

NOTES ON SOME ACALYPTRATE FLIES IN THE UNITED STATES NATIONAL MUSEUM

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INTRODUCTION

During recent years I have given some of spare time to a partial study of the Oriental and Australasian Ortalidae, using for the greater part of the work the material in the collection of the United States National Museum, and having found in that collection some undescribed species, coupled with a few interesting characters seemingly overlooked by other writers on the family, I am presenting herein a summary of some of my findings. I also present herein descriptions of Helomyzidae and Periscelidae.

The types of the new species are in the collection of the United States National Museum.

Genus EUPROSOPIA Macquart

Euprosopia MACQUART, Dipteres Exotiques, Suppl. 2, p. 89, 1847.

This genus is distinguished from its allies by the very large lower calypter, which is quite as expansive as in many Tachinidae and would appear to belie the name "Acalyptrate" as applied to the subfamily to which it belongs, the presence of hairs or setulae on the posterior side of the upper surface of the stem vein as in certain Calliphoridae, and the flattened central carina of the face with its deep lateral antennal foveae. The species are characteristically marked on the wings with many dark spots or interrupted fasciae, and in one species, which is described herein, the wings are conspicuously fasciate with black.

The genus contains some well-defined segregates which might reasonably be accepted as at least subgenera. In the group in which the tegulae, or a process below these, extend forward along the noto-

pleural suture the posterior notopleural bristle is slightly removed from the lateral margin of mesonotum and directed upward or mesad, while in the species which have no such abnormal tegular development this bristle is situated close to the lateral margin of the mesonotum and backwardly directed. Of the first group I have seen *tegularia* Malloch, *macrotegularia* Malloch, *metallica* Malloch, and *longifacies* Hendel. There are also species in which all four vertical bristles are present and others in which but one pair is developed.

Group LONGIFACIES

This group has the arista with hairs on the basal fourth or less which are not less than half as long as the width of the third antennal segment, the head not less than 1.5 as high as wide when seen from in front, and the frons longer than its anterior width, with only two vertical bristles developed.

I have three species before me that belong to this group, not one of which I can determine as *longifacies* Hendel. I give below a synopsis of the characters of the four species, using Hendel's very full description of *longifacies* as a basis for distinguishing that species.

KEY TO THE SPECIES OF EUPROSOPIA

1. Frons not appreciably over 1.5 as long as its width at anterior extremity---2.
Frons over twice as long as its width at anterior extremity-----3.
2. Scutellum with six bristles; the greater portion of fore femora, and the mid and hind femora much less extensively, browned; basal segment of all tarsi reddish yellow on basal two-thirds, the second segment of hind tarsi reddish; humeri somewhat reddish; fore femur with long black bristles on entire extent of the posterodorsal, and the apical half of the posteroventral, surface-----*longifacies* Hendel.
Scutellum with four bristles; all femora fuscous, and grey dusted, very narrowly pale at apices; basal segment of all tarsi yellowish white, remainder of tarsi deep black; humeri black, densely grey dusted; fore femur with a full series of moderately long posterodorsal bristles, but without any bristles, only hairs, on the posteroventral surface-----*semiarinata*, new species.
3. Femora largely yellow, browned apically; anterior margin of dorsum of thorax quite noticeably humped between humeri and with rather dense curled yellow hairs on each side at downward curve; fourth visible abdominal tergite of female without a patch of black hairs in center of anterior margin; fascia over outer cross vein of wing not complete, inconspicuous-----*omei*, new species.
3. Femora entirely fuscous, grey dusted; anterior margin of thoracic dorsum not visibly humped, and without exceptional adornment of pale hairs; fourth visible abdominal tergite of female with a somewhat triangular patch of erect black bristly hairs in center of anterior margin, the apex of the patch reaching middle of the tergite; fascia over outer cross vein of wing complete and conspicuous-----*grahami*, new species.

EUPROSOPIA LONGIFACIES Hendel

Euprosopia longifacies HENDEL, Genera Insectorum, Fam. Platystominae (fig.); description, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8. heft 1, p. 350, 1914.

This species was described from Formosa, and only the female is known. Nothing is mentioned in the original description of a process either on the tegula or below it, but such a process or processes may be present, as Hendel apparently paid no attention to the forward production of the tegula in *nigropunctata* Hendel, though such a process is present in two females identified by him which are now before me.

In addition to the characters listed in the key for the distinction of *longifacies* from the next species I may mention the more distinctly vittate, and golden haired, mesonotum, and the less regular and numerous dark spots on the wings.

EUPROSOPIA SEMIARMATA, new species

Female.—Head testaceous yellow, face with a brown mark in lower extremity of each antennal fovea and a streak of same color from there to lower margin of face; occiput fuscous on each side of upper half and grey dusted, frons brown on each side above and on ocellar region, and with grey dust on the orbital stripes on dark part; antennae, palpi, and labrum testaceous yellow. Thorax fuscous, humeri not yellow, densely grey dusted, with three faint dark brown vittae; mesonotum with black decumbent hairs; pleura concolorous with mesonotum, mesopleura not marked with dark spots; pteropleural hairs dark in front, pale behind; scutellum pale haired at apex. Abdomen colored as thorax, defective in type, but with traces of large dark brown marks on the tergites, which are but poorly defined, the short discal hairs black, the apical hairs pale.



FIGURE 1.—WING OF EUPROSOPIA SEMIARMATA

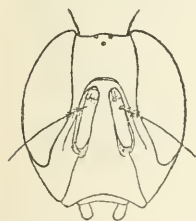


FIGURE 2.—HEAD OF EUPROSOPIA SEMIARMATA FROM IN FRONT

Legs fuscous, tibiae largely yellow basally, basal segment of each tarsus yellowish white on basal two-thirds. Wing as Figure 1. Edges of calyptrae dark.

Head about 1.25 as high as wide in front (fig. 2); frons depressed in center, about 1.5 as long as its anterior width, outer verticals only present; arista haired on less than its basal fourth; facial carina microscopically transversely striate above, becoming granulose below. Humeral bristle present, posterior notopleural bristle on a slight

elevation, directed mesad; four bristles on hind margin of mesonotum, and four on the margin of scutellum. Tarsi quite noticeably widened apically. There is a slender chitinous process on the right side of thorax below the tegula which extends forward two-thirds of the way to the humerus and is bent at apex.

Length, 10 mm.

Type.—Female, Cat. No. 43074, U.S.N.M. Zamboanga, Mindanao, P. I. (C. F. Baker).

EUPROSOPIA OMEI, new species

Female.—Differs from the next preceding species in having the frons paler, the labrum browned on sides, the dense, rather long, soft hairs in center of second visible tergite of abdomen yellowish white, the legs differently colored as noted in the foregoing key, and the wings marked as Figure 3.



FIGURE 3.—WING OF *EUPROSOPIA OMEI*

A larger species than *semiarmata*, with the head higher and the frons narrower, especially above (figs. 2 and 4), the anterior margin of the mesonotum humped up and haired as stated in the key, the tegulae with a subconical process projecting forward about midway to the humeri, and below these processes another similar in shape and about equal in length. The central portion of the second visible tergite of the abdomen is quite copiously furnished with whitish yellow decumbent soft hairs, and the central portion of the third tergite between the brown elongate marks is haired also, but the hairs are much shorter and finer, especially posteriorly.

Length, 12 mm.

Mount Omei, Szechwan, China, 11,000 feet, August 20, 1921 (D. C. Graham).

Type.—Female, Cat. No. 43073, U.S.N.M.

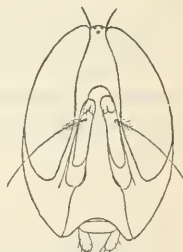


FIGURE 4.—HEAD OF *EUPROSOPIA OMEI* FROM IN FRONT

EUPROSOPIA GRAHAMI, new species

Male and female.—Apparently a common species, and readily distinguished from its closest allies by the rather broad subapical fascia of the wing.

Head similar in color to that of the next preceding species, the sides of the labrum more or less browned or infuscated. Thoracic dorsum with three dark vittae, the central one linear; all hairs yellowish, the bristles black. Abdomen densely whitish grey dusted, with a pair of conspicuous black spots on each tergite from second to

fourth visible, the hairs on the dark portions blackish, those on apices of tergites and most of the grey dusted portions yellowish white. Femora fuscous, mid pair brownish basally, all tibiae rather variable in color, sometimes brownish yellow, sometimes darker, basal segment of each tarsus yellowish white except at apex. Wings marked as in Figure 5. Calyptrae white. Halteres yellow.

Head shaped as in *omei*, the vertex rather deeply sunken in the female, less so in the male, the latter with the vertical width about twice that of the female, but two vertical bristles present; arista without an apical palette in the male. Thorax narrowed in front in the female, hardly so in the male, neither sex with exceptional form or armature; tegulae of the male very slightly produced forward and no pleural process below them, in the female the tegulae are produced forward in the form of a stout cone about one-third of the distance to the humeri, and below these processes there is another similar in shape and slightly shorter which has the apex rounded, scutellum with six marginal bristles. Abdomen without exceptional hairing but for the triangular patch of erect short black hairs in center of the anterior margin of fourth visible tergite.



