleura strongly metallic green; the abdomen slightly bluish black and shining. Scape and pedicel blackish, the flagellum dusky yellow with the verticillate hairs black. Front and middle legs pale yellow, the front tibiae broadly at the middle and the basal third of the middle tibiae fuscous; hind legs fuscous, the tibiae more blackish, the trochanters, the tibiae narrowly at base and on the apical fifth, and the tarsi pale yellow; apex of all the tarsi black. Wings entirely hyaline, the veins mostly yellowish, the marginal vein fuscous.

Described from 2 females, 3 males (type, allotype and paratypes) reared from *Eucalymnatus tessellatus* (Sign.), Honolulu, Oahu, Nov. 26 to Dec. 1, 1917 (Fullaway); 1 female (paratype) supposed to have been reared from *Saissetia hemisphaerica* (Targ.), Honolulu, April 25, 1912 (Fullaway); 1 female (paratype) collected on *Cyrtandra*, Niu, Oahu, Feb. 1, 1914 (Swezey); and 3 females, 1 male (paratypes) reared from *Eucalymnatus tessellatus*, Puu Kapele, Kauai, Feb. 14, 1915 (Swezey).

Examination of the host remains mounted with the Kauai specimens indicates that the parasite is unquestionably a primary parasite and that only one issues from the nearly full-grown scale. The record from *Saissetia* needs confirmation before being accepted.

OFFICERS ELECTED FOR 1919.

President.....W. M. GIFFARD
 Vice-PresidentD. L. CRAWFORD
 Secretary-Treasurer.....D. T. FULLAWAY

Messrs. Muir and Giffard were appointed a Committee to consider desired changes in the Constitution and By-Laws.

The Treasurer reported a balance in the treasury of \$57.38.