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A CONTRIBUTION TO THE KNOWLEDGE OF THE  
EUCHARIDAE (HYMENOPTERA: CHALCIDOIDEA)

By A. B. GAHAN

THE following notes and descriptions are published principally in order to make names available for various species of Eucharidae that have been submitted for determination.

Family EUCHARIDAE

The family Eucharidae is an extensive one, comprising many of the most striking forms to be found in the Chalcidoidea. It is evident that only relatively few of the existing species as yet have been described. In view of the many weird and unusual forms to be found in the family, one might expect their classification to be an easy matter, but such is not the case. Supposed generic distinctions often intergrade, making it difficult to be sure of the correct placement for a given species, and specific distinctions are often extremely subtle, consisting of slight differences in sculpture that are hard to describe and may easily be overlooked. So far as known all the species are parasites of Formicoidea or at least associated with ants, and the biologies of the few species of which the habits are known are not only very interesting but quite complicated.

Genus EUCHARIS Latreille

EUCCHARIS SCUTELLARIS, new species

Closely resembles *adscendens* Fabricius, as that species stands represented in the National Museum by specimens identified by Dr. E.

Ruschka, but may be distinguished at once by the rugosely sculptured scutellum and the fact that the scutellum is not bidentate at apex.

*Female*.—Length 6 mm. Head and thorax dark metallic green, abdomen mostly black but with the apical margin of second tergite, all of third, fourth, and fifth tergites yellow, the two apical tergites black; antennae entirely black; legs mostly yellowish testaceous but with the femora pitchy black and the coxae concolorous with the thorax; tegulae dark brown or blackish; wings nearly uniformly light brownish, the middle of disk a little paler; venation dark brown.

Head viewed from in front much broader than high and not nearly so wide as thorax; frons and vertex rugosely sculptured; face, cheeks, and lower part of temples sparsely punctate; clypeus perfectly smooth, its anterior margin very nearly straight; supraclypeal area mostly smooth and very indistinctly (sometimes not at all) separated from the clypeus; ocelli large, in a very low triangle; ocellular line not longer than the diameter of a lateral ocellus, the area between posterior ocellus and eye margin deeply depressed. Mesoscutum and axillae smooth and shining but with very fine punctures sparsely scattered over the surface; parapsidal grooves sharply impressed, complete, and finely foveolated; groove at base of scutellum deep and coarsely foveated; scutellum rugoso-punctate, with a deep longitudinal groove down the middle and a slightly elevated protuberance at dorsal apex which is not emarginate, the transverse groove obscured by the rugose sculpture; metanotum rugose; propodeum nearly uniformly rugulose, without carinae, the spiracular furrows broad and deep; sides of pronotum strongly rugose; prepectus not distinctly separated from pronotum; mesothoracic spiracle plainly exposed; mesopleura mostly smooth, with sparse small punctures similar to those on mesoscutum but more or less strongly wrinkled along the margins and on lower half, the femoral furrow deep and with coarse transverse rugae. Anterior coxae rugulosely sculptured, the median and posterior pairs nearly smooth; anterior and median femora distinctly shorter and thicker than the posterior pair. Abdominal petiole two and one-half to three times as long as broad, rugulosely sculptured above on basal half, smooth on apical half, entirely smooth beneath, nearly parallel-sided throughout most of its length but rather abruptly narrowed near base, and with a deep longitudinal median groove both above and beneath; gaster somewhat smaller than the thorax, mostly smooth and polished but with ultimate and penultimate segments as well as the basal middle of fifth tergite, finely punctate.

Antennal scape, exclusive of radicle, about as broad as long; pedicel broader than long; flagellum 8-jointed, not serrate, the apical joints usually a little narrower than the basal ones; first funicular joint about

twice as long as broad, thicker at apex than at base; second joint distinctly a little longer than broad; third, fourth, fifth, and sixth joints barely longer than broad, the seventh very slightly broader than long; eighth, or club, joint apparently undivided and one and one-half to two times as long as the preceding joint.

Forewing a little more than two and one-half times as long as broad, without marginal cilia and with rather weak discal cilia, the base bare; marginal vein very slightly thicker at base than at apex, post-marginal vein subobsolete, stigmal vein subtriangular and approximately as broad as long.

*Male*.—Length 5.5 mm. Antennal flagellum 10-jointed, the first joint about two and one-half times as long as broad; second to seventh joints each approximately twice as long as broad; eighth to tenth joints as distinctly separated as the others and each as long as the seventh joint or only slightly shorter. Abdominal petiole about four times as long as broad, about as long as posterior femur and a little more slender than in the female; gaster all black, much smaller than the thorax with the punctation of the apical three tergites similar to that of female but not quite so extensive. Otherwise like the female.

*Type locality*.—Suigen, Chosen.

*Type*.—U.S.N.M. No. 53548.

Described from 10 females (one holotype) and 11 males (one allotype) reared by C. P. Clausen from cocoons of *Formica* sp. in June 1928 under Clausen No. 2300.

### Genus *PSILOGASTER* Blanchard

#### *PSILOGASTER ANTENNATUS*, new species

In Ashmead's key to the genera of Eucharidae,<sup>1</sup> this species runs straight to *Psilogaster*, agreeing with all the characters cited except that the joints of the funicle are all short, subequal, and subquadrate or barely longer than broad, instead of elongate as usual in the genus. The club of the antenna is indistinctly divided into three segments by very shallow transverse grooves so that the antenna might be said to be 13-jointed instead of 11-jointed. If considered to have 13-jointed antenna the species would run to *Orasema* in the key, but it differs from typical species of that genus by having the ovipositor very slender and entirely devoid of saw-like teeth, by having the abdominal petiole longer and much more slender, and by lacking a distinct cross-furrow on the scutellum. No representative of *Psilogaster* is at hand for comparison, but the species seems to fit best in that genus and accordingly is placed there pending a better understanding of the genera.

*Female*.—Length 2 mm. Head impunctate, highly polished, black with a strong metallic bluish-green tinge on frons, face, and cheeks;

<sup>1</sup> Mem. Carnegie Mus., vol. 1, p. 207, 1904.

thorax rugoso-reticulate, brownish black; antennae entirely, all legs including their coxae and the abdominal petiole pale yellow; all coxae and petiole of abdomen smooth; abdomen, except petiole, polished, black; mouth parts pale yellowish, mandibles blackish at apex; wings hyaline. Antenna 11-jointed; scape subcylindrical, five or six times as long as broad, about equal in length to five following joints combined; pedicel about twice as long as broad; ring joint subquadrate; seven joints of funicle subequal and subquadrate or very slightly longer than broad; club not thicker than funicle, very slightly longer than two preceding funicle joints together, practically solid but with distinct traces of two transverse furrows. Head transverse, much wider than thorax, perfectly smooth except for a few very weak and irregularly transverse lines on the occiput; occiput very slightly concave; ocelli in a nearly right-angled triangle, postocellar line distinctly shorter than ocellocular line; frons practically without scrobes; clypeus polished, nearly twice as wide as long, its anterior margin broadly rounded; clypeal foveae and groove distinct but very shallow; supraclypeal area not defined, i. e., not limited laterally by grooves; malar space a little shorter than length of eye; mandibles long and curved, the right with three teeth, the left with two. Thorax short, moderately convex, with nearly uniform coarse reticulation; pronotum concealed from above; parapsidal grooves complete and distinct; scutellum nearly round, not especially convex and without a transverse furrow but with an irregular transverse carina in the normal place for the furrow; propodeum about as long as scutellum and with similar coarse reticulate sculpture, without definite median carina and without lateral folds, spiracular sulci present but obscured by the rough sculpture; legs rather slender, their coxae and femora smooth; forewing normal in size, bare from base to a little beyond apex of submarginal vein, moderately ciliated beyond that point and with a few hairs in the costal cell; marginal fringe rather short; veins very slender, the marginal vein about half as long as submarginal; stigmal vein very short, postmarginal two or three times as long as stigmal. Abdomen including the petiole about twice as long as thorax; petiole as long as gaster, very slender, and slightly bowed from end to end; gaster triangular in lateral profile, perfectly smooth and shining; ovipositor slender, apparently straight, and without distinct teeth, normally concealed.

*Male*.—Length 1.9 mm. Almost indistinguishable from the female except by the genitalia. The antennae are very slightly more slender with the hairs a little longer. The abdominal petiole is practically the same as in the female and the gaster is a very little smaller.

*Type locality*.—Kuala Lumpur, Federal Malay States.

*Type*.—U.S.N.M. No. 53549.

1  
No

Holotype female, allotype male, and 23 paratypes collected by C. P. Clausen, at the type locality in February 1930 under Clausen No. 2432. Also 1 paratype taken at quarantine in Honolulu, Hawaiian Islands, May 8, 1931, on *Coelogyne* sp. from Straits Settlements.

Genus PARAPSILOGASTER Girault

PARAPSILOGASTER LAEVICEPS, new species

I am in some doubt as to the true generic position of this insect. The antennae are 12-jointed. The ring joint is entirely absent, and the club has three rather distinct although imperfectly separated joints. The head is perfectly smooth, the occiput rather deeply concave and the angle formed by it with the vertex sharp and margined by a weak carina behind and very close to the ocelli. The mandibles are as in *Orasema*. The labial palpi are 3-jointed, as are also the maxillary palpi. The pronotum is mostly concealed from above, the mesoscutum short, strongly declivous anteriorly and weakly rugulose, with the parapsidal grooves deep and complete. The axillae are broadly united medially and weakly longitudinally wrinkled. The scutellum has a transverse fold at its apical one-third, is perfectly smooth behind the fold but irregularly rugulose in front of it, and is entirely without processes. The propodeum is about as long as the dorsal aspect of scutellum before the fold, mostly smooth, without lateral folds and usually without a median carina, the spiracular grooves well defined. The legs are slender, their tarsi normal. The abdominal petiole is irregularly longitudinally rugulose, about twice as long as the posterior coxae and not especially slender. The gaster is smooth, strongly elevated, its ventral length subequal to the length of petiole, its height nearly twice its ventral length. The ovipositor is thick and armed with very distinct saws. The wings are normal, the costal cell moderately broad, the stigmal vein short and sessile, and the postmarginal vein weak but longer than stigmal.