FIGURE 5.—EUROSOPIA GRAHAMI

Length, 11–12 mm.

Type.—Male, Cat. No. 43070, U.S.N.M. Male, Shin Kai Si, Mount Omei, Szechwan, China, 4,400 feet; allotype, Suifu, Szechwan, China; paratypes, same localities as the type and allotype, 11 specimens (D. C. Graham).

There is considerable variation in the minor details of the wing markings in the type series but the general plan of the markings is similar throughout.

Group METALLICA

The only species known to me which is placed in this group agrees closely in most particulars with the foregoing one, having the head seen from in front much higher than wide, the frons over twice as long as wide anteriorly, the arista with distinct hairs on basal fourth, and the tegulae produced forward in a long process. It differs from all four species already dealt with in having the thorax and abdomen metallic blue, and in this respect it differs also from any species of the entire genus. In fact, Hendel uses as his principal distinguishing character for the separation of this genus from *Lamprogaster* in his key the metallic color of the latter as against the lack of metallic color in *Euprosopia*. He did not notice the presence of hairs on the stem vein of the wing in *Euprosopia* and their absence

in *Lamprogaster*, the most reliable character for the separation of the two genera.

EUPROSOPIA METALLICA, new species

Female.—Head testaceous yellow; frons deep black, the orbits narrowly greyish white dusted, the dust carried downward on parafacials to about the level of apex of third antennal segment; parafacials dark brown, a black quadrate mark covering the area below eye from in front of antennal fovea to level of hind margin of eye; face centrally undusted; occiput fuscous in center above, densely greyish white dusted; antennae and aristae blackish brown; palpi black; labrum shining black. Thorax black, mesonotum glossy dark blue-green, castaneous on side behind suture, and with an angular patch of whitish dust on each side in front of suture; pleura partly covered with dense whitish dust, most conspicuous on mesopleura and sternopleura, the pteropleural hairs long and white behind, short and dark in front; scutellum metallic blue-green. Abdominal dorsum concolorous with mesonotum, the fourth visible tergite broadly castaneous or cupreous on each side; hairs on venter basally pale, the others dark. Legs black, basal two-thirds of metatarsus of mid and hind legs whitish yellow. Wings hyaline, with a number of black spots and streaks at bases extending to apices of basal cells and furcation of veins 2 and 3, a broad fascia of same color extending from slightly before apex of subcosta to near apex of first vein along the costa, inclosing three small hyaline marks near or on costa, covering the inner cross vein, and running slightly diagonally to hind margin where it is less intensely colored; a similar fascia at about its own width from the first one extends from the costa about midway between apices of first and second veins to hind margin, incloses a small hyaline mark on costa, covers the outer cross vein, and connects with another fascia at hind margin which runs obliquely to costa, forming with it a V-shaped mark, the inner margin of the outer arm before apex of second vein, the outer margin of same expanding to tip of wing and filling almost all of apex of the first posterior cell, with a small hyaline spot in apex of submarginal cell, and the outer lower outline more or less dentate; in addition to these conspicuous fasciae, there is a small dark streak on the costa between each of them, and some small spots in the anal region, while the hind margin of the latter is also dark. Calyptrae whitish, with dark margins. Knobs of halteres brown.

Head about 1.75 as high as wide in front; frons over twice as long as its width in front; inner verticals minute, directed outward, outer pair of moderate length; antennae about as long as distance from apex to mouth; basal fifth of aristae with some hairs which are about half as long as width of third antennal segment; upper extremity of facial carina not noticeably depressed nor glossy, rather distinctly

transversely striate on upper portion, the striae becoming less evident below and disappearing below middle; cheek about as high as length of antennae; labrum higher than width of third antennal segment, with minute striae commencing at center and running diagonally outward; palpi broad. Humeral lacking, posterior notopleural sloping forward and upward, two supra-alars and one postalar, the mesonotum with short stiff decumbent black hairs; scutellum rounded, microscopically striate and with six marginal bristles situated at apex. All tarsi quite conspicuously widened. Inner cross vein of wing oblique, close to middle of discal cell; first posterior cell narrowed at apex. Tegulae carried forward spikelike about two-thirds of distance to humeri.

Length, 15 mm.

Type.—Female, Cat. No. 43075, U.S.N.M. Mount Mayo, Davau, Mindanao, P. I., May, 1927 (A. L. Duyay); paratype.

As already mentioned, this species is unique in the genus on account of its metallic blue-green body color.

Group TENUICORNIS

The genotype is *tenuicornis* Macquart, and the characterization of the present group may be accepted as that of the genus in a restricted sense. The head is not as high and narrow as in the preceding two groups, being less than 1.5 as high as wide from in front, the vertex has but two well-developed bristles, and the arista is bare. The labrum is moderately high, the scutellum is not emarginate at apex, and the tegulae are sometimes prolonged forward in the females.

There are a number of species referable here, the following two being before me at this time:

EUPROSOPIA TENUICORNIS Macquart

Euprosopia tenuicornis MACQUART, Dipt. Exot., Suppl. 2, p. 90, 1847.

An Australian species in which the male has a pair of long, slightly flattened, and distinctly curled hairs on one of the segments of the fore tarsus. Both the species now before me have the rim of the upper calypter dark, that of the lower one whitish, and the disk of the latter dark brown.

EUPROSOPIA SCATOPHAGA Malloch

Euprosopia scatophaga MALLOCH, Proc. Linn. Soc. N. S. W., vol. 55, p. — (1930).

Also an Australian species which is at present in the press so that I am unable to give the reference to the description. It is very similar to *tenuicornis*, but the wings are differently marked and the male has no long hairs on any segment of the fore tarsus.

Group SEPARATA

This group is very similar to the preceding one, but the species all have the scutellum more or less deeply sulcate centrally at apex and on each side of the sulcus a distinct convexity which is either glossy black or brown and distinctly shining. The arista is bare at base and the tegulae sometimes elongated.

I have before me at present the following three species, *separata* Hendel, *conjuncta* Hendel, and *biarmata* Malloch, all Australian.

Group SEXPUNCTATA

This group was named *Notopsila* by Osten Sacken, his intention being to supplant *Pachycephala* Doleschal, which was preoccupied, the genotype being *mohnikei* of that author. Hendel does not include this species in his key, nor does he include *sexpunctata* Osten Sacken, possibly because they were unknown to him. I have before me specimens which are apparently referable to the last-mentioned species, and give below some data upon the species and one other.

Osten Sacken, in defining the genus *Notopsila* said that the clypeus is entirely concealed, but this is not the case, there being a very narrow, vertical, chitinous strip of it visible in all the specimens I have examined, though it is very much narrower than in any species of *Euprosopia* in any of the other groups known to me. He emphasizes the emargination of the tip of the scutellum as a character and also the disposition of the marginal bristles on same, but, like Hendel, I am not inclined to consider this as a good character for distinguishing genera in this subfamily. The structure of the scutellum differs from that of the *separata* group in that there are no glossy convex lateral areas. One striking character in the two species before me is the much wider space between the antennal insertions, the flat facial carina at this point being, as Osten Sacken states, about half as wide as the frons at vertex. There are but two vertical bristles present, and the arista is bare or pubescent at base. The tegulae are not elongated.

EUPROSOPIA SEXPUNCTATA Osten Sacken

Euprosopia sexpunctata OSTEN SACKEN, Berl. Ent. Zeitschr., vol. 26, heft 2, 1882, p. 210. (*Notopsila*.)

The scutellum is not always centrally emarginate at apex, some of the specimens having it regularly rounded or slightly transverse. The face is testaceous yellow, with a small black spot in the lower extremity of each antennal fovea, one on each parafacial opposite base of antennæ, and one on each side of the facial carina which

form with the black second antennal segments an almost complete black transverse band at that point. The wing markings consist of pale fuscous spots, not fasciae.

The very broad facial carina is sharply margined on the sides and has many fine striae which diverge vertically from upper to lower margin, and in none of the specimens before me can I detect any hairs on the arista.

Locality, Samar Island, P. I. (C. F. Baker).

EUPROSOPIA DORSATA Hendel

Euprosopia dorsata HENDEL, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8, heft. 1, 1914, p. 340.

This species may possibly prove to be but a variety of the foregoing one as the only character that appears to me to be of consequence in distinguishing it is the pubescent base of the arista. The scutellum is not emarginate at apex, but in many examples of *seapunctata* before me the emargination is lacking also.

Locality, Mount Moises, Isabella Province, Luzon, P. I., February, 1926 (R. C. McGregor).

It may be worth mention that in both the above species the fore femur has a series of short, stout bristles on the median portion of the posterodorsal surface which is duplicated centrally, instead of the usual single complete series of long bristles present in the other species.

