

NOTES ON AUSTRALIAN DIPTERA, No. xvi.

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(Communicated by I. M. Mackerras.)

(Four Text-figures.)

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Family Ortalidae.

Subfamily PLATYSTOMINAE.

Genus EUPROSOPIA Macquart.

This genus occurs from China southward through the Orient to Australia, many of the species occurring in New Guinea, and five being recorded from Australia. Of the latter, *australis* (Walker) is unknown except from the original description, but even if it is a valid species the name is preoccupied by *australis* Macquart, which latter is a synonym of *maculipennis* Guérin.

A peculiar character of the genus is the haired basal section of radius. This vein is very frequently setulose in Ortalidae, but the setulae are almost always confined to that section of the vein beyond level of the humeral cross-vein. Another very striking feature of certain species of the genus is the forward extension of the tegula, which normally is but a small scale covering the root of the wing, and at first I was tempted to consider the species in which the tegulae are carried forward to the humeri as entitled to at least subgeneric distinction, an opinion which I subsequently abandoned on the discovery of the male with normal tegulae and on examining all the species available to me here.

Nothing is known of the economic status of the species of the genus, but amongst the material before me are two species which bear ms. labels 'ex corn' and 'ex scrub' respectively, though without further indication of what the 'ex' means.

I have included in the subjoined key all the species available to me which are likely to occur in Australia or which are new. It is extremely probable that there are many more species to be discovered in Australia.

Unfortunately most of the material before me belongs to the United States National Museum and some types must be deposited in that institution, so that they will not be available even on loan to Australian students of the family.

Key to the Species.

1. Scutellum with a quite pronounced linear depression in centre of apex, and on each side of it glossy black and pronouncedly convex 2
Scutellum without a distinct central depression at apex and lacking glossy black lateral areas 3
2. Hind margin of second abdominal tergite with pale lanceolate scales; apical dark spot on wing not connected with the preapical dark fascia, a dark streak on costa between the stigmal fasciae and the one over outer cross-vein .. *separata* Hendel

- Hind margins of second and third tergites, middle of third, and all of fourth and fifth, with pale lanceolate scales; apical dark spot on wing connected with preapical fascia on costa, no dark streak on costa between the stigmatal fascia and the one over outer cross-vein *conjuncta* Hendel
3. Entire fore legs and all of mid and hind tarsi black; scutellum with a very slight central depression at apex and two short bristles on each side of it; third and fourth abdominal tergites of female and third to fifth in male with sparse pear-shaped pale scales on entire surface; third antennal segment not longer than distance from its apex to mouth margin; central facial area finely transversely furrowed; arista with short hairs at base; tegulae carried forward to the humeri in female, almost normal in male *macrotegularia*, n. sp.
- Some part of fore legs yellow or white; scutellum without any indication of a central apical depression and with four or six quite long bristles; abdomen of female without scales, the hairs normal; tegulae not carried beyond middle of mesopleura, usually normal 4
4. Scutellum with four bristles; third antennal segment at least 1.5 times as long as distance from its apex to mouth margin; wings brown, with numerous small pale spots, arranged along, and touching, the veins in the narrow cells; pleura blackish-grey, with three golden-brown dusted vittae, one on upper margin, one below middle of mesopleura, and another on upper half of sternopleura; centre of face yellow; tegulae normal *miliaria* Hendel
- Scutellum with six bristles; wings pale, with dark markings, and usually more or less distinctly fasciate (ex. *maculipennis*) 5
5. Arista bare 6
- Arista distinctly haired at base, the hairs longer than its basal diameter 7
6. Wing with a blackish fascia extending from stigma over inner cross-vein to middle of second posterior cell, widest on costa, an almost uniformly wide complete fuscous fascia from before apex of second vein which encloses outer cross-vein, a dark spot on wing tip from apex of second vein to apex of fourth, a small streak at anterior extremity of same, and one on costa between the fasciae, and some spots and streaks on basal half of wing; head as high as broad; antennae short, third segment about three times as long as wide; metatarsus of fore legs of male with two compressed, pointed, outwardly bent, bristles at apex *tenuicornis* Macquart
- Wing with small, rather faint, dark spots, the most conspicuous being a subquadrate black mark at stigma which extends to, or slightly over, second vein, no fasciae beyond this; antennae distinctly more than half the length of face; male without a pair of apical bristles on fore metatarsus .. *maculipennis* Guérin
7. Face yellow, with numerous dark dots on the central flat area; tegulae normal; head not much higher than wide; third antennal segment about twice as long as distance from its apex to mouth margin *punctifacies*, n. sp.
- Face yellow, without dark dots on central flat area; tegulae produced forward, finger-like, to almost above middle of mesopleura; head about twice as high as wide; third antennal segment about as long as distance from its apex to mouth margin *tegularia*, n. sp.