The above characters, except for the smooth head, long abdominal petiole, and possibly the number of joints in the palpi, seem to agree fairly well with the characters for *Parapsilogaster* Girault as given by Girault<sup>2</sup> and amplified by Ishii.<sup>3</sup> No authentic representatives of *Parapsilogaster* are available for comparison, and it is quite possible that this new species may eventually be found to represent a new genus.

*Female*.—Length 2 mm. Head polished, thin anteroposteriorly; ocelli in a very low triangle, almost in a straight line; postocellar and ocellocular lines subequal; scrobes distinctly impressed, moderately deep; clypeus a little broader than long, polished, its anterior

<sup>2</sup> Mem. Queensland Mus., vol. 4, p. 232, 1915.

<sup>3</sup> Bull. Imp. Agr. Exp. Stat. (Tokyo), vol. 3, p. 204, 1932.

margin very strongly convexly rounded; clypeal foveae large and deep and the clypeal sutures very distinct; supraclypeal area distinctly set off by shallow sutures running from the antennal foramina to the clypeal foveae; labrum with four digits; malar space about equal to the length of eye; eyes bare. Antennal scape clavate, slender at base but becoming thicker toward apex, not quite reaching to anterior ocellus; pedicel short, cup-shaped; funicle joints from first to last successively decreasing in length, the first about three times as long as broad and about one and one-half times the length of the second, the seventh about as long as broad; club a little longer than the two preceding funicle joints combined, 3-jointed, the sutures usually distinct but not deep. Mesoscutum finely irregularly wrinkled, its lateral lobes smooth posteriorly; parapsidal grooves deep and not or very weakly foveolate; sutures separating axillae from scutellum strongly foveated, the carinae separating these foveae continued over the axillae as very fine, widely separated, and more or less parallel and oblique rugae; scutellum longer than broad, dorsally sculptured like the prescutum, smooth at apex, the transverse fold not deeply impressed; propodeum about as long as posterior coxae, mostly smooth but usually with some obscure reticulation along the basal margin and down the middle, the spiracular sulci not foveated; pleura mostly smooth and polished. All coxae smooth; femora and tibiae moderately slender, without sculpture; basal joint of hind tarsi about as long as the three following joints combined; posterior tibia apparently with only one spur. Forewing bare basally behind the submarginal vein, this bare area with a triangular extension a little before the middle of wing and reaching approximately half the length of marginal vein, the rest of wing disk rather densely ciliated; costal cell moderately broad and nearly uniformly ciliated; marginal cilia extremely short, almost absent; hind wing uniformly ciliated from base to apex and with distinct marginal cilia. Segments of gaster apparently not incised medially, all except the first short and subequal. Head, thorax, abdomen, and all coxae black, the thorax with a slight bluish tinge and the gaster faintly coppery; femora all dark brown; trochanters, narrow apices of all femora, all tibiae, all tarsi, the tegulae, and the antennae, yellowish testaceous, the antennal flagellum becoming brownish toward apex; wings hyaline.

*Male*.—Unknown.

*Type locality*.—Peradeniya, Ceylon.

*Type*.—U.S.N.M. No. 53550.

Type and 3 paratypes taken in the above named locality by C. P. Clausen in February 1930 and bearing his number 2435; also 1 specimen taken at the same place July 25, 1913, by an unknown collector.

Genus **CHALCURA** Kirby**CHALCURA DEPRIVATA** (Walker)

Thirty specimens comprising both sexes and labeled "Ex *Odontomachus haematodes* (Linnaeus); Peradeniya, Ceylon, February 1930; C. P. Clausen collector, No. 2434" have been identified as this species.

Genus **KAPALA** Cameron**KAPALA TERMINALIS** Ashmead

Fifty specimens taken by C. P. Clausen at Hoyo Colorado, Cuba, in July and bearing his numbers 2453 and 2451 agree nicely with a paratype of this species in the National Museum collection. The species was originally described from Cuba, the exact locality not stated. Two specimens received from S. C. Bruner were also taken in Cuba, one at Sierra Rangel, Pinar del Rio, and the other at Manacas, Santa Clara. One specimen received from G. N. Wolcott, taken at Port au Prince, Haiti, in February 1925 seems also to belong to this species.

**KAPALA FURCATA** (Fabricius)

Thirteen specimens bearing C. P. Clausen No. 2447, and taken January 2, 1931, on Barro Colorado Island, Panama Canal Zone, ovipositing in flower buds, seem to agree with Ashmead's identification of this Fabrician species. Other material in the collection indicates a distribution for this species extending from Brazil through Venezuela, Colombia, Panama, St. Vincent, Grenada, and Mexico to Brownsville, Tex.

Genus **SCHIZASPIDIA** Westwood**SCHIZASPIDIA CONVERGENS** (Walker), new combination

*Eucharis convergens* WALKER, Ann. Mag. Nat. Hist., ser. 3, vol. 6, p. 358, 1860.

Seven female and fifteen male specimens labeled "ex *Odontomachus haematodes* (L.); Peradeniya, Ceylon, February 1930; C. P. Clausen collector, No. 2433" seem to agree very well with Walker's description of *Eucharis convergens* and are believed to be that species.

This species is obviously very similar to *Schizaspidia furcifera* Westwood, the type species of *Schizaspidia*, and I believe should be referred to that genus. It differs from the description and figures of *furcifera* by having the first joint of the flagellum in the female nearly twice as long as the pedicel, joints 2 to 8 of the flagellum much less strongly produced dorsally, the ninth or apical joint very little longer than broad and with one more or less obscure constriction, the antenna therefore apparently 12-jointed instead of 13-jointed. The scutellum is not distinctly longitudinally striated but is shallowly

and irregularly rugose with only one or two weak longitudinal rugae laterally.

The species closely resembles *antennata*, the new species described herewith, but differs in the following respects: Flagellar joints in the female less strongly produced dorsally, the longest tooth being much shorter than the length of the segment; ninth flagellar joint closely fused with the tenth, often hardly distinguishable, the antennae therefore often appearing to be only 11-jointed; transverse rugae on mesoscutum a little less coarse, the surface of mesoscutum therefore more shining; parapsidal grooves complete but not deeply impressed and with some of the transverse rugae continuous from the middle lobe of mesoscutum onto the scapulae; axillae and scutellum not distinctly longitudinally striated but weakly irregularly rugose and shining, and the median groove on scutellum broad and shallow; scutellar process almost exactly like that of *antennata* but the apex of scutellum beneath the process nearly smooth; propodeum irregularly rugulose, more or less shining except laterally; abdominal petiole very nearly smooth; second tergite sparsely punctate, the punctures most numerous on the sides of tergite; ovipositor slender, perfectly straight, and armed with only about three or four very weak teeth apically; hypopygium apparently with only five or six long hairs at its apex.

The male differs from the male of *antennata* by having the first flagellar joint without a dorsal tooth, the branches on joints 2-9 slightly longer and not quite so broadly compressed, the clypeus and supraclypeal area polished like the rest of face, mesoscutum with the median lobe irregularly transversely rugoso-striate, the rugae continuous across the parapsidal grooves onto the scapulae, scutellum and axillae not longitudinally striated but coarsely rugoso-punctate, apex of scutellum beneath the apical process and also the propodeum strongly rugoso-punctate, abdominal petiole about one and one-half times the length of posterior coxae and practically smooth.

The straight, slender, and weakly toothed ovipositor, when compared with the strongly curved, thicker, and strongly toothed ovipositor of *antennata*, indicates a different method of oviposition and suggests the possibility that the two species do not belong in the same genus. The ovipositor of *convergens* is similar to that of at least some of the species of *Stilbula* but the fact that the flagellar joints in the female are serrate, and in the male have long branches, at once excludes it from that genus. Its great similarity to *antennata* in all respects, except the ovipositor, constrains me to believe the two should be placed in the same genus and that both are congeneric with *Schizaspidia furcifera* Westwood.



## SCHIZASPIDIA ANTENNATA, new species

Agrees very well with the description of *furcifera* Westwood except that in the female the third joint of the antenna is very nearly or quite twice as long as the second, the eleventh joint is distinctly separated from the twelfth and produced laterally like the preceding joints, while the twelfth joint is very short, almost globose, and apparently undivided.

*Female*.—Length 3 mm. Head, thorax, propodeum, and abdominal petiole dark green; gaster brownish black; antenna dark brown, the scape and pedicel paler; coxae all dark brown, rest of legs yellowish testaceous; tegula testaceous; wings mostly hyaline but with a broad indefinitely delimited brownish fuscous band embracing the stigmal vein and extending across the wing nearly to the posterior margin.

R.H.O.

Head with vertex and occiput transversely striated, upper part of frons between scrobe and eye margin with weak longitudinal striae, temples weakly longitudinally rugulose, lower part of frons, face, clypeus and anterior portion of malar space perfectly smooth and polished; malar space a little shorter than eye; ocelli in a slightly curved line, the posterior ocellus about twice its own diameter from the eye margin. Mesoscutum with complete and widely separated parapsidal grooves, its median lobe strongly transversely rugoso-striate, the lateral lobes also transversely rugoso-striate bordering the parapsidal grooves but more coarsely and irregularly rugose laterally; axillae and scutellum coarsely longitudinally striated, the scutellum with a deep median longitudinal groove and with the forked process at apex about as long as the scutellum itself, this process grooved medially, more or less striated laterally, the tines of fork nearly smooth and carinately margined; apex of scutellum beneath the process irregularly rugose; propodeum rugose, without carinae, and with the spiracular furrows shallow and obscured by the rough sculpture; pleura mostly rugose but with the mesepisternal plate partly smooth. Coxae smooth; femora smooth and all moderately slender. Abdominal petiole a little longer than posterior coxae, broader at apex than at base and rugulosely sculptured; gaster smooth, not as large as thorax, the hypopygium at apex with about 20 long stiff hairs; ovipositor strongly curved downward the dorsal valves each with about 8 distinct transverse ridges or teeth.