Group LONGICORNIS

This group is distinguished by the very long antennae in the males, which extend almost to the level of the epistome, and the presence of short hairs on almost the entire length of the aristae. There are four well developed vertical bristles in both species, and the basal segment of the fore tarsus is slightly but quite noticeably thickened. In *longicornis* the arista is flattened, strap-like, but not very evidently widened.

EUPROSOPIA LONGICORNIS Bezzi

Euprosopia longicornis BEZZI, Philippine Journ. Sci., vol. 12, No. 3, sect. D, May, 1917, p. 154.

A small dark species with the wings more distinctly vittate than in most of the Philippine species. The third antennal segment in the male is broader than usual and deep black, and both sexes have yellow scale-like hairs on the abdominal tergites.

Locality, Sibuyan Island, P. I. (C. F. Baker).

The only other species of the group is *lepidophora* Bezzi.

Group MILLEPUNCTA

This group consists of those species in which the arista is haired on part or all of its extent, the antennae fall considerably short of attaining the level of the epistome, and the vertex has four well-developed bristles.

EUPROSOPIA MILLEPUNCTA Bezzi

Euprosopia millepuncta BEZZI, Philippine Journ. Sci., vol. 12, No. 3, sect. D, p. 152.

Quite similar to the preceding group in having the arista rather long haired on its entire extent, and the dorsum of the abdomen with many yellow scale-like hairs. But the antennae are much shorter, and the wings are very much more profusely infuscated, appearing dark with many small round hyaline spots, and two almost complete hyaline fasciae beyond middle bordering a fuscous fascia which is devoid of hyaline spots except on costal and posterior extremities.

Localities, Biliran, and Samar, P. I. (C. F. Baker).

EUPROSOPIA TRIVITTATA Bezzi

Euprosopia millepuncta BEZZI, Philippine Journ. Sci., vol. 12, No. 3, sect. D, May, 1917, p. 150.

A small species, distinguished from any in the Philippines by the dark brown mesonotum which is adorned with three greyish white dusted vittae, the central one extending over the disk of the scutellum, and the similarly marked abdomen, though in the latter only the central pale dusted vitta is distinct in the female, and the brown color is much reduced in the male, consisting usually of two incomplete vittae. The wings are largely pale brown, with many small hyaline dots, and not at all fasciate.

Neither sex has scale-like abdominal hairs, and the arista is long haired only on the basal third.

Locality, Mount Maquiling, P. I. (C. F. Baker).

Group NIGROPUNCTATA

Similar to the longifacies group, but the head is less than 1.5 as high as wide.

EUPROSOPIA NIGROPUNCTATA Hendel

Euprosopia nigropunctata HENDEL, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8, Heft 1, 1924, p. 356.

Locality, Ceylon (Collection C. F. Baker).

Genus LAMPROGASTER Macquart

Lamprogaster MACQUART, Dipt. Exot., vol. 2, pt. 3, 1843, p. 211.

Up to the present but one species of this genus has been definitely recorded from the Philippines, but before me there are two species which are quite closely related though very different in coloration. I describe one of the species below as new to science.

It would appear worth mention that in all species from Australia which I have seen there is a well-developed bristle on the upper portion of the hind margin of the mesopleura and that in both the Philippine species this bristle is lacking. It is hardly necessary to erect a subgenus for the Philippine species on the basis of this character, but it will be of interest to note whether there are any species from any other region in which this bristle is absent normally.

LAMPROGASTER PLACIDA (Walker)

Chromatomyia placida WALKER, List Dipt. Brit. Mus., vol. 4, 1849, p. 802.

A deep metallic violet-blue species with black legs and hyaline wings, on the latter of which there are a few narrow black marks. Bezzi writes that the legs are entirely black but in some of the specimens there is a much paler, yellowish, portion at bases of the femora which may extend even to the middle. The wing markings consist of a partial fascia at apices of the basal cells, a slender oblique fascia from center of the stigma to or slightly beyond the inner cross vein, a narrow cloud on the outer cross vein, and opposite it on the costa a short spur of a fascia from the latter of which to apex of wing there is a narrow dark border. The frons is dull brownish or fuscous, the face, antennae, and labrum, testaceous yellow, and the palpi brownish.

All four verticals present but very short, ocellars undeveloped; antennae extending to slightly below middle of face and about as long as height of cheek; arista short haired to beyond middle, slightly compressed. Scutellum without discal hairs, with usually eight short marginal bristles and some fine hairs between them basally. First posterior cell narrowed apically; inner cross vein at about one-third from apex of discal cell.

Length, 8 mm.

Localities, Samar Island; Iligan, and Dapitan, Mindanao, P. I. (C. F. Baker). Bezzi recorded it from Butuan, Mindanao.

LAMPROGASTER FULVESCENS, new species

Female.—Fulvous yellow, frons brownish, labrum and apices of palpi black, legs fulvous yellow, fore tarsi and apices of mid and hind pairs dark brown; wings hyaline except for a brown cloud

along the costa from apex of auxiliary vein to apex of fourth, narrowed beyond apex of first vein and in apex of first posterior cell, a short spur from the costal streak extending over inner cross vein, and a narrow cloud on outer cross vein.

Structurally similar to *placida*, but larger, with the frons wider, the antennae a little longer, the scutellum with a more numerous short marginal bristles and hairs, and the aristaes less evidently haired. The hairs on the thoracic dorsum are numerous, decumbent, and dark. In both species there is an indication of a weak apical central emargination of the scutellum, but it is apparently not constant.

Length, 10–11 mm.

Type.—Cat. No. 43076, U. S. N. M. Surigao, Mindanao, P. I., one paratype in rather poor condition, Basilan Island (C. F. Baker).

It must be noted that Walker's description does not fit the specimens identified as *placida* very well, but the specimens are of that species according to Bezzi's identification and redescription. If he is correct in his identification, then Walker's specimen must have been teneral as the thoracic color is given as ferruginous while in the specimens before me it is dark metallic green. The general color of *fulvescens* is nearer to that given by Walker for *placida*, but there are differences which prohibit one from accepting it as his species. Only a careful examination of the type specimen if it still exists will definitely decide the matter of its identity.

Genus PLAGIOSTENOPTERINA Hendel

Plagiostenopterina HENDEL, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8, 1914, pp. 7, 52.

This genus as accepted by Hendel contains species with very diverse structural characters. In his key to the genera of "Stenopterina" he separates it from *Stenoptera* Macquart by the lack of fronto-orbital bristles, and the apically narrowed first posterior cell of the wing. It falls in a section of his key along with *Icteracantha* Hendel and *Elassogaster* Bigot, from the first of which it can be separated by the unarmed femora, but it is difficult, or impossible, to readily separate it from *Elassogaster*, the only character he cites for that purpose being the oblique inner cross vein of the wing, *Elassogaster* having that vein erect. This method of separation is quite unreliable, and an examination of material available makes it evident to me that there are other characters of more significance, and more readily appreciable, available for group distinctions, but whether these are of generic value is of course a matter of opinion. I consider the segregates except *Elassogaster* as subgenera, and below I present a synoptic key for their separation based upon the characters above referred to. All of the included segregates will run down to *Plagiostenopterina* and *Elassogaster* in Hendel's generic key.

KEY TO THE SUBGENERA

1. Face with erect sparse microscopic hairs; occiput with a bristle behind post-ocular orbits a little above middle of eye; sides of postnotum above bases of halteres usually with fine but distinct erect hairs; no spiracle-like openings on the dorsal exposure of third and fourth visible tergites.

Plagiostenopterina Hendel, genotype *aenea* Wied.

Face entirely without hairs; postnotum without distinguishable hairs on sides.....2.

2. Third and fourth visible tergites in female each with a pair of spiracle-like openings on dorsal exposure; anterior margin of thoracic dorsum with four bristles; mesopleural bristle present.

Stenopterella, genotype *trivittata* Walker.

Third and fourth visible tergites without spiracle-like openings.....3.

3. Humeral and occipital bristles present; mesopleural bristle well developed.

Elassogaster Bigot, genotype, *metallicus* Bigot.

Humeral and occipital bristles lacking.....4.

4. Mesopleural bristle present.....Bakeromyia, genotype, *calcarata* Macquart.

Mesopleural bristle lacking.....Carolimyia, genotype, *diptera*, new species.

Subgenus PLAGIOSTENOPTERINA Hendel

The haired face, almost invariable presence of humeral and mesopleural bristles, and of hairs or pile on the basal section of the third wing vein, distinguish this subgenus from the others, but only the first-mentioned character is possessed by this group exclusively, one or more of the other characters recurring in the others.

Many of the species placed in *Plagiostenopterina* by Hendel are unknown to me, but I present below a key to those now before me in the hope that it may be useful to students of the family.

KEY TO THE SPECIES

1. Tarsal claws of the male with a very pronounced basal lobe, those of the female with a distinct basal angle; wings blackened, the costal, and central basal black stripes hardly darker than the remainder of the field.

samoensis Malloch.

Tarsal claws in neither sex with either a basal lobe or distinct basal angle; wings hyaline, basal half of center of wing, and costa each with a conspicuous dark stripe.....2.

2. Scutellum, smooth, dusted, without punctures or short fine hairs on disk; humeral angles rather densely furnished with black hairs, the usual bristle very poorly or not at all differentiated.....parva, new species.

Scutellum either granulose or with closely placed piliferous punctures, the hairs generally pale and fine and most readily seen when the surface is viewed from behind; humeral bristle always well developed.....3.

3. Mesopleural bristle lacking; hairs on arista about three times as long as its basal diameter at base of third segment; mesonotum without trace of a central white dusted vitta; frons entirely dull, nowhere distinctly shining; section of costa between apices of first and second veins subequal to that between second and third; second visible abdominal tergite of female violet-black, densely brownish black haired on posterior lateral regions of dorsal exposure, and distinctly different in color from the other tergites which are metallic blackish blue; hind tarsi pale haired above; male without an apical palette.....formosae Hendel.

- Mesopleural bristle present; aristae without hairs, or much shorter haired than above; section of costa between apices of first and second veins distinctly shorter than that between second and third; frons usually partly shining; hind tarsi dark haired above posteriorly-----4.
4. Knobs of halteres pale yellow-----5.
Knobs of halteres dark brown or fuscous-----6.
5. Frons entirely shining, brownish red and without a dull black spot in center; African species-----*submetallica* (Loew).
Frons shining, blackish brown, with a more or less evident violet tinge, and a dull black central spot on which the hairs are much darker and denser than elsewhere-----*dubiosa*, new species.
6. Arista of male with an apical palette; frons almost all dull, with an opaque black central spot on the bluish central stripe; a small white tomentose triangle extending in front of anterior ocellus in both sexes; fourth tergite (third visible) in male about 1.5 as long as fifth-----*aenea* (Wiedemann),
Arista of male without an apical palette; neither sex with a small white tomentose triangle in front of the ocelli; fourth tergite in male shorter than or but slightly longer than fifth-----7.
7. Frons almost entirely dull, with a central opaque black spot as in *aenea*; fourth tergite shorter than fifth in male-----*enderleini* Hendel.
Frons entirely shining; fourth tergite slightly longer than fifth in male.
westermanni Hendel.

PLAGIOSTENOPTERINA (PLAGIOSTENOPTERINA) AENEA (Wiedemann)

Dacus aenea WIEDEMANN, Zool. Mag., vol. 3, p. 29 (1819).

I am accepting Hendel's interpretation of this species as correct. It is not a difficult matter to identify the male because of its possession of an apical palette to the arista and the long fourth abdominal tergite, but the female is very similar to that of *enderleini*. In my specimens the white tomentose triangle in front of the ocelli is quite distinct and very different from the glossy similarly sized triangle of *enderleini*. It appears also that the fourth tergite is comparatively longer in contrast with the fifth in this species than it is in the other, but the abdomen of the female is subject to more expansion and contraction than is that of the male, so that one can seldom rely upon the comparative lengths of the tergites, at least those of the apical half.

Localities, Los Banos, Kolambugan, and Leyte, P. I. (C. F. Baker).

PLAGIOSTENOPTERINA (PLAGIOSTENOPTERINA) ENDERLEINI Hendel

Plagiostenoptera enderleini HENDEL, Abhand. Zool.-Bot. Gesellsch., Wien. vol. 8, p. 56 (1914).

Similar in size and general characters to *aenea*, differing as noted in the above paragraph.

Localities, Davao, Mindanao; and Mount Maquiling, Luzon (C. F. Baker).

PLAGIOSTENOPTERINA (PLAGIOSTENOPTERINA) SAMOAE NSIS Malloch

Plagiostenopteryna samoensis MALLOCH, Insects of Samoa, Diptera, fasc. 5, p. 230 (1930).

This rather outstanding species is known only from the Samoan Islands. The tarsal claws and very dark wings readily separate it from any of its relatives.

PLAGIOSTENOPTERINA (PLAGIOSTENOPTERINA) FORMOSAE Hendel

Plagiostenopteryna formosae HENDEL, Abhand. Zool.-Bot. Gesellsch., Wien, vol. 8, p. 56, 1914.

There is a specimen of this species, evidently a paratype, in the museum collection. The only locality known is Formosa.

PLAGIOSTENOPTERINA (PLAGIOSTENOPTERINA) DUBIOSA, new species

Similar in all respects to *aenea*, except in having the frons shining and with only the black spot dull, the arista of the male without a palette, the tomentose triangle in front of ocelli lacking, the fourth tergite of male shorter than the fifth, and no pale hairs on anterior portion of the third tergite in either sex.

Length, 8–10 mm.

Type.—Male. Cat. No. 43053, U.S.N.M. Allotype and three male paratypes, Singapore, Straits Settlements; paratypes, Colombo, Ceylon (Comper); and Mindanao, P. I. (C. F. Baker).

My first impression was that this might be *fasciata* Hendel, a Ceylonese species, but that has the frons without a dull black central spot, and the outer cross vein of the wing broadly clouded. The outer cross vein in the present species is very faintly clouded, almost imperceptibly so.

PLAGIOSTENOPTERINA (PLAGIOSTENOPTERINA) PARVA, new species

Female.—Very similar in general appearance to *aenea*, but smaller, with the thorax less evidently bluish, the mesonotum almost lacking punctures and the scutellum entirely without either punctures or fine discal hairs. The lower half of the face is shining black, the upper half whitish dusted, and the epistome more protruded in profile than in *aenea*, while the preocellar triangle is glossy though the remainder of the frons is much as in *aenea*. Though the humeral bristle is lacking on one side there is a slightly differentiated one amongst the numerous long hairs on the other, and it is possible that this bristle may sometimes be well developed.

Length, 6.5 mm.

Type.—Kaiserwilhemsland (R. Schlechter). In the Deutsches Entomologisches Museum.

PLAGIOSTENOPTERINA (PLAGIOSTENOPTERINA) WESTERMANNI Hendel

Plagiostenoptera westermanni HENDEL, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8, p. 50, 1914.

PLAGIOSTENOPTERINA (PLAGIOSTENOPTERINA) SUBMETALLICA (Loew)

Stenoptera submetallica LOEW, Sitz. Akad. Berlin, p. 660 (1852).

The only distinction between the two specimens identified as the above species lies in the color of the halteres as indicated in the foregoing key to the species. As those with pale halteres are females and those with dark halteres are males it is not impossible that they are but the sexes of one species that are before me, but I do not care to suggest that the two species are synonyms on the basis of this material.

Locality, Lorenzo Marquez, Africa (C. W. Howard).

STENOPTERELLA, new subgenus

This subgenus is erected for the reception of three species in the collection, one of them new. The position of the spiracles on the fourth and fifth abdominal tergites of the female is sufficiently different from that of all other species that I feel justified in proposing a new subgenus for the group.

All three species which I place herein have the costal margin of the wing with a continuous narrow black border, and none of them have the narrow black central vitta on the wing which in all species of the subgenus *Plagiostenoptera* as limited herein extends to or beyond the inner cross vein. I present below a key to the three included species.

KEY TO THE SPECIES

1. Thoracic dorsum blue green, shagreened and not conspicuously vittate; coxae and femora black brown-----*marginata* (van der Wulp).
Thoracic dorsum black with a bluish tinge and with dense yellow dust, leaving only two black vittae on mesonotum; coxae and femora largely yellow----- 2.
2. The two black thoracic vittae tapered posteriorly; abdomen with dense yellow dusted anterior margins to the tergites; spiracles on tergites 3 and 4 near to anterior margin-----*trivittata* (Walker).
The two black thoracic vittae not tapered except just at the posterior extremities, the central yellow dusted stripe equally distinct on its entire length; abdomen with but faint grey dusted anterior margins to the tergites; spiracles on tergites 3 and 4 situated near posterior margins.
trivittigera, new species.

PLAGIOSTENOPTERINA (STENOPTERELLA) TRIVITTATA (Walker)

Dacus trivittata WALKER, List Dipt. Brit. Mus., pt. 4, p. 1072 (1849).

I have seen numerous specimens of this species from the Philippine Islands in the collection of the United States National Museum, most

of them from the Baker collection, and have one sent to me by Dr. Richard Frey from the same islands.

PLAGIOSTENOPTERINA (STENOPTERELLA) TRIVITTIGERA, new species

Female.—Similar to *trivittata* in general coloration, with the same very distinctly trivittate thoracic dorsum, and a continuous fuscous costal stripe. The two black thoracic vittae are, however, not tapered posteriorly except just at their extremities and the yellow central stripe is equally distinct on its entire length, the abdomen has no dense yellow dusted anterior margins to the tergites, the dust there being greyish and not at all dense, and the ground color is deeper metallic blue-green.