Antenna 12-jointed, without a ring joint; scape cylindrical, not quite reaching to anterior ocellus; pedicel about as long as broad; flagellum strongly serrate, the first flagellar joint about twice as long as pedicel and not prolonged into a tooth dorsally; second to ninth

flagellar joints above at apex each produced into a strong tooth which on the middle joints is a little longer than the body of the segment; tenth or apical joint nearly globose or a little broader than long and apparently not divided.

Forewing about two and one-half times as long as broad, bare at base for a little more than half the length of submarginal vein, this bare area prolonged along the posterior margin of wing about to apex of submarginal vein; costal cell nearly uniformly ciliated; ciliation on disk of wing rather dense; marginal cilia very short, absent on apex of wing; stigmal vein about one-fourth as long as marginal, postmarginal about half as long as marginal.

*Male*.—Length 3 mm. Antennal scape very slightly swollen, approximately thrice as long as broad, pedicel a little broader than long; first flagellar joint with a cone-shaped dorsal tooth, which is about as long as the body of the segment, second to ninth flagellar joints each with a much longer and distinctly compressed branch, the ones on the fourth and fifth segments longest and about four or five times as long as the one on the first segment; tenth joint without a branch and about equal in length to the branch on the ninth segment. Clypeus and supraclypeal area transversely striated. Median lobe of mesoscutum transversely rugoso-striate, the lateral lobes irregularly rugose with little or no indication of striation; axillae rugose; scutellum coarsely longitudinally striate; apex of scutellum beneath the apical process more strongly rugoso-punctate than in the female; propodeum coarsely rugoso-punctate; abdominal petiole about one and one-half times as long as posterior coxa, not broader at apex than at base and distinctly rugose. Otherwise like the female.

*Type locality*.—Kuala Lumpur, Federated Malay States.

*Type*.—U.S.N.M. No. 53551.

Described from 4 females and 2 males taken in June 1930 by C. P. Clausen and bearing his number 2439.

### Genus *STILBULA* Spinola

#### *STILBULA TENUICORNIS* (Ashmead), new combination

*Schizaspidia tenuicornis* ASHMEAD, Journ. New York Ent. Soc., vol. 12, p. 151, 1904.—CLAUSEN, Ann. Ent. Soc. Amer., vol. 16, p. 215, 1923.—PARKER, Ann. Soc. Ent. France, vol. 98, p. 270, 1924.

The type of this species, as well as a series of 6 specimens from Koiwai, Japan, and 60 specimens from Suigen, Chosen, including numerous representatives of both sexes, has been examined. The elongate and cylindrical flagellar joints in both sexes, the short and bispinose scutellar process, the very narrow costal cell, the very broad and deep spiracular grooves on the propodeum, and a distinct hump

or elevation on the propodeum laterad of each spiracle place the species in the genus *Stilbula* instead of *Schizaspidia*. In fact, I am able to distinguish these specimens from *S. cynipiformis* (Rossi)<sup>4</sup> (type of the genus), as represented by European specimens identified by F. Ruschka, only by the fact that the face of the Japanese form is more distinctly transversely striated and the coarse punctures constituting the sculpture of scutellum are somewhat smaller and correspondingly more numerous than in the European form. These differences are not very pronounced, and it seems quite possible that *S. tenuicornis* is merely a geographical race of *S. cynipiformis*.

**STILBULA POLYRACHICIDA** (Wheeler and Wheeler), new combination

*Schizaspidia polyrachicida* WHEELER and WHEELER, Psyche, vol. 31, p. 49, 1924.

This species, which is represented in the National Museum by one female specimen (the type), apparently belongs in *Stilbula*. The flagellar joints are cylindrical, not serrate, the scutellar process is short, the spiracular furrows on propodeum are broad and deep, and there is a more or less distinct elevation laterad of the spiracle.

The species is readily distinguished by a broad, deep, rounded pit at the base of the scutellum between the axillae (not on the metanotum as stated in the original description).

**STILBULA FLORIDANA** (Ashmead), new combination

*Lophyrocera floridana* ASHMEAD, Ent. Amer., vol. 3, p. 187, 1888.

This species is excluded from *Lophyrocera* by the fact that the propodeum is without toothlike processes. The only female representative of this species in the U. S. National Museum collection lacks the head, but the species is so nearly identical with *septentrionalis* (Brues) that it seems safe to assume that the antennae, like those of *septentrionalis*, are not serrate, a character that would also throw it out of *Lophyrocera*. The antennae of the male have the flagellar joints long and cylindrical, and the other essential generic characters are those of *Stilbula*.

**STILBULA SEPTENTRIONALIS** (Brues), new combination

*Schizaspidia septentrionalis* BRUES, Bull. Wisconsin Nat. Hist. Soc., vol. 5, p. 104, 1907.

The type of this species, formerly in the Brooklyn Museum but now in the U. S. National Museum, is apparently congeneric with the

<sup>4</sup>This species name was emended by Kirby (Journ. Linn. Soc. London, Zool., vol. 12, p. 31, 1886) to *cynipiformis*, and the emendation has been accepted by some subsequent authors. The emendation, however, seems equally as incorrectly formed as the original spelling, and since any change of the name was unnecessary, I prefer to use the original spelling.

other species here transferred to the genus *Stilbula*. It is easily distinguished from the other species known to me, except *floridana* (Ashmead), by its different coloration and also by having the propodeum deeply and broadly hollowed out medially, this median depression as well as the broad spiracular furrows with coarse transverse striae, the surfaces between the median depression and the spiracular grooves very prominent and very coarsely rugose. The propodeum laterad of the spiracle is not strongly elevated as in some of the species.

The species is very similar to *floridana* (Ashmead), apparently differing only by having the thorax more distinctly and more extensively marked with black.

**STILBULA MANIPURENSIS (Clausen), new combination**

*Schizaspidia manipurensis* CLAUSEN, Proc. Ent. Soc. Washington, vol. 30, pp. 80-86, 1928.

In this species the antennae of both sexes are long and cylindrical, the scutellar process is comparatively short, and the costal cell is not especially broad. These characters place the species in *Stilbula* instead of *Schizaspidia*, although the propodeum is without the pronounced elevations laterad of the spiracles usually characteristic of *Stilbula*.

The characters pointed out by Clausen for distinguishing this species from *tenuicornis* (Ashmead) will also distinguish it from *cygniformis* (Rossi). The absence of a conspicuous fuscous cloud below the stigmal vein will also help to distinguish the species.

The statements "face with fine longitudinal striations, the front smooth" in the original description appear to me to be inaccurate. Actually that part of the head below the antennae is nearly smooth, without any striations but with obscure suberased punctures except on the clypeus, which is perfectly smooth, while the frons between the scrobe and eye margins is longitudinally rugose. The head viewed from in front is only about twice as broad as long. The ocelli are very nearly in a straight line.

**Genus ORASEMA Cameron**

This genus was originally described from Panama with *Orasema stramineipes* Cameron as the genotype. The genus apparently is confined to North and South America, the West Indies, and the Australian region.

Specific characters consist for the most part of slight differences in sculpture, which are hard to define. Color of the legs and antennal scape and to some extent the degree of metallic coloration of the body seem to be significant but must be used with caution.

Because of inadequate descriptions and lack of material, the following 11 described species have been omitted from the key to species: *O. festiva* (Fabricius) from Central America; *maculata* (Westwood) and *rapo* (Walker) from Brazil; *argentina* and *doellojuradoi* Gemignani from Argentina; *costaricensis* and *sivaloae* Wheeler and Wheeler from Costa Rica, and *emma*, *gemma*, *palgravei*, and *pheidolophaga* Girault from Australia.

KEY TO SOME SPECIES OF ORASEMA

1. Females ----- 2  
 Males ----- 20

2. Abdominal petiole nearly twice as broad as long; prescutum anteriorly broadly impressed in middle ----- *dark not green - pt texana, new species* 20  
*got a few co*

Abdominal petiole at least as long as broad; prescutum without a median impression anteriorly ----- 3

3. Axillae and scapulae dorsally nearly smooth and polished, never more than weakly lineolated; mesosternum also mostly smooth ----- *elongate thorax brown - antennae yellow* 3  
*both smooth in all sp* *coloradensis Wheeler* ✓

Axillae and scapulae densely rugulose or punctate, never polished; mesosternum usually strongly sculptured ----- 4

4. Thorax dorsally with coarse irregular rugose sculpture, never with nearly uniform rounded areas or shallow punctures, not alveolate ----- 4

Thorax usually with nearly uniform dense shallow rounded punctures dorsally, resembling honeycomb, hence alveolately sculptured; if not alveolate then sculpture is not coarse but finely rugulose ----- 5

5. Mesoscutum coarsely transversely shagreened, the parapsides smoother; parapsidal grooves coarsely foveolate, scutellum coarsely longitudinally shagreened and with partial longitudinal striation; petiole longitudinally striate (from original description) ----- 8  
*cameroni Howard?*

Sculpture not as above ----- 6

6. Antennal flagellum distinctly thicker than pedicel; all femora dark fuscous or metallic; head mostly metallic green; dorsum of thorax green or if somewhat aeneous the postmarginal vein is very poorly developed and scarcely longer than stigmal vein ----- 7  
*50-70*

Antennal flagellum not thicker than pedicel; all femora pale; head and dorsum of thorax uniformly aeneous, only the pleura, propodeum, and coxae more or less tinged with green; postmarginal vein well developed and half as long as marginal. ----- 7  
*nearby copy* *dorsum coppery* *dorsal sculpture like stucco*

7. Supraclypeal area nearly twice as long as broad and separated from clypeus by only a broad shallow depression; ocellular line a little longer than distance between posterior ocelli; cheek fully as long as eye and with a broad shallow depression running from eye to base of mandible; scapulae adjacent to parapsidal grooves transversely rugose; scape and tegulae metallic ----- *aenea, new species* 7  
*tolteca Mann*

Supraclypeal area subquadrate, cut off from clypeus by a deep furrow; ocellular line distinctly shorter than distance between the posterior ocelli; cheek hardly as long as eye and

without a pronounced depression; scapulae not transversely rugose; scape and tegulae reddish----- violacea Ashmead ✓  
 8. Length nearly 5 mm.; antennal groove dilated suddenly at bottom; pleura with the lower and posterior portion striated; coxae closely sculptured (from original description only).