Structurally the species are very similar, both possessing the four bristles on the anterior margin of the thoracic dorsum, but there are numerous hairs on the scutellum besides the four bristles, while in *trivittata* only the bristles are present. The third and fourth tergites each have a pair of spiracular openings near the apex, one on each side at the lateral curve, whereas *trivittata* has the same organs near anterior margin, the pair on fourth tergite largest and separated by about four times the width of an opening, those on third tergite about half as large as those on fourth and separated by about twice that distance. The mid femur in this sex has a few weak bristles near the apex on the posterior surface in *trivittata* which are not evident in the type specimen of the new species.

Length, 8 mm.

Type, Singapore, Straits Settlements (C. F. Baker).

Type.—Cat. No. 41903, U.S.N.M.

PLAGIOSTENOPTERINA (STENOPTERELLA) MARGINATA (van der Wulp)

Stenopterina marginata VAN DER WULP, Tijds. v. Entom., vol. 23, p. 179 (1880).

This species differs from the preceding two in having the thoracic dorsum colored much as in *P. aenea* Wiedemann, and the legs much darker in color.

Locality, Mount Salak, Java.

It is possible that some of the other species placed by Hendel in *Plagiostenopterina* belong to this subgenus, but it is impossible to determine this without access to the species. There is one species very similar to *trivittata* Walker that may also find a place in the subgenus, having the same conspicuously vittate thorax, but the costal stripe is not continuous. This is *vittigera* de Meijere, described from Sumatra. No mention is made in the description of the latter, nor in that of any previously described species, of the presence of tergal spiracles in the females so that their subgeneric location is not possible from their descriptions alone.

CAROLIMYIA, new subgenus

This subgenus is distinguished readily from the others by the characters listed in the foregoing key. Both of the species which I place herein lack the occipital and mesopleural bristles, and have the scutellum with fine hairs and but two apical marginal bristles. The venation is much as in *Plagiostenoptera*, but the inner cross vein is almost erect and the central basal streak of black color is missing.

Genotype.—*Carolimyia diptera*, new species.

The two species accepted as belonging to the subgenus may be separated as below.

- A¹. Apical ventral spur of mid tibia blunt tipped; coxae, femora, and antennae, testaceous yellow; apex of wing in both sexes with a dark-brown mark from before level of outer cross vein to tip, in which there are some wedge-shaped pale marks (fig. 6)



FIGURE 6.—WINGS OF *PLAGIOSTENOPTERINA DIPTERA*, a, FEMALE, b, MALE

diptera, new species.



FIGURE 7.—WING OF *PLAGIOSTENOPTERINA PLAGIATA*

- A². Apical ventral spur of mid tibia sharp tipped; legs and antennae fuscous, femora with metallic blue tinge; apex of wing with a fuscous cloud well beyond the level of outer cross vein in which there is one hyaline wedge-shaped incision in hind margin (fig. 7)-----*plagiata* (Bezzi).

CAROLIMYIA DIPTERA, new species

Male and female.—Head shining black, upper half of face testaceous yellow, parafacials, frontal orbits, and cheeks with white dust, the antennal foveae and pale upper portion of face yellowish dusted, occiput except the flattened upper third with dense silvery white dust; antennae testaceous yellow; aristae yellow at bases, black at apices; palpi fuscous; proboscis glossy black below. Thorax and abdomen metallic blue, mesonotum duller than the dorsum of abdomen because of the more numerous piliferous punctures; pleura with three vertical stripes of dense yellowish dust, one on propleura, the second over sternopleura, and the third on posterior portion of hypopleura and anterior portion of postnotum; the abdomen without dust, black haired. Legs testaceous yellow, tibiae blackish brown, tarsi black. Wings hyaline, with blackish-brown marks as in Figure 6. Calyptrae whitish gray. Halteres yellow.

Frons longer than wide, slightly wider in male, orbits very narrow, ocellars not developed; verticals four; antennae extending to about

two-thirds of the face length; aristae distinctly haired to beyond middle, the longest hairs fully half as long as width of third antennal segment; face projecting from middle to epistome; foveae deep; labrum higher than width of third antennal segment, palpi as wide as latter. Thorax without distinct anterior marginal, humeral, and mesopleural bristles; lower posterior angle of hypopleura with microscopic soft hairs. Fourth visible abdominal tergite about twice as long as third in male, about 1.5 as long in female. Legs without exceptional armature; fore tarsus slightly dilated apically in both sexes.

Length, 10–11 mm.

Type.—Male, Cat. No. 43066, U.S.N.M. Allotype, and one male and three female paratypes, Montalban, Luzon, P. I. (C. F. Baker); two male paratypes, Dilang, Cavite, P. I. (R. C. McGregor).

The subgenus is named in honor of the late C. F. Baker.

CAROLIMYIA PLAGIATA (Bezzi)

Elassogaster plagiata BEZZI, Philippine Journ. Sci., vol. 12, sec. D, p. 135 (1917).

The female example in the Museum collection is apparently much less conspicuously marked on the wings than was the type female described by Bezzi, but by turning the wing to a certain angle the large dark mark in front of the outer cross vein may be faintly distinguished. I figure the wing, as should the form now before me be the normal one it would be difficult for anyone to identify it from the description alone (fig. 7).

Structurally the species is very similar to *diptera*, but the sharp tipped apical spur of the mid tibia and the presence of a few fine erect hairs on the suprspiracular convexity of the postnotum will readily distinguish it if taken in conjunction with the duller blackish-blue color of the thorax and abdomen and the wing markings.

Length, 11 mm.

Locality, Mount Maquiling, Luzon (C. F. Baker).

The Museum specimen bears a number, "3923," indicating that it was one of a pair, the other being sent to Bezzi.

BAKEROMYIA, new subgenus

In addition to the characters listed in the key for the distinction of this subgenus from its allies it may be worth mention that there are always two quite well-developed bristles on the outer side of each hind coxa, while in the preceding subgenus there is either one or none. For other characters see the descriptions of species below.

Subgenotype.—*Bakeromyia calcarata* (Macquart).

The four species which I place in the subgenus may be distinguished as below.

KEY TO THE SPECIES

1. Wing with a blackish fascia the inner margin of which runs along the outer cross vein, the fascia becoming paler as it leaves the cross vein and disappearing before attaining the apex of wing; inner cross vein with a conspicuous spot like brown or fuscous cloud; legs almost entirely testaceous yellow-----*discolor*, new species.
Wing without a broad preapical fascia, always with a narrow blackish costal stripe on entire extent which is widened slightly at apex; legs fuscous or black-----2.
2. Male with a long strong apically tapered spine on hind trochanter which is about half as long as the basal segment of hind tarsus; spot on inner cross vein large and conspicuous-----*calcarata* (Macquart).
Male without a conspicuous spine on the hind trochanter; spot on inner cross vein narrow and inconspicuous-----3.
3. Male with a short wartlike protuberance on the inner side of each hind trochanter near apex; short hairs on posterior central portion of mesonotum yellow; face and labrum testaceous yellow-----*armata*, new species.
Male without any indication of a protuberance on inner side of hind trochanter; mesonotal hairs black; face and labrum black.
inermis, new species.

NOTE.—The females of *armata* and *inermis* are unknown to me, and for this reason I base my key to these and *calcarata* upon the male sex alone.

PLAGIOSTENOPTERINA (BAKEROMYIA) CALCARATA (Macquart)

Herina calcarata MACQUART, Dipt. Exot., vol. 2 (3), p. 207 (1843).

This species is evidently not uncommon in the Philippine Islands and there are a number of examples in the Baker collection in the United States National Museum. The general color is bright metallic blue, sometimes with a violet sheen, the wings are hyaline, with a deep black costal stripe on the entire extent from base to apex of costal vein, which is widened basally to cover the fork of second and third veins, then confined to the subcostal cell, a narrow margin of marginal cell, and slightly widened over apex of first posterior cell; inner cross vein with a quite large spotlike black mark, outer one with a similar, but rather narrower, black mark; legs black. The male is readily distinguished by the hind trochanteral spur, but the female lacks this and except for the broader clouding of the cross veins must be very similar to the females of *armata* and *inermis* which are unknown to me.

PLAGIOSTENOPTERINA (BAKEROMYIA) ARMATA, new species

Male.—Very similar in coloration to *calcarata*, but the face, palpi, and labrum are not blackish, their general color being pale testaceous yellow, and the dark marks on the wings are narrower except in the case of the costal streak which is more noticeably widened in the apex of first posterior cell.

Structurally the species are very similar, the principal distinction lying in the armature of the hind trochanters which in the present species consists in the male of a short wartlike protuberance on the inner surface near the apex, furnished to tip with fine pale hairs.

Length, 10 mm.

Type.—Male, Cat. No. 43068, U.S.N.M. Tangcolan, Bukidnon, P. I. (C. F. Baker).

PLAGIOSTENOPTERINA (BAKEROMYIA) INERMIS, new species

Female.—Similar to *calcarata* in general coloration, differing in the same manner as *armata*, in so far as wing markings are concerned, except that the costal streak is less widened at apex; the face is blackish or fuscous, and the mesonotal hairs black.

The only outstanding structural distinction appears to be that there is no indication of a process on the inner side of the hind trochanters. The specimen is a little abnormal in having a slight protuberance on one of the mid trochanters, but this may be disregarded.

Length, 13 mm.

Type.—Cat. No. 43067, U.S.N.M.. Biliran, P. I. (C. F. Baker).

PLAGIOSTENOPTERINA (BAKEROMYIA) DISCOLOR, new species

Male and female.—Radically different from the other three species in the wing markings, which rather closely resemble those of the female of *Carolia diptera*, from which it differs in having the inner margin of the preapical black mark extending in a straight line from before the apex of second vein to hind margin of wing very slightly proximad of the outer cross vein, in having no wedge-shaped hyaline marks on the margin of wing in the black mark, the latter fading out gradually toward tip of wing. Head fuscous; frons brown, interfrontalia shining above bases of antennae; antennae and palpi testaceous yellow, sometimes browned in the male; face generally testaceous yellow, sometimes more or less stained with brown. Thorax black, slightly bronzy, without distinct dorsal vittae, the mesonotum rather evenly grayish dusted except on lateral margins. Abdomen bright metallic blue or blue-green. Legs varying from testaceous yellow to tawny yellow, fore tibiae brown, fore tarsi and apices of mid and hind pairs fuscous or black.

Structurally similar to *inermis*, the hind trochanters unarmed in the male, and the inner cross vein is more distinctly beyond the middle of the discal cell.

Length, 9–11 mm.

Type.—Male, Cat. No. 43069, U.S.N.M. One male paratype, Tangcolan, Bukidnon, P. I.; allotype and one female paratype, Davan, Mindanao, P. I. (C. F. Baker).

In all four species the scutellum has minute discal hairs and four subequal marginal bristles.

Genus ELASSOGASTER Bigot

Elassogaster BIGOT, Ann. Soc. Ent. France, p. 546 (1859).

This genus is distinguished from *Plagiostenopterina* Hendel by the lack of hairs on the face, the comparatively longer first basal cell with its erect cross vein at apex, the upward rather than downward deflection of apex of third vein, and the entire absence of hair or pile from the upper surface of the section of fifth vein between the basal cells.

I have before me two species of the genus, neither of them the genotype.

ELASSOGASTER SEPSOIDES (Walker)

Dacus sepsoides WALKER, Proc. Linn. Soc., vol. 5, p. 163 (1861).

A common species throughout the Orient. A synonym of this species is *P. hendeli* Knab.

Many specimens in United States National Museum collection from the Philippines, mostly from the Baker collection, and the type series of *hendeli* Knab.

ELASSOGASTER VANDERWULPI Hendel

Elassogaster vanderwulpi HENDEL, Abhandl. Zool.-Bot. Gesellsch., Wein, vol. 8, p. 83 (1914).

I have examined two specimens of this species from Southern Rhodesia. It is in nearly all respects similar to the preceding species, but the tarsi of all legs are deep black, and the apical black spot on the wing is smaller; the mid and hind tarsi in *sepsoides* are reddish.

ELASSOGASTER TERRAEREGINAE Malloch

Elassogaster terraereginae MALLOCH, Proc. Linn. Soc., N. S. W., vol. 53, p. 352 (1929).

This Australian species differs from the preceding two in having the apical dark spot of the wing reduced to a narrow stripe along the margin beyond the apex of the second vein, the legs honey-yellow with the fore tibiae and tarsi deep black, and the central grey dusted mesonotal vitta undivided posteriorly and continued on to base of scutellum.

The fourth wing vein is less noticeably curved forward at apex, ending behind the tip of the wing, and the disk of the scutellum is not bare but furnished with a number of pale hairs. The frons is also broader and distinctly punctured.

ELASSOGASTER PLAGIATA Bezzi

Elassogaster plagiata BEZZI, Philippine Journ. Sci., sect. D, vol. 12, p. 135 (1917).

This species does not belong to *Elassogaster* on the basis of an example in the Baker collection in the National Museum. It has been removed to a subgenus of *Plagiostenoptera*.

ELASSOGASTER HYALIPENNIS, new species

Female.—Head fuscous, frons almost black, not shining, narrowly testaceous on each side, face clay yellow, dark brown in foveae and below them, parafacials and cheeks yellowish brown, labrum and palpi testaceous yellow, occiput and frontal orbits rather densely pale grey dusted, parafacials and cheeks not so much dusted; antennae brownish yellow, third segment darker above. Thorax black, with a distinct bronzy tinge, the mesonotum greyish dusted, slightly matted in type but evidently without outstanding vittae, the mesonotal hairs very short and dark, those on the pleura pale. Abdomen black, with very pronounced bronzy or greenish luster, the hairs mainly yellowish. Legs tawny yellow, fore coxae and fore tibiae slightly browned, fore tarsi and apices of mid and hind pairs dark brown. Wings hyaline, without distinct dark apical spot. Calyptrae and halteres orange yellow.

Frons about 1.5 as long as wide, sides slightly undulated, four verticals present, ocellars lacking; antennae slender, extending to lower fourth of face in center, the third segment longer than height of cheek, arista distinctly pubescent at bases; labrum about twice as high as width of third antennal segment; occipital bristle well developed. Thorax with the same bristles as in *sepsoides* Walker. Fourth visible tergite about as long as the preceding two combined, the surface almost without punctures. Legs normal, fore tarsus hardly dilated, hind femur without anteroventral bristles but with about three anterodorsal bristles apically. Wing venation differing from that of the other species recorded above in having the third vein very slightly bent down at apex; inner cross vein almost erect; penultimate section of fourth vein about four-fifths as long as ultimate one.

Length, 8.5 mm.

Type.—Female, Cat. No. 43065, U.S.N.M. Baguio, Benguet, P. I. (C. F. Baker).

This is the only species of the genus known to me in which there is no apical or discal dark marks on the wings.

Genus SCELOSTENOPTERINA Hendel

Scelostenoptera HENDEL, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8, p. 86, 1914.

This genus is very similar to *Plagiostenoptera* Handel, and was distinguished therefrom by its author by the thickened, spindle-shaped femora. He did also mention that the thorax was narrowed in front, but there is no distinction between the thorax and that of typical *Plagiostenopterae* before me, and I infer that the poor condition of his single example of his genotype was responsible for his assumption that the shape was different. I have very carefully examined a number of specimens of the genotype in good condition in the United States National Museum collection and find that in most characters it agrees well with *Plagiostenoptera*, having the hind coxae haired at apices above, the humeral and mesopleural bristles present, a well developed occipital bristle, four verticals, the aristae short haired basally, and the wing venation almost as in *aenea* Wiedemann. It differs, however, in having the femora all thickened, the fore pair in the male with a short wart-like protuberance near apex on the posteroventral surface, the face bare, and the lateral portions of the postnotum with even more noticeable erect fine hairs than in typical species of that genus.

SCELOSTENOPTERINA FEMORATA Hendel

Scelostenoptera femorata HENDEL, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8, p. 86, 1914.

Very similar in general color and habitus to *Plagiostenoptera aenea* Wiedemann, the wings hyaline with a narrow costal stripe, and a central one extending from base to the inner cross vein, fuscous, as in that species.

The abdomen in the male has rather dense erect fine pale hairs on the tergites, and the first visible tergite has from two to four long black bristles in a vertical series on each side. The color of the legs is rather variable, the fore and mid pairs sometimes being largely or entirely fulvous yellow and sometimes dark brown.

Locality, Mount Banahao, P. I. (C. F. Baker).

This is evidently some of the same material as was recorded by Bezzi in 1917.¹

It is to be noted that the postnotal hairs in this species are on the upper anterior triangular portion, not on the central posterior portion as in *aenea* Wiedemann.

¹ Philippine Journ. Sci., vol. 12, sec. D, p. 136.

MINDANAIA, new genus

This genus will run down to *Stenopterina* Macquart in Hendel's key to the genera of this group, possessing a narrowed first posterior cell and one well-developed orbital bristle on each side of frons. A comparison of the genotypes, however, discloses the fact that that of the new genus has many fine erect black hairs on the upper lateral triangular section of the postnotum which are lacking in *Stenopterina*.

Genotype.—*Mindanaia latifasciata*, new species.