----- stramineipes Cameron  
 Less than 5 mm. in length and not agreeing otherwise with above description----- 9

9. Thorax very finely and irregularly rugulose, not distinctly alveolately sculptured; hindcoxae very nearly smooth and testaceous or fuscotestaceous; scutellum without lateral grooves----- 10

Thorax with distinctly alveolate sculpture; hindcoxae metallic and distinctly sculptured at least dorsally; scutellum with more or less distinct lateral grooves----- 11

10. Face very nearly smooth; propodeum more weakly sculptured than scutellum and with a delicate median longitudinal carina.----- 11

*not all about smooth*

----- minutissima Howard  
 Face distinctly sculptured, only the clypeus sometimes nearly smooth; propodeum more coarsely sculptured than scutellum and without median carina----- smithi Howard ✓

*longer than scutellum*

11. Scutellum with a broad shallow depression down middle and with lateral grooves broad, strongly foveated, and nearly dorsal; transverse furrow on scutellum also broad and strongly foveated; abdominal petiole at least as long as hindcoxae----- 12

*upper mesepimeron smooth*

Scutellum without a median depression and with lateral grooves less prominent and lower down on sides of scutellum; transverse furrow on scutellum either weak or strong; abdominal petiole usually shorter but occasionally as long as hindcoxae----- 14

*upper mesepimeron finely sculptured*

12. All femora on basal half or more metallic or strongly infuscated; propodeum with nearly uniform alveolate sculpture overlaid medially with some irregular rugulae; supraclypeal area as long as broad and equaling or slightly exceeding clypeus in length----- beameri, new species ✓

*more metallic band on femora*

All femora pale testaceous; propodeum in part alveolately sculptured but medially with a somewhat irregular median carina separating two rows of shallow pits or foveae; supraclypeal area a little shorter than clypeus and a little broader than long----- 13

13. Pits on propodeum large; general color bright brassy green; abdomen including petiole brassy green----- aureoviridis, new species ✓

Pits on propodeum smaller; general color olive-green with the propodeum, more or less of pleura, and sutures on dorsum of thorax purplish; abdomen including petiole purplish black, gaster with strong violaceous tints----- simulatrix, new species ✓

*very small abdomen*

14. All femora testaceous or pale yellowish----- 15  
 All femora metallic or at least distinctly infuscated----- 16

15. Abdominal petiole very slightly longer than broad, distinctly shorter than hindcoxae; mesepimeron smooth and shining on its upper half----- neomexicana, new species ✓

*Keep back from a foreleg having a shiny metallic area - very dark posteriorly*

usually dark  
sculptured

THE FAMILY EUCHARIDAE—GAHAN

(F)  
new  
species  
described

Abdominal petiole very nearly twice as long as broad and very nearly as long as hindcoxae; mesepimeron wholly opaquely sculptured..... robertsoni, new species

16. Supraclypeal area at least as broad as long; clypeal foveae unusually large and deep; abdominal petiole about as broad as long, evenly sculptured dorsally and dark bluish in color. Supra-clypeal area highlighted in very light half. - sculptured round. bakeri, new species

Supraclypeal area at least a little longer than broad; clypeal foveae relatively smaller and much shallower; abdominal petiole usually, but not always, distinctly longer than broad, often somewhat irregularly sculptured and usually more or less metallic green..... 17

17. Stigmal vein subquadrate or not much longer than broad..... 18  
Stigmal vein more slender and two or three times as long as broad..... 19

18. Abdominal petiole only a little longer than broad; scapulae obviously more weakly sculptured and more shining than the prescutum; general color blackish aeneous to dark green; scape reddish testaceous..... cockerelli, new species

Abdominal petiole nearly twice as long as broad; scapulae only very slightly more weakly sculptured than prescutum; general color bright metallic green; scape more or less metallic..... viridis Ashmead

19. Color usually bright metallic green tinged with blue or purple, but occasionally more or less aeneous..... wheeleri Wheeler  
Dull dark green, almost black with a slight greenish tinge. occidentalis Ashmead

20. Abdominal petiole longer than posterior femur; scutellum with a median depression..... 26

Abdominal petiole shorter than posterior femur; scutellum without a median depression..... 21

21. Abdominal petiole barely longer than hindcoxa and with some distinct longitudinal rugae..... 22

Abdominal petiole distinctly longer than hindcoxa and without distinct longitudinal rugae..... 23

22. Axillae and scapulae smooth or very weakly sculptured and shining; general color metallic green..... coloradensis Wheeler

Axillae and scapulae strongly sculptured and mat; general color dark aeneous..... minuta Ashmead

23. Abdominal petiole very nearly or quite twice as long as posterior coxa; clypeal fovea unusually large and deep..... bakeri, new species

Abdominal petiole not over one and one-half times as long as posterior coxa..... 24

24. Stigmal vein slender and two and one-half to three times as long as broad..... wheeleri Wheeler

Stigmal vein broader and shorter..... 25

25. Color dark green strongly tinged with aeneous..... cockerelli, new species

Color bright bluish green tinged with purplish on coxae and abdomen..... viridis Ashmead

26. Bright golden green; propodeum medially coarsely pitted and with an irregular median carina..... aureoviridis, new species

Dark green with a strong aeneous tinge; propodeum finely alveolate with a few irregular rugae medially but without coarse pits..... beameri, new species

slightly longer than hindcoxae  
poco

on 1/2 parallelipes.

## ORASEMA TEXANA, new species

This species is distinguishable at once from all others known to me by having the abdominal petiole very nearly twice as broad as long and by having the middle lobe of the mesoscutum anteriorly broadly impressed medially.

*Female*.—Length 2.9 mm. Head dark metallic green; thorax blackish with rather strong metallic tints on the dorsum; abdomen, except the petiole, brownish black with strong metallic green and bronzy reflections; scape and pedicel pale yellow; flagellum brownish black; coxae concolorous with the thorax; femora all fuscometallic on basal two-thirds; trochanters, apices of femora, all tibiae, and all tarsi pale yellow; wings hyaline, venation yellow. Abdominal petiole, propodeum, and pleura dull blackish with only a very slight metallic tinge.

Head alveolately punctate, the alveolae irregular in shape and size and on the frons more or less elongate; middle lobe of mesoscutum sculptured about like the head; scapulae more weakly and finely reticulated than the prescutum and each with a shallow impression near the inner posterior angle; parapsidal grooves very deep and distinctly foveated; scutellum irregularly rugulose, with a shallow depression medially a little in front of the transverse fold, the transverse fold strong and not distinctly foveated, the lateral grooves very weak and inconspicuous; axillae higher than the scutellum and rugulosely sculptured, not alveolate; metanotum rugose; propodeum very finely and rather evenly reticulately sculptured and with a weak median carina; the spiracular grooves complete and weakly foveolated; pleura finely and nearly uniformly punctate; abdominal petiole and hindcoxae finely sculptured; gaster of abdomen smooth and about as large as the thorax; second sternite faintly granulose. Dorsal valve of ovipositor with nine distinct teeth.

Antennal scape cylindrical, slightly thickened throughout its length, not attaining front ocellus; pedicel globose; flagellum not clavate, very slightly thicker than pedicel; ring joint distinct but strongly transverse; first funicle joint about one and one-half times as long as broad, following funicle joints subquadrate; club three-jointed, not thicker than funicle and a little longer than two preceding joints. Clypeus nearly twice as broad as long, weakly rugulose, its anterior margin not straight but slightly convex; clypeal foveae deep and joined by a distinct groove; supraclypeal area well defined, nearly twice as broad as long, weakly rugulose, a shining smooth area medially; cheeks a little shorter than eyes; ocellocular line about one and one-half times as long as the diameter of lateral ocellus and distinctly shorter than distance between posterior ocelli.

Forewings approximately two and one-half times as long as broad,



nearly bare basally and with a bare area on the middle of disk behind the basal half of marginal vein; costal cell very sparsely ciliated; stigmal vein about two and one-half times as long as broad, slightly oblique; postmarginal vein weak and distinctly less than half as long as marginal.

*Type locality*.—Denison, Tex. *north of Dallas*

*Type*.—U.S.N.M. No. 53552.

Described from 1 female collected in sweeping by L. D. Christenson, August 26, 1937.

**ORASEMA COLORADENSIS** Wheeler

*Orasema coloradensis* (Ashmead) WHEELER, Bull. Amer. Mus. Nat. Hist., vol. 23, p. 12, 1907.

*Orasema coloradensis*, a manuscript name of Ashmead, was first published by W. M. Wheeler, who gave a figure and a short description of the species. The name should therefore be credited to Wheeler and not to Ashmead.

According to Wheeler, specimens were taken at Manitou, Broadmoor, and Colorado Springs, Colo. In the U. S. National Museum collection are three specimens from Colorado, one of which bears the name label in Ashmead's handwriting, and this specimen had been entered in the type catalog as the type of the species. It cannot be the type, however, since it, as well as two other Colorado specimens in the collection, named by Ashmead, was collected by C. F. Baker, and there is no evidence to indicate that it was ever seen by Wheeler. There are apparently no Wheeler collected specimens of the species in the National Museum, hence no type material. The Baker specimens are believed to be the same species, however, and the following descriptive notes on the species are taken from them.

This brilliantly metallic-green species with testaceous scape, tegulae, tibiae, and tarsi is rather easily recognized because of the unusually weakly sculptured dorsum of the thorax. The axillae dorsally, the scapulae dorsally, the posterior portion of prescutum, and to a large extent the dorsum of scutellum are smooth or only very weakly sculptured, usually shining, and often highly metallic green. The prescutum anteriorly, scapulae laterally, axillae on the sides, and the base and sides of scutellum are finely and irregularly rugulose. The parapsidal grooves, sutures between axillae and scutellum, and the transverse furrow on scutellum are deep and distinctly foveated.