MINDANAIA LATIFASCIATA, new species

Female.—Head fuscous, frons dark brown, paler anteriorly and narrowly along eye margins, upper orbits shining black; face glossy blackish brown below, white dusted on upper half; antennae and palpi fuscous, basal segments of former paler. Thorax and abdomen black, with but slight indications of bluish tinge, dorsum of former with grey dust forming faintly indicated vittae anteriorly, the central one rather broad and the most distinct. Abdomen largely glossy, slightly grey dusted on sides of the basal two segments; hairs pale. Legs fuscous, yellowish at bases of hind femora, apices of mid tibiae, and on basal two segments of mid and hind tarsi. Wings hyaline, with fuscous marks as in Figure 8. Halteres yellow.



FIGURE 8.—WING OF MINDANAIA LATIFASCIATA

Frons over twice as long as wide, unpunctured, four verticals well developed, ocellars microscopic; antennae extending about four-fifths of the distance to epistome, third segment narrowed apically; arista with the upper hairs about half as long as the width of third antennal segment, the lower hairs shorter; occipital bristle present; face shallowly foveate on sides; labrum higher than width of third antennal segment. Lateral anterior marginal bristles present on dorsum of thorax, humeral and mesopleural present; scutellum with discal hairs and four marginal bristles. Fourth visible tergite about 1.5 as long as third. Legs normal, mid tibia with one apical ventral bristle. Wing venation as Figure 8, first and third veins setulose to apices, fifth vein bare.

Length, 6.25 mm.

Type.—Female, Cat. No. 43060, U.S.N.M. Zamboanga, Mindanao, P. I. (C. F. Baker).

Genus PSEUDEPICAUSTA Hendel

Pseudepicausta HENDEL, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8, p. 112, 1914.

This genus superficially resembles *Plagiostenopterina* Hendel, but the ultimate section of the fourth wing vein is never curved forward

apically, so that the first posterior cell is not at all narrowed in the apex of the wing; and the lower posterior angle of the metapleura, and the hind coxae at apices above, are without hairs.

The genotype is *Herina chalybea* Doleschall. Before me there are four other species besides the genotype, data upon which are presented below.

PSEUDEPICAUSTA CHALYBEA (Doleschall)

Herina chalybea DOLESCHALL, Natur. Tijd. v. Ned.-Ind., vol. 17, p. 125 (1858).

A metallic blue species, with a large fuscous mark on the apex of the wing the inner margin of which extends from the costa about midway between apices of first and second veins obliquely to margin beyond the tip of fourth vein, a dark costal streak, most intense in the subcostal cell, and dark clouds on the outer and inner cross veins least conspicuous on the latter.

The vertex has but two strong bristles, the scutellum has six bristles, the two near base and two on disk shorter than the apical pair; and the mesopleural strong.

Locality, Manila, P. I., December, 1924 (R. C. McGregor).

PSEUDEPICAUSTA ANGULATA Hendl

Pseudepicausta angulata HENDEL, Abhand. k. k. Zool.-Bot. Gesellsch., Wien, vol. 8, p. 118, 1914.

This species is very similar to the genotype, but the wing markings differ in that the apical fuscous mark is carried less distinctly behind the third vein at apex, the costal streak is not appreciably paler between apex of first vein and inner edge of the apical mark, and there is a fuscous cloud along the fourth vein connecting the two clouds on the inner and outer cross veins.

Structurally the species differ in the armature of the vertex, *angulata* having four bristles, the additional pair being central and cruciate. Both species have an occipital bristle, and the third antennal segment extending to below level of epistome.

Locality, Penang (C. F. Baker).

PSEUDEPICAUSTA BATAVIENSIS (Schiner)

Stenopterina bataviensis SCHINER, Reise d. Novara, Diptera, p. 288 (1868).

I have seen one female of this species. It has much the appearance of *angulata*, but the cross veins are but slightly clouded, the clouds are not connected along the fourth vein, the frons is much more narrowed at vertex, and the second and third abdominal tergites are white dusted at apices. The four vertical bristles are well developed, and there are no distinct orbitals; scutellum with six bristles, one pair on disc a little smaller than the others.

Locality, Wai Lima Z., Sumatra, 1921 (Karny and Siebers).

In author's collection.

PSEUDEPICAUSTA COMPLETA, new species

Female.—Head fuscous, frons brownish, frontal orbits with dense whitish dust, narrowed posteriorly, face testaceous yellow, darker in the foveae, labrum and palpi concolorous with face; antennae slightly darker than face, third segment brownish except at base; arista testaceous yellow; parafacials, cheeks, and postocular orbits, densely whitish grey dusted. Thorax metallic blackish green, densely grey dusted, the mesonotum with four black vittae, two on the dorsocentral areas and two, less distinct, on the notopleural sutures; scutellum grey dusted. Abdomen brighter metallic blue-green than thorax, less densely grey dusted. Legs black. Wings hyaline, with a deep black costal margin which extends to second vein on its entire extent, inner outline leaving a short distance before apex of that vein and running diagonally across wing to slightly behind apex of fourth vein, the inner margin all sharply limited; veins yellow basally, becoming darker apically except in the dark costal area where they are entirely black. Calyptrae and halteres pale. Hairs on frons, mesonotum, and most of the femora pale.

Frons at vertex about one-third of the head width, not appreciably widened anteriorly, with quite dense soft erect hairs, orbits conspicuously differentiated because of their dense whitish grey dusting, each with two short bristles near upper extremity; all four verticals present; ocellars short but distinct; the orbital hairs descending a little below the bases of antennae on parafacials; arista distinctly pubescent; antennae extending to below level of epistome; labrum not as high as width of third antennal segment; palpi slightly widened apically. Thorax with fine decumbent dorsal hairs; two presutural bristles immediately behind head, the acrostichal pair lacking, notopleural bristle sometimes very short and duplicated, the mesopleural short; scutellum with four bristles. Abdomen without black bristles on sides of first visible tergite. Legs of normal build, fore femur with a series of posterodorsal and a partial series of posteroventral bristles; hind tibia with three or four very fine setulae centrally on anteroventral surface; third wing vein very slightly bent down apically; outer cross vein at almost twice its own length from inner.

Length, 6.5–7 mm.

Type and four paratypes, Cairns, N. Queensland, Australia (coll. Lichtwardt, Deutsches Entomologisches Institut.).

Paratype.—Female, Cat. No. 43071, U.S.N.M. Deposited in the collection of the United States National Museum through the kindness of Dr. Walther Horn.

PSEUDEPICAUSTA ATTENUATA, new species

Female.—Very similar to the next preceding species, agreeing with it in all respects except as follows: The scutellum has six marginal

bristles, the black costal stripe is not uniformly colored, being yellowish in the costal cell, and in the submarginal cell except at extreme apex, so that the vitta may be said to be attenuated before apex of the auxiliary vein and beyond that of the first vein; the outer cross vein is at little more than its own length from the inner; and the anteroventral setulae on central portion of the hind tibiae are rather stronger. The specimens of both species are not in the best of condition, but it appears to me that the third antennal segment in the present species is shorter than in *completa*, and the arista is a little more noticeably haired.

The two examples before me have the posterior notopleural bristle duplicated, both being quite strong and short.

Length, 7 mm.

Type and one paratype.—Cairns, N. Queensland, 1907, same collection as *completa*.

Family HELOMYZIDAE

My interpretation of this family is wider than that of Dr. F. Hendel in his most recent treatment of the Palearctic Diptera,² including as it does the group he designates as Trichoscelidae, ranking the latter as a separate family. I do not care to accept the latter as even a subfamily, as with all available material it appears to me that the two merge into each other, no one character being of invariable dependability in their separation. I have just finished a revision of a portion of the family as represented in New Zealand which corresponds quite closely with the genus now dealt with below, and in a previous paper with A. L. Tonnoir described several genera and subgenera which have a very similar appearance but are rather clearly connecting links between the present group and the larger and more northern representatives generally accepted as Helomyzidae.³ Usually the genus *Triaxoscelis* Rondani has been considered as distinct from *Diastata* Meigen, but they have the same genotype, *obscurella* Fallen, and are thus identical. I have examined the genotype and find that in but two characters of any importance does it differ from the genotype of *Spilochroa* Williston. Of these but one is structural, the much higher cheek, while the other consists of the maculated wings, *obscurella* and its closest allies having the wings either hyaline or partly clouded. It appears worthy of note that Hendel has described a characteristic *Spilochroa* under the generic name *Trichoscelis*, as shown in the following pages. I confine the present paper to a treatment of those species with dark spotted wings and narrow cheeks as shown in the following specific key.

² Die Tierwelt Deutschlands, etc., part 2, Diptera, General Treatment, 1928.

³ Rec. Cant. Mus., vol. 3, p. 88 (1927).

Genus *DIASTATA* Meigen

KEY TO THE SPECIES

1. Wings fuscous, with numerous hyaline spots, or hyaline with numerous small dark spots; cheeks less than one-sixth of the eye height (Subgenus *Spilochroa* Williston).....2.
Wings hyaline, sometimes partly clouded with brown, never with clear-cut pale or dark spots; cheek much over one-sixth of the eye height (Subgenus *Disastata* Meigen).
2. Subcostal cell of wing with a small dark spot in center, or largely brownish.....3.
Subcostal cell of wing entirely whitish hyaline.....5.
3. Mesonotum grey dusted, and with three brown vittae, the laterals along the lines of dorsocentrals, all three united posteriorly; thorax and abdomen dark brown below and on sides, the dark color extending narrowly along the dorsal edges of abdominal tergites, and each tergite with a central brown mark on a grey dusted ground; subcostal cell of wing almost entirely fuscous, darkest in center.....*dimidiata* (Hendel).
Mesonotum grey dusted, but without well-defined vittae; thorax and abdomen not colored as above; subcostal cell whitish hyaline, with a small dark central spot.....4.
4. Abdomen dull chocolate brown, with numerous irregular grey dusted spots on tergites; discal cell of wing dark-brown, with two or three hyaline spots in the apical half which are sometimes partly fused, and at least one smaller spot near the base.....*ornata* (Johnson).
Abdomen glossy, varying in tone from black to yellowish with blackish apices to the tergites; discal cell of wing dark brown, with a hyaline spot beyond its middle.....*polita*, new species.
5. Scutellum dark brown, with a pale grey dusted spot at apex and one on each side at base; wings black-brown, the marginal cell with two large hyaline spots beyond apex of first vein dividing the cell into three almost equal parts, and sometimes a faint additional pale spot at its apex.
peruviana, new species.
Scutellum pale grey dusted, entirely without brown markings.....6.
6. Wings black-brown, with small clear-cut hyaline spots, three of them in the marginal cell, the second posterior cell with four hyaline spots; prescutellar acrostichal bristles lacking.....*albibasis*, new species.
Wings hyaline, with the dark markings much reduced and not sharply margined, the marginal cell with three diffuse dark marks, and the second posterior cell with three, one in center, one at apex, and one at base along the inner cross vein; prescutellar acrostichal bristles present but weak.
punctipennis (Melander).

DIASTATA (SPILOCHROA) DIMIDIATA (Hendel)

Triaxoscelis dimidiata HENDEL, Deutsch. Ent. Zeitschr., 1913, p. 617.

I have not seen this species, but the description includes details on the structure of the head and thorax, and the photographic figure of the wing is so clear that there can be no question as to the generic location of the species. The color markings of the thorax and abdomen readily distinguish it from any other species known to me and also from *Diastata chilensis* Schiner,⁴ the latter not being included in

⁴ Novara Reise, Diptera, p. 235, 1868.

the foregoing key, though it is readily distinguished from any included species by the color markings of the wings and body.

DIASTATA (SPILOCHROA) PUNCTIPENNIS (Melander)

Spilochroa punctipennis MELANDER, Psche, vol. 20, p. 167 (1913).

I have examined only the two examples in the United States National Museum which belong to the type series.

Known only from New Mexico.

DIASTATA (SPILOCHROA) ORNATA (Johnson)

Heterochroa ornata JOHNSON, Proc. Philadelphia Acad. Nat. Sci., 1895, p. 306.

This is the commonest of the North American species, but it has been recorded only from Florida and the West Indies. Before me there are specimens from Texas which agree very well with those from Florida, but the two which I have examined from Kingston, Jamaica, differ from both in having the two larger hyaline marks in the marginal cell of the wing connected posteriorly, and three instead of two smaller hyaline marks directly below them in the submarginal cell. There is also a rather evident brown mark in center of the posterior margin of the mesonotum which is not, or but slightly, visible in the Floridan specimens. It is not improbable that this is a distinct species from *ornata*, but more material is necessary to enable dissection of the male hypopygium to insure a definite decision.

DIASTATA (SPILOCHROA) POLITA, new species

Female.—Differs from *ornata* in having the mesonotum without small brown marks, the scutellum with two faint brownish marks at apex, the abdomen usually glossy black or very dark brown, rarely with the bases of the tergites yellowish, and the wings with less numerous hyaline markings.

Structurally similar to *ornata*.

Length, 3–3.5 mm.

Type.—Cat. No. 43124, U.S.N.M., New Mexico, airplane (P. Glick). Paratypes, Las Cruces, N. Mex. (Townsend), and Texas (Belfrage).

The Texan specimen is the one with pale colored abdomen.

DIASTATA (SPILOCHROA) ALBIBASIS, new species

Male.—Head similar to that of *ornata*, the thorax with paler grey dusting and a dark brown dot at base of each of the dorsocentral bristles, the abdomen whitish grey dusted at base above, merging into dark brown before middle, the apex almost black, the hypopygium alone shining. Wings whitish hyaline, unspotted to level of apex of first vein except for a mark over humeral cross vein, markings on disk much as in *ornata*. Legs testaceous yellow. Halteres yellow.

Structurally similar to *ornata*, but there are no prescutellar acrostichals in the type specimen.

Length, 3 mm.

Type.—Cat. No. 43126, U.S.N.M. From near Ledoux, N. Mex., August 21 (T. D. A. Cockerell).

DIASTATA (SPILOCHROA) PERUVIANA, new species

Male and female.—Quite similar to *ornata* in general coloration, but the lack of a dark mark in the costal cell of the wing, the differently marked scutellum, the tripunctate appearance of the tergites of the apical two-thirds of the abdomen, and the rather different wing markings are sufficient to distinguish the species. The abdomen is grey dusted and beyond the basal two tergites there are usually three dark brown spots on each, with some miscellaneous dark dots, the second tergite having the dark markings confined to the apex in the form of a ragged apical fascia. The mesonotum has some brownish marks on center of disk and a brown dot at base of each of the larger bristles. Legs fuscous, apices of the tibiae, and the tarsi, yellowish.

Structurally similar to *ornata*, but possibly presenting distinctions in the male hypopygium which I have not dissected.

Length, 3 mm.

Type.—Cat. No. 43125, U.S.N.M. Female, Verrugas Canyon, Lima, Peru, March 23, 1928; allotype, topotypical, June 20, 1928; paratype, topotypical, June 20, 1928 (R. C. Shannon).

Family PERISCELIDAE

I have already given a revision of this group⁵ in so far as the genera are concerned and now add an additional genus, bringing the total now known to five. I rather incline to hold my previous opinion regarding the status of this group, as a subfamily of Sapro-myzidae, but there are some characters possessed by the new genus which cause me to hesitate in definitely expressing myself on the point at this time and I tentatively accept Hendel's decision.

MARBENIA, new genus

This genus is readily distinguished from any one of the already described four genera by the wing venation, the costal vein ceasing at apex of third vein, and the vein at apex of anal cell being but faintly indicated. In addition to these characters the face has a distinct depression below bases of the antennae and three transverse depressions below that, the central one of which has on each side an upwardly curved bristly hair. (Fig. 9.) In my previously published key to the genera in the paper above referred to I divided the group into two segregates, one with the auxiliary vein without any indica-

⁵ Proc. U. S. Nat. Mus., vol. 68, art. 21, p. 24 (1926).

tion of a forward curvature at apex and the face conspicuously protruded below, and the other with a distinct forward curvature of the auxiliary vein at apex, and the face not conspicuously protruded below. The present genus has no forward curvature of the apex of the auxiliary vein (fig. 10), and the face though more or less protruded is transversely wrinkled or furrowed (fig. 9).

Genotype.—*Marbenia peculiaris*, new species.

This genus is dedicated to Dr. Marcus Benjamin, editor of these Proceedings, as a mark of respect by the author.

MARBENIA PECULIARIS, new species

Female.—Head shining testaceous yellow, lower half of face fuscous, central portion of frons and upper occiput yellowish brown; antennae deep black, third segment testaceous yellow; aristae fuscous; palpi fuscous, frontal



FIGURE 9.—MARBENIA PECULIARIS.
LEFT, HEAD FROM THE SIDE;
RIGHT, HEAD FROM IN FRONT
(INCOMPLETE)



FIGURE 10.—MARBENIA PECULIARIS, WING

and facial orbits white dusted. Thorax brownish black, dorsum darkest and with slight whitish grey dust, not vittate; humeral angles and the scutellum testaceous yellow. Abdomen blackish brown, unmarked. Legs fuscous, tibiae each with a narrow annulus beyond middle and the extreme apex testaceous yellow, basal three segments of all tarsi yellow. Wings rather evenly infuscated, with yellowish white hyaline markings as in Figure 10, the veins on pale parts yellowish, on other parts dark. Calyptrae and halteres yellow.

Head in profile and from in front as in Figure 9. Thorax with two pairs of postsutural dorsocentrals and no acrostichals, the surface hairs fine and short; scutellum bare on disc, with four marginal bristles. Legs normal, mid tibia with a well developed apical ventral bristle, no preapical dorsal bristle evident on any pair. Venation as in Figure 10.

Length, 3.5 mm.

Type.—Cat. No. 43127, U.S.N.M. Portobello, Panama, March, 1911 (A. Busck).