The female has the head nearly uniformly rugulose and highly metallic green, wider than the thorax. The postocellar line is longer than the ocellocular line, the latter about equal to twice the diameter of a lateral ocellus. The malar space is a little shorter than the eye, flattened but not depressed down the middle. The clypeus is broader than long, its anterior margin nearly straight. The supraclypeal area

is quadrate or a little broader than long, well defined, the clypeal suture complete and the clypeal fovea rather broad and deep. The antennal scape is subcylindrical, rather short and slightly thicker than usual; the pedicel is about as long as broad, the ring joint is transverse, the first funicle joint is about one and one-half times as long as broad and the following joints of funicle are subquadrate. The club is 3-jointed, no thicker than the funicle and somewhat longer than the two preceding joints. The pronotum behind the head is practically smooth, while laterally it is weakly rugulose. The pleura are rugulose sculptured but the mesosternum, posteriorly at least, is polished. The propodeum is rather strongly rugulose, without carinae but frequently with some more prominent rugae medially which at times may suggest a median carina. The coxae are weakly sculptured, almost smooth. The abdominal petiole is a little shorter than the posterior coxae, about one and one-half times as long as broad and rugosely sculptured. The gaster is smooth and polished. The forewing is rather densely ciliated, sparsely but distinctly so basally, the costal cell nearly uniformly ciliated.

The male is like the female except that the funicle joints are usually somewhat longer, the lateral ocelli are not quite twice their own diameters from the eye margins, the abdominal petiole is a little longer than the hindcoxae, approximately three times as long as broad, and the gaster is much smaller than in the female.

*Remarks.*—No information is available regarding the three specimens already mentioned as having been identified by Ashmead. They bear labels exactly similar to those used on all Baker's Colorado material and reading "Colo. 799" and "Colo. 778." In Baker's notebook entries under these numbers refer to Lepidoptera and Coleoptera collected in Michigan and Ohio. It is impossible therefore to trace the history of these specimens.

Twenty-one additional specimens of the species found unidentified in the Baker collection were all collected in the neighborhood of Fort Collins, Colo., and 3 specimens from the same collection were taken at Opelousas, La. Other specimens studied include: 1 taken on *Bige-  
lovia* at Albuquerque, N. Mex., August 16, 1895, by T. D. A. Cockerell; 1 from Wades and 2 from San Diego, Tex., taken by E. A. Schwarz; 1 from Cimarron, Kans.; 1 from Beloit, Iowa, collected by G. O. Henderson, July 25, 1928; 46 swept by J. C. Bridwell from *Stylosan-  
thus* at Barcroft, Va., July 5, 1931; 6 taken at Bladensburg, Md.; and 1 collected by Ashmead in eastern Florida.

The specimens from the Eastern States are very slightly smaller and not quite so brilliantly metallic as those from the Western, the dorsum of the thorax usually appearing very slightly more distinctly sculptured. At most these differences seem to be of not more than varietal significance.

no type

## ORASEMA CAMERONI Howard

*Orasema cameroni* HOWARD, Journ. Linn. Soc. London, Zool., vol. 26 (1896), p. 133, 1897.

No representative of this West Indian species has been studied, and it is placed in the key entirely on the basis of the original description.

## ORASEMA AENEA, new species

*Female*.—Length 3.75 mm. Head and thorax strongly aeneous; pleura, propodeum, and all coxae more or less metallic green mixed with cupreous; abdomen varying from mostly fuscotestaceous with a metallic tinge to mostly metallic green, usually more or less brownish testaceous basally becoming darker toward apex, but occasionally almost entirely metallic green; mandibles, scape, pedicel, tegulae, and legs, except their coxae, testaceous; antennal flagellum black; eyes and ocelli reddish; wings hyaline, venation brownish testaceous.

Head and thorax strongly sculptured, the vertex, mesoscutum, axillae and scutellum rugoso-punctate without any alveolate punctures; punctation of head below vertex, mesopleura, and coxae finer and more or less alveolate; metanotum rugose; propodeum medially and along its anterior and posterior margins rugose, the remainder of its surface, except in the rather broad and deep spiracular grooves, finely alveolately sculptured; abdominal petiole rugoso-punctate and usually with about three longitudinal rugae medially; gaster entirely polished.

Antenna long and slender, not clavate; scape not quite attaining anterior ocellus; pedicel about as broad as long; ring joint transverse; flagellum not thicker than pedicel, its joints all longer than broad, the first joint about twice as long as broad, the second subequal to first, and the following joints successively decreasing slightly in length.

Head, viewed from in front, broader than long; malar space subequal to the height of eye, with a shallow longitudinal depression; clypeus broader than long, uniformly sculptured, clypeal foveae deep; supraclypeal area a little longer than broad, about as long as clypeus and similarly sculptured; ocellocular line shorter than postocellar line; lateral ocellus about twice its diameter from eye margin. Scutellum with a shallow depression medially, without distinct grooves on the sides and with the transverse fold often obscured by the rough sculpture; mesepimeron with its dorsal half, except for a small area on its lower margin, sculptured like the lower half.

Forewing behind submarginal vein not entirely bare; costal cell with numerous nearly uniformly distributed cilia; stigmal vein longer than broad; postmarginal vein fully half as long as marginal.

Abdominal petiole about one and one-fourth times as long as broad, distinctly shorter than hindcoxa.

*Male*.—Unknown.

*Type locality*.—Loreto Experiment Station, Misiones, Argentina.

*Type*.—U.S.N.M. No. 53553.

Described from 15 female specimens received from A. A. Ogloblin and said to have been taken ovipositing in young leaves of *Ilex paraguariensis* ("Yerba mate").

ORASEMA TOLTECA Mann

*Orasema tolteca* MANN, Psyche, vol. 21, p. 183, 1914.

This unusually large species, the type of which measures over 4 mm. in length, is metallic green in color with the head mostly metallic green with a strong aeneous tinge on frons and face, the thorax metallic green but strongly aeneous dorsally as well as on the pleura, the coxae green, the femora dark metallic except apically, and the abdomen polished bluish green. The antennal scape is metallic and the flagellum black. The tegulae are metallic green. The legs except their femora are reddish testaceous, and the wings hyaline.

The sculpture of frons and face is distinctly alveolate while that of vertex, occiput, and temples is more irregular. The clypeus is practically smooth and polished, its anterior margin straight. The supra-clypeal area is nearly twice as long as broad, indistinctly separated from the clypeus by a depression but not a furrow, its surface distinctly sculptured but more weakly so than the frons. The malar space is a little longer than the height of the eye, and there is a broad shallow depression extending from the eye margin to the base of mandible. The ocellocular line is distinctly a little longer than the distance between the posterior ocelli. The antennal flagellum is distinctly thicker than the short pedicel, not thicker apically than basally, its first segment about twice as long as broad, the following segments successively decreasing slightly in length, the last three subequal and each about as long as broad. The mesoscutum is strongly rugoso-punctate, the parapsidal grooves deep and foveolate, and the scapulae along their inner margins transversely striated. The scutellum and axillae are rugoso-punctate, the scutellum with a broad shallow depression medially and with a distinct transverse fold before the apex but without distinct lateral grooves. The propodeum is longer than the hind coxae, nearly uniformly rugoso-punctate, but with a shallow depression along its anterior margin, this depression divided by a short longitudinal carina on the median line and crossed by numerous more or less longitudinally directed rugae. The mesepimeron is sculptured on its upper half as well as on the lower half. The abdominal petiole, viewed from above, is about twice as broad as long, as long as hind coxa, margined by a longitudinal carina on each side, and very weakly sculptured dorsally. The gaster is rather large, smooth and polished. The second sternite is polished with its apical suture foveated.

*Male*.—Not seen.

*Remarks*.—Redescribed from the type, a female from San Miguel, Hidalgo, Mexico, in the collection of Dr. W. M. Mann. According to the original description the type was taken in a nest of *Pheidole vasliti* var. *acollhua* Wheeler. A single female from the C. F. Baker collection agrees with the above description except that it is somewhat smaller and nearly uniformly bright metallic green in color with only a very slight aeneous tinge on dorsum of thorax. Baker's notebook shows this specimen to have been swept from alfalfa at Tucson, Ariz., April 11, 1896, by Dr. R. C. Kinze.

ORASEMA VIOLACEA Ashmead

R.H.O.

*Orasema violacea* ASHMEAD, Ent. Amer., vol. 3, p. 187, 1888.

This species is strongly and irregularly rugose, without any alveolate areas. The head is a little broader than the thorax, nearly uniformly rugosely sculptured, concave posteriorly, with the temples strongly receding. The lateral ocelli are a little less than twice their own diameter from the eye margin and a little farther from each other than from the eye.

Eyes obviously a little longer than malar space, the latter without a longitudinal depression; clypeus broader than long, uniformly rugulose, its anterior margin straight; supraclypeal area fully as broad as long, sculptured like clypeus and separated from it by a deep transverse groove; clypeal foveae deep. Antennal scape a little thickened, subcylindrical, not reaching to level of front ocellus; pedicel nearly globular; funicle joints a little thicker than pedicel, the first joint about twice as long as broad, second about two-thirds as long as first, following funicle joints subquadrate; club obscurely 3-jointed and a little longer than last two funicle joints. Pronotum behind head weakly rugulose; remainder of thorax laterally as well as dorsally strongly sculptured, the prescutum and scapulae posteriorly, axillae dorsally and scutellum in front of cross furrow more coarsely rugose than elsewhere; scutellum behind the cross furrow strongly sculptured but not quite so strongly as before it; propodeum nearly uniformly rugoso-punctate, without lateral folds and without a median carina, the spiracular sulci complete. Forewing sparsely ciliated basally, closely ciliated beyond apex of submarginal vein; stigmal vein a little longer than broad; postmarginal vein more slender than marginal and approximately one-half as long as marginal. Abdominal petiole about as long as hind coxae, about one and one-half times as long as broad, rugosely sculptured; gaster smaller than thorax, mostly smooth but the basal segment (second segment of abdomen) weakly rugulose over a large part of its dorsum; second sternite apparently smooth.

Head, thorax, and propodeum green, the frons and face laterally strongly tinted with purplish; scape brownish testaceous, flagellum blackish; coxae concolorous with thorax; all femora dark brown with strong metallic-green reflections; tibiae and tarsi testaceous; abdominal petiole dark greenish; gaster strongly violaceous with the basal segment bright metallic green above; wings hyaline.

Redescribed from the type, a female from eastern Florida.

**ORASEMA STRAMINEIPES** Cameron

*Orasema stramineipes* CAMERON, Biologia Centrali-Americana, vol. 1, p. 105, pl. 6, figs. 18, a, b, c, d, e, 1884.

*Orasema flavipes* CAMERON, Biologia Centrali-Americana, vol. 1, pl. 5, figs. 20, a, b, c, 1884.

In the description of *stramineipes* Cameron refers to figures on plates 5 and 6. On plate 5 the figures cited are referred to the name *flavipes*, while those on plate 6 are referred to *stramineipes*. The name *flavipes* is evidently a *lapsus calami* and should be considered a synonym of *stramineipes*.

This species, which is the genotype, was originally described from Panama. It is not represented in the National Museum collection and is placed in the key solely on the basis of the original description.

**ORASEMA MINUTISSIMA** Howard

*Orasema minutissima* HOWARD, Journ. Linn. Soc. London, Zool., vol. 25, p. 84, 1894.

This unusually small species has the head and thorax bluish green, this color on face and underside of thorax more or less diluted with testaceous. The abdomen is blackish, also diluted with testaceous and with a slight metallic tinge in some lights. The antennae, tegulae, and all the legs, including their coxae, are testaceous, the flagellum of antennae and the coxae sometimes more or less fuscous. The wings are hyaline.

The sculpture of head and thorax is comparatively weak, consisting of shallow more or less irregularly shaped areas, which are not quite uniform in size and shape and hence not so distinctly alveolate as in most of the following species. The scutellum has the transverse fold very weak or subobsolete, and the usual lateral grooves are absent. The propodeum is weakly sculptured and has a very delicate median longitudinal carina. The coxae are practically sculptureless. The abdominal petiole is about as long as the hind coxae and weakly sculptured. The stigmal vein is barely longer than broad and the postmarginal fully half as long as marginal.

Four female paratypes of this species from the island of St. Vincent are in the collection of the U. S. National Museum. There are also two females taken at Mina Carlota, in the Trinidad Mountains

of Cuba, in the same collection. The latter specimens were collected in association with *Wasmannia auro-punctata* Roget by W. M. Mann in 1917.

**ORASEMA SMITHI** Howard

*Orasema smithi* HOWARD, Journ. Linn. Soc. London, Zool., vol. 26 (1896), p. 134, 1897.

Seven specimens believed to be this species were taken by C. P. Clausen in July 1931 at Hoyo Colorado, Cuba, and bear his note number 2452. One specimen of the same species is in the National collection, taken on the island of St. Vincent, West Indies, by H. H. Smith, and one other specimen that appears to be identical was collected at Virginia Beach, Va., by E. S. G. Titus. The type of the species, which was from the island of Grenada, is in the British Museum and has not been seen, this identification being based entirely upon the description.

The sculpture of the thorax in this species is a mixture of alveolate punctures and fine irregular rugulae, which gives to the surface a somewhat less distinctly alveolate appearance than have the following species. The clypeus is more weakly sculptured than the rest of face, somewhat shining, and its anterior margin is not straight but slightly convex. The flagellar joints are all longer than broad and not thicker than the pedicel. The scutellum in most of the specimens has a very slight depression medially and in all of them the usual longitudinal grooves on the sides are absent. The transverse fold on scutellum is present but weak. The dorsal half of mesepimeron is smooth. The abdominal petiole is more than twice as long as broad and about as long as the hind coxa. The stigmal vein is longer than broad, the postmarginal less than half as long as the marginal, and the costal cell is about as strongly ciliated as is the disk of the wing.

**ORASEMA BEAMERI**, new species

*Female*.—Length 2.75 mm. Agreeing with the description of *aureoviridis* except in the following particulars: A little duller metallic green, with the strong brassy tints more uniform on head and thorax; basal half to two-thirds of all femora dark fuscous with a metallic-green tint; apical tergite polished; flagellum very little thicker toward apex than at base; clypeus nearly uniformly finely sculptured, usually not entirely smooth anteriorly; supraclypeal area a little longer than broad, as long as clypeus; propodeum usually with some irregular rugae medially overlying the alveolate sculpture but without a median carina or, if with a semblance of one, this is not flanked by rows of pits or foveae; costal cell with about 20 to 25 discal cilia; postmarginal vein more than twice as long as stigmal vein.

*Male*.—Length 2.3 mm. Agreeing with the description of the male of *aureoviridis* except that the scutellum is somewhat less strongly sculptured, the axillae and scapulae are also more uniformly finely alveolate, the abdominal petiole is nearly three times as long as hind coxa, the antennal scape and the pedicel are dark metallic, and all of the femora are metallic with their apices narrowly testaceous. The supraclypeal area is usually a little longer than broad as in the female.

*Type locality*.—Ridgway, Colo.

*Type*.—U.S.N.M. No. 53554.

Described from 16 females and 7 males collected in the type locality by R. H. Beamer, July 1, 1937. The holotype, allotype, and 10 paratypes are retained in the U. S. National Museum collection. Eleven paratypes, including representatives of both sexes, are being returned to the University of Kansas collection. The species is named for the collector.

**ORASEMA AUREOVIRIDIS, new species**

This species differs from most other species of the genus known to me by having on the propodeum two longitudinal rows of large, shallow foveae that are separated by a more or less sinuate median longitudinal carina. The scutellum dorsally is unusually strongly margined on each side by coarsely foveated and broad longitudinal grooves, which extend from the base of the scutellum to the transverse fold or furrow, which is likewise unusually strongly developed, and there is also a shallow depression down the middle of the scutellum. The antennal flagellum is more distinctly clavate than usual and the funicle joints, except the first and second, are broader than long.

*Female*.—Length 3 mm. Bright metallic green with brassy tints; flagellum black; scape, pedicel, mandibles, tegulae, and all legs except their coxae pale testaceous; wings hyaline, venation yellowish.

Head and thorax with nearly uniform, strong, alveolate punctation; parapsidal grooves and sutures at base of scutellum coarsely foveated and median depression on scutellum usually with a few irregularly transverse rugae; coxae distinctly sculptured but more weakly so than thorax; abdominal petiole with fine alveolate punctation; second sternite as well as the rest of gaster polished; apical tergite faintly reticulately sculptured.

Antenna rather short; scape cylindrical, not reaching to level of anterior ocellus; pedicel a little longer than broad; ring joint strongly transverse; flagellum slightly increasing in thickness from base to near apex; first joint of funicle about one and one-half times as long as broad and about as broad as pedicel, second joint subquadrate, third



joint a little broader than long, fourth and following joints shorter, the seventh about twice as broad as long; club indistinctly 3-jointed and a little longer than two preceding funicle joints. Head strongly transverse; occiput broadly but not deeply concave; ocelli in an obtuse triangle; postocellar line a little longer than ocellular line; lateral ocellus about twice its own diameter from eye margin; eyes bare; malar space about equal to the eye in length, with a distinct broad, shallow depression running from eye to base of mandible; clypeus broader than long, less strongly punctate than rest of face, quite smooth anteriorly, its anterior margin straight; clypeal foveae and sutures deep; supraclypeal area defined by deep lateral grooves, a little broader than long, shorter than clypeus, and sculptured about like base of clypeus. Thorax moderately robust; scutellum at apex protruding over the metanotum; propodeum slightly shorter than scutellum basad of the transverse fold, strongly alveolately punctate over its whole surface, without lateral folds but with deep and strongly foveated spiracular sulci and more or less strongly foveated along its basal margin, the middle of propodeum slightly flattened or depressed and divided by a sinuate median longitudinal carina from which originate several irregularly transverse rugae to form, on each side of the carina, a series of rather large shallow irregularly shaped areas or foveae. Legs moderately stout, the anterior femora a little swollen; posterior tibiae each with two distinct spurs, the inner spurs the longest. Forewing rather weakly ciliated, bare basally, the costal cell with only four or five cilia; marginal vein a little more than half as long as submarginal, stigmal vein short, a little curved at apex, postmarginal about twice as long as stigmal. Abdominal petiole a little longer than posterior coxae, evenly and rather finely alveolate, without any rugae; ventral margin of gaster a little longer than petiole; dorsal segments not emarginate.

*Male*.—Length 2.5 mm. Antennae short, the flagellum thick; first funicle joint not longer than broad, following joints all distinctly broader than long; scutellum rugulose, the alveolate sculpture largely replaced by irregular rugae; scapulae anteriorly and axillae dorsally also irregularly rugulose; abdominal petiole about two and one-half times as long as hind coxae; much longer than ventral margin of gaster, the gaster much smaller than in female; pedicel of antenna and posterior femora more or less metallic. Otherwise like the female.

*Type locality*.—Uvalde, Tex.

*Type*.—U.S.N.M. No. 53555.

Two females (1 holotype) and 2 males collected by A. W. Lindquist, May 2 to 22, 1933, under Bishopp No. 20031.

## ORASEMA SIMULATRIX, new species

*Female*.—Length 3.5 mm. Apparently agrees in every respect with the description of *aureoviridis* except in the following particulars: Antennae very slightly less distinctly clavate; propodeum more evenly alveolately punctured, less distinctly flattened medially, with the pits or foveae on each side of the median carina much smaller; costal cell of forewing with approximately 20 weak discal cilia; color of head and thorax dull dark green, without conspicuous brassy tints; propodeum dull blackish with a distinct purplish tinge; pleura in part, apex of scutellum and the thoracic sutures tinged with purplish; gaster purplish black with an aeneous tinge, its first segment (second tergite) mostly metallic green; coxae green; femora, tibiae, and tarsi yellowish testaceous as are also the mandibles, scape, pedicel, and tegulae; flagellum blackish brown; wings hyaline.

*Type locality*.—Oracle, Ariz.

*Type*.—U.S.N.M. No. 53556.

Described from 1 female specimen collected by Hubbard and Schwarz at Oracle, Ariz., July 14, 1898.

## ORASEMA NEOMEXICANA, new species

*Female*.—Length 2.6 mm. Differs from the description of *robertsoni*, besides in the smaller size, by having the abdominal petiole very little, if any, longer than broad, the postocellar line obviously longer than the ocellocular line, the lateral ocellus about twice its own diameter from the eye margin, none of the flagellar joints except the first longer than broad, the supraclypeal area polished medially and separated from clypeus by a shallow but distinct groove connecting the clypeal foveae, the upper half of mesepimeron smooth, the scutellum a little less convex dorsally and with its lateral carinae not quite so far below the dorsum. The color is as in *robertsoni* except that the mesoscutum and scutellum are more strongly tinged with coppery and the antennal scape and the femora are not washed with metallic.

*Male*.—Unknown.

*Type locality*.—San Augustine Ranch, at eastern base of Organ Mountains, N. Mex.

*Type*.—U.S.N.M. No. 53557.

Described from 3 females collected by T. D. A. Cockerell and bearing his numbers 2163, 2265, and 2268. Also 1 female taken by Cockerell at Albuquerque, N. Mex., on *Guitierrezia*. A female collected by W. M. Mann at Las Parras, Baja California, in October 1923 seems to agree with the types except that the abdominal petiole is fully one and one-half times as long as broad.

## ORASEMA ROBERTSONI, new species

Similar to *viridis* Ashmead but differs by having the femora all testaceous instead of green, the head and thorax dark green instead of bright green, and the mesepimeron completely sculptured instead of smooth on its upper half.

*Female*.—Length 3.25 mm. Dark olive-green, the mesoscutum and scutellum dorsally faintly aeneous; antennal scape and legs, except coxae, testaceous, the scape and femora slightly washed with metallic; pedicel and flagellum brownish black; coxae and abdominal petiole concolorous with thorax; gaster metallic green; wings hyaline. Head, thorax, propodeum, coxae outwardly, abdominal petiole, and the second sternite with nearly uniform fine alveolate punctation; gaster mostly polished. Antennal scape cylindrical, reaching to level of lower margin of front ocellus; pedicel a little longer than broad; flagellum a little thicker than pedicel, not at all clavate; ring joint very small and inconspicuous; first funicle joint not quite twice as long as broad, following joints successively diminishing slightly in length, the seventh joint subquadrate; club very slightly longer than two preceding joints. Head as wide as thorax, slightly concave behind; ocelli in a low triangle; postocellar line slightly longer than ocellular; lateral ocellus a little more than twice its own diameter from eye margin; antennal scrobe shallow; malar space very nearly as long as eye, slightly flattened or very weakly depressed for its whole length; clypeus uniformly sculptured but a little less strongly so than the rest of face, about as long as wide at apex, its anterior margin nearly straight; supraclypeal area defined laterally by deep grooves but not distinctly separated from clypeus, the usual suture connecting the clypeal fovea nearly obsolete. Parapsidal grooves deep and weakly foveated; scutellum high, convexly rounded dorsally, weakly margined low down on the sides and with a deep transverse groove before the apex; propodeum with deep and coarsely foveated spiracular sulci and with some small foveae along the basal margin but without lateral folds or median carina. Legs normal. Forewing weakly ciliated, bare basally, the costal cell very nearly or quite bare; marginal vein more than half as long as submarginal; postmarginal vein about one-third as long as marginal, stigmal vein short and slightly oblique. Abdominal petiole as long as hind coxa, about twice as long as broad; gaster a little smaller than thorax, its base beneath (second sternite) sculptured like the petiole and the two apical tergites very weakly shagreened, the rest smooth and polished; ovipositor not exerted.

*Male*.—Unknown.

*Type locality*.—Southern Florida.

*Type*.—U.S.N.M. No. 53558.

Described from 2 female specimens collected by Charles Robertson and bearing his numbers 12716 and 12754, respectively. The specimen bearing No. 12716 is the holotype.

**ORASEMA BAKERI, new species**

This species is not easily distinguished from *viridis* and *cockerelli*, but it differs from both by having the supraclypeal area as broad as long and the clypeal foveae unusually large and deep. The abdominal petiole is distinctly shorter than in *viridis* and the color is much less distinctly aeneous than in *cockerelli*. The shorter and more evenly sculptured petiole, the larger and deeper clypeal foveae, and slight differences in color and sculpture are all that distinguish it from *wheeleri*.

*Female*.—Length 3.25 mm. Head and thorax dark green in color with a slight brassy tinge, stronger on the face; scape reddish testaceous, pedicel fuscotestaceous, flagellum brownish black; coxae concolorous with thorax; femora all dark fuscometallic; trochanters, apices of femora more or less, all tibiae, and all tarsi reddish testaceous; tegulae brownish; propodeum and abdominal petiole dark bluish green, sometimes with a purplish tinge; gaster shining dark green; wings hyaline, venation yellowish.

Head with alveolate sculpture, the alveolae on face, frons, and temples irregular in shape and somewhat coarser than on vertex; dorsum of thorax sculptured like the head, the posterior portion of prescutum, the axillae dorsally, and the scutellum dorsally with very fine, nearly round, alveolae; the anterior portion of prescutum and the scapulae with the alveolae more irregular in shape and those on scapulae distinctly shallower than on prescutum; transverse fold on scutellum present but not distinctly foveated, the lateral grooves distinct and weakly foveated; propodeum very finely alveolately punctate, with some foveae along the anterior margin, but without carinae, the spiracular grooves deep and complete and weakly foveated; pleura nearly uniformly finely alveolate, with the prepectoral triangle not sharply margined anteriorly; coxae distinctly sculptured; abdominal petiole about as long as broad and evenly alveolate like propodeum; second sternite as well as rest of gaster smooth.

Head viewed from in front broader than long, about in the proportion of 50 to 40; clypeus distinctly broader than long, its anterior margin very nearly straight; clypeal foveae very broad and deep; supraclypeal area well defined, separated from clypeus by a deep depression connecting the clypeal foveae, at least as broad as long and usually a little broader than long; malar space very nearly as long as eye, flattened but without a distinct longitudinal depression; ocellocular line nearly equal to the distance between posterior ocelli and a little more than twice as long as the long diameter of a lateral

ocellus. Antennal scape cylindrical, not quite reaching the level of lower margin of front ocellus; pedicel as broad as long; ring joint minute; flagellum a little broader than pedicel, not clavate; first funicle joint not quite twice as long as broad, following joints subequal and subquadrate; club indistinctly 3-jointed and a little longer than the two preceding joints combined.

Forewings about two and one-third times as long as broad, bare basally and with a bare area medially behind the marginal vein; costal cell with a few weak cilia; stigmal vein approximately two and one-half times as long as broad and nearly perpendicular to the marginal vein; postmarginal vein less than half as long as marginal.

*Male*.—Length 2.6 mm. Scape dark, more or less metallic; flagellar joints distinctly thicker than pedicel; seventh funicle joint very slightly broader than long; abdominal pedicel very nearly twice as long as hind coxa. Otherwise like the female except much more slender.

*Type locality*.—Fort Collins, Colo.

*Type*.—U.S.N.M. No. 53559.

Described from 10 females and 2 males. The holotype, allotype, and 7 female paratypes bear C. F. Baker collection No. 1563 and according to his notes were taken in miscellaneous sweepings at Fort Collins, Colo., June 13, 1895. One paratype female with Baker No. 1086 was taken at Fort Collins in June on wild-parsnip bloom. One male was taken by Baker at Pagosa Springs, Colo., and a single female was collected by Hubbard and Schwarz at Oracle, Ariz., June 7, 1898.

#### ORASEMA COCKERELLI, new species

Differs from *wheeleri* by having the stigmal vein shorter and not so slender, by having the abdominal petiole slightly shorter, and by its darker color which, however, varies from aeneous black to distinctly green with an aeneous tinge. From *viridis* it can be separated only by the slightly shorter petiole, the nonmetallic scape, and the somewhat darker color of head and thorax.

*Female*.—Length 2.4 mm. Aeneous black with a slight greenish tinge; flagellum black; scape, apices of femora more or less, all tibiae, and all tarsi testaceous; abdomen brownish black; wings hyaline, venation and tegulae brownish testaceous. Antenna weakly clavate; scape cylindrical, not quite reaching front ocellus; pedicel about as long as broad; funicle a little thicker than pedicel; first funicle joint nearly twice as long as broad, second very slightly longer than broad, following joints subquadrate, the seventh a little broader than long; club a little longer than two preceding joints, rather sharp at apex. Head alveolately sculptured, the alveolae on frons and face a little compressed; postocellar line longer than ocellular, lateral ocellus

a little more than twice its own diameter from eye margin; malar space a little shorter than eye; clypeus very finely rugulose, its anterior margin straight; supraclypeal area longer than broad, polished medially below. Thorax alveolately punctate, the sculpture on scapulae a little weaker than on prescutum; parapsidal grooves and sutures at base of scutellum weakly foveated; scutellum without a median depression, the transverse furrow and lateral grooves weakly foveolate; propodeum evenly alveolate, without carinae, the spiracular sulci and posterior margins of propodeum foveated; pleura sculptured like dorsum, except that the upper half of mesepimeron and the metapleura are for the most part smooth. Wings weakly ciliated, bare basally and in the costal cell; stigmal vein short, about as broad as long. Coxae outwardly sculptured like pleura. Abdominal petiole very little longer than broad and finely punctate; gaster smaller than thorax, smooth; second sternite not seen.

*Male*.—Length 2.2 mm. More slender than the female; flagellum a little longer, the funicle joints after the first very slightly longer than broad; lateral ocellus not over twice its own diameter from eye margin; abdominal petiole about four times as long as broad, about one and one-half times as long as hindcoxae; gaster much smaller than thorax. Scape metallic; head and thorax strongly tinted with coppery. Otherwise like the female.

*Type locality*.—Albuquerque, N. Mex.

*Type*.—U.S.N.M. No. 53560.

Described from 3 females (one holotype) and 5 males (one allotype) collected by T. D. A. Cockerell, August 16, 1895, on *Bigelovia*. Two of these females numbered 4613 and 4614, respectively, and two males numbered 4611 are considerably greener in color than the holotype and allotype but otherwise seem to be the same.

In addition to the above series, the collection contains 2 specimens swept by C. N. Ainslie at Sioux City, Iowa; 1 specimen taken by H. C. Knutson, August 7, 1934, in Iowa (Co. 43); 12 specimens collected by C. F. Baker at Fort Collins, Colo., by miscellaneous sweepings in June 1894 and June 1895; and 1 specimen collected by E. A. Schwarz in the Santa Rita Mountains in Arizona in July (?1898). One female taken at Belen, N. Mex., August 19, 1927, by P. A. Radio, and 1 female from Barton County, Kans., collected by S. G. Hunter were also identified as this species and returned to the University of Kansas. All these specimens may be considered paratypes.

#### ORASEMA VIRIDIS Ashmead

*Orasema viridis* ASHMEAD, Proc. California Acad. Sci., vol. 5, p. 553, 1895.

*Orasema viridis* was originally described from one specimen collected in Tepic, Mexico. The type is believed to have been destroyed

in the San Francisco earthquake and fire. Five specimens in the U. S. National Museum, collected in Pinery Canyon, Chiricahua Mountains, Cochise County, Ariz., July 26, 1919, by Dr. Witmer Stone, seem to agree perfectly with Ashmead's brief description of *viridis* and are taken to be representatives of that species.

The same collection contains two small series of specimens identified by Ashmead as *viridis* that appear to agree with the above-mentioned specimens except that they have a longer and more slender stigmal vein and the scape of the female is usually yellowish instead of metallic. These characters are the only ones by which I am able to separate what I believe to be *viridis* from *wheeleri* Wheeler, and consequently I have transferred both series of specimens to the latter species (see remarks on *wheeleri*).

*Orasema viridis*, as represented by the five specimens already mentioned, is very similar to *neomexicana*, new species, but is readily distinguished from that species by the metallic-colored femora and scape. It differs from *cockerelli*, new species, by having the petiole of the female more slender and obviously longer than broad, by having the scape metallic, and by its distinct green color. From *occidentalis* Ashmead it can be distinguished by the strongly sculptured second sternite, the shorter stigmal vein, and its brighter green color.

The head, thorax, propodeum, and abdominal petiole are nearly uniformly alveolately punctate with only the clypeus, metapleura, and upper half of mesepimeron somewhat more weakly sculptured. The hindcoxae are sculptured above, smooth beneath. The clypeal margin is very nearly straight and the separation between clypeus and supraclypeal area is indistinct, being merely a broad shallow depression. The scutellum is without a median depression but the transverse groove is distinct as are also the lateral grooves. The wings are hyaline with the stigmal vein about one and one-half times as long as thick and not especially slender, the postmarginal vein weak but distinctly longer than the stigmal and the costal cell is sparsely hairy. The antennal flagellum is a little thicker than the pedicel, its first funicle joint about twice as long as the pedicel and about one and one-half times as long as broad, the following funicle joints subquadrate.

The male is like the female except that the antennae are very slightly longer, the abdominal petiole is about one and one-third times the length of hind coxa and the gaster is smaller.

Besides the 5 specimens from Cochise County, Ariz., there is 1 female in the U. S. National Museum collected in the Huachuca Mountains, Ariz., a gift of the Brooklyn Museum and bearing their catalog number 320.

## ORASEMA WHEELERI Wheeler

*Oraesema wheeleri* WHEELER, Bull. Amer. Mus. Nat. Hist., vol. 23, p. 14, 1907.

*Oraesema viridis* WHEELER (not Ashmead), Bull. Amer. Mus. Nat. Hist., vol. 23, pp. 2-12, 1907.

According to Wheeler, a single female that he collected at Fort Davis, Tex., July 14, 1902, in a nest of *Pheidole ceres* Wheeler was submitted to Ashmead for identification. Ashmead identified it as a new species, which he proposed to call *wheeleri* but never published the name. In 1907 Wheeler published a short account of the species in which he compared it with *viridis*, and he is therefore responsible for the name. Wheeler's description consists merely of the following statements: "It measures 2.7 mm. and closely resembles *O. viridis*, especially in the shape of scutellum and epinotum but the thorax is broader and stouter. The last pupal envelope, like that of *viridis*, is without pustules, though it has strong intersegmental welts in the abdominal region."

The U. S. National Museum possesses one female specimen, which according to the labels was taken by W. M. Wheeler at Fort Davis, Tex., June 11, 1902, in the nest of *Pheidole carbonaria* Pergande. This specimen bears the name label in Ashmead's handwriting and is believed to be the specimen referred to by Wheeler despite the discrepancies in the date and host. Wheeler states definitely that only one adult, and that a female, was secured. The discrepancy in date may perhaps be accounted for by assuming that the date on the specimen is that on which it was collected as a pupa, while the date used by Wheeler was the date of appearance of the adult. The difference between the host label and Wheeler's statement regarding the host may represent a revised identification of the host material.

This supposed type specimen seems not to be distinguishable from two small series of specimens identified by Ashmead as *O. viridis* and believed to be representatives of the material upon which Wheeler based his remarks concerning the species *viridis* in the above-cited article. One of these series, comprising seven specimens, labeled simply Austin, Tex., is believed to be the material that Wheeler states was identified for him by Ashmead as *O. viridis* and that formed the basis, in part at least, for his account of the habits of *viridis*. The other series of four specimens is from San Diego, Tex., and is probably the material collected by E. A. Schwarz and erroneously referred to by Wheeler as having been the basis of the original description of *viridis*. The supposed type specimen is less strongly bluish green than most of the specimens constituting the two series referred to, its prescutum, scutellum, and axillae being dull aeneous, but there appear to be no structural differences of any kind, and, since at least one or two of the San Diego specimens are very nearly



identical with the type in color and the whole lot shows a distinct gradation from the one color to the other, I believe they are all one species. The type specimen was collected as a pupa and the adult reared out in the laboratory which may very well account for its somewhat abnormal color.

As thus constituted, *O. wheeleri* is not easily distinguishable from what I believe to be true *viridis* Ashmead. In *wheeleri* the stigmal vein is slender and about two and one-half to three times as long as broad, while in *viridis* it is a little thicker and apparently about one and one-half times as long as broad. In *wheeleri* the scape of the female is pale testaceous, while in *viridis* the scape in both sexes is more or less metallic. These differences are not very striking and apparently subject to some variation so that it is not always easy to decide to which species a given specimen belongs. It is not improbable that future investigations may show that the differences are merely racial or varietal characteristics and not specific characters.

In addition to the material already mentioned, the U. S. National Museum collection contains the following specimens collected at Fort Collins, Colo., by C. F. Baker: 2 specimens under No. 2121 taken on *Eriogonum effusum*, August 12, 1896; 2 specimens under No. 1596 taken on *Eriogonum*, August 12, 1895; 1 specimen under No. 1604, also on *Eriogonum*, August 20, 1895; and 1 specimen under No. 1373, taken in August 1894.

#### ORASEMA OCCIDENTALIS Ashmead

*Orasema occidentalis* ASHMEAD, Proc. Ent. Soc. Washington, vol. 2, p. 355, 1892.

I can distinguish this species from *wheeleri* only by the much darker (blackish green) color. The second sternite appears to be smooth and polished instead of more or less distinctly punctate. The abdominal petiole is only very slightly longer than broad. The head and thorax are finely and deeply alveolately punctate, this sculpture on scutellum overlaid with very fine longitudinally directed rugulae.

The material examined comprises only the type, a single female, taken in Los Angeles County, Calif.

#### ORASEMA MINUTA Ashmead

*Orasema minuta* ASHMEAD, Ent. Amer., vol. 3, p. 185, 1888.

*Orasema minuta* was described from one specimen taken at Jacksonville, Fla., and said by Ashmead to have been a male. This type specimen, which is in the U. S. National Museum collection, has lost the gaster, so that it is impossible now to be sure of its sex. The abdominal petiole, which is still intact and which is about as long as the hind coxae, appears rather short when compared to that of other

males, but it is more slender than that of most females, and it therefore appears likely that Ashmead was correct as to the sex of the type.

The antenna is rather long with the funicle joints all longer than broad (missing beyond the sixth funicle joint), slightly broader than the pedicel and more distinctly separated than usual. The clypeus is sculptured about like the rest of the face, its anterior margin slightly convex, the clypeal foveae and lateral sutures rather shallow. The supraclypeal area is separated from the clypeus by a shallow depression, not a suture, and the lateral sutures are also shallow and indistinct. The ocellocular line is about twice as long as the diameter of an ocellus and distinctly shorter than the line between posterior ocelli. The sculpture of head and thorax is alveolate but somewhat irregularly so. The scutellum is rather narrow, much longer than broad, with a distinct transverse groove and weak lateral grooves. The mesepimeron is sculptured on upper half about as on lower half. The propodeum is very finely alveolately sculptured with some weak rugulae medially. The hind coxae are alveolately sculptured dorsally. The abdominal petiole is very slightly longer than the hind-coxae and rugosely sculptured with about four longitudinal rugae. The stigmal vein is longer than broad and the postmarginal is very slightly longer than the stigmal. The color is very nearly black but tinged with bronze on dorsum of thorax. The scape, tibiae, and tarsi are all testaceous, the femora strongly infuscated.

Notes from the type.