EUPROSOPIA SEPARATA Hendel.

Head clay-yellow, white dusted along sides of eyes, the centre of frons broadly brown or fuscous, its entire width dark posteriorly, except a patch of grey dust on each orbit; antennal foveae and a streak from each to mouth margin fuscous; sides of labrum and centre of palpi black; antennae orange-yellow. Thorax brown, densely grey dusted, with seven rather faint brown dorsal vittae, the central one evident only in front and behind; scutellum with the lateral convexities glossy black; most of the pleural hairs and bristles white. Abdomen coloured as thorax, paler at base, the tergites brown at apices. Legs reddish-brown, nearly all of tibiae, apices of mid pair faintly, and of hind pair distinctly, blackened, all tarsi black, the basal segment white except at extreme apex. Wings with some short transverse black streaks in cells of basal third, a wedge-shaped fuscous fascia extending from stigma over inner cross-vein almost to hind margin, which encloses several yellowish patches on and near costa, a small dark streak beyond

this on costa, a complete and almost uniform dark fascia from before apex of second vein over outer cross-vein which has pale enclosed patches at costal end, an incomplete dark fascia at apex of second vein, and an isolated dark apical spot extending from before third vein to beyond fourth. Calyptrae white, margin of upper one fuscous, outer half of lower one brownish.

Head higher than long; arista bare; third antennal segment more than three times as long as wide, and fully 1.5 times as long as distance from its apex to mouth margin. Bristles on hind margin of mesopleura slightly lanceolate; scutellum with four bristles. Fore femur without well developed ventral bristles.

Length, 8-9 mm.

Cairns, N. Queensland (A. P. Dodd). Labelled 'ex corn'.

EUPROSOPIA CONJUNCTA Hendel.

I have not seen this species which, however, ought to be readily distinguished from the preceding one by the characters listed in the key, which are culled from the original description.

Both this and the preceding species were described from Townsville, N. Queensland, and *conjuncta* was also recorded from Port Darwin.

EUPROSOPIA MACROTEGULARIA, n. sp.

Female.—Head clay-yellow, frons fulvous yellow, narrowly fuscous in centre of anterior half, entirely fuscous posteriorly, and with the posterior orbits broadly, and remainder of orbits narrowly, grey dusted; face with a black streak emanating from each antennal fovea and extending to, or almost to, mouth margin; labrum black except in centre; antennae orange-yellow, third segment browned except at base; arista fuscous, pale at base; palpi black, yellow at bases, and whitish dusted at apices. Thorax brown, with grey dust, mesonotum with three fuscous presutural vittae which are fused except in front, and three complete and four intermediate partial vittae behind suture, some of which are brown instead of fuscous; scutellum concolorous with mesonotum, with three brown vittae; pleura grey dusted in part, and without evident vittae. Abdomen largely dark brown or fuscous above, sides of second tergite, two spots in centre of posterior margin of third tergite, and two on anterior and other two on posterior margin of fourth tergite, grey dusted, fifth tergite with pale pile centrally in front and scale-like pale ornamentation laterally. Legs black, mid and hind tibiae, except their apices, brownish-yellow. Wings hyaline, with fuscous markings as in Text-fig. 1; tegulae greyish testaceous. Calyptrae white, margin of upper one fuscous, disc of the lower one pale brown. Halteres yellow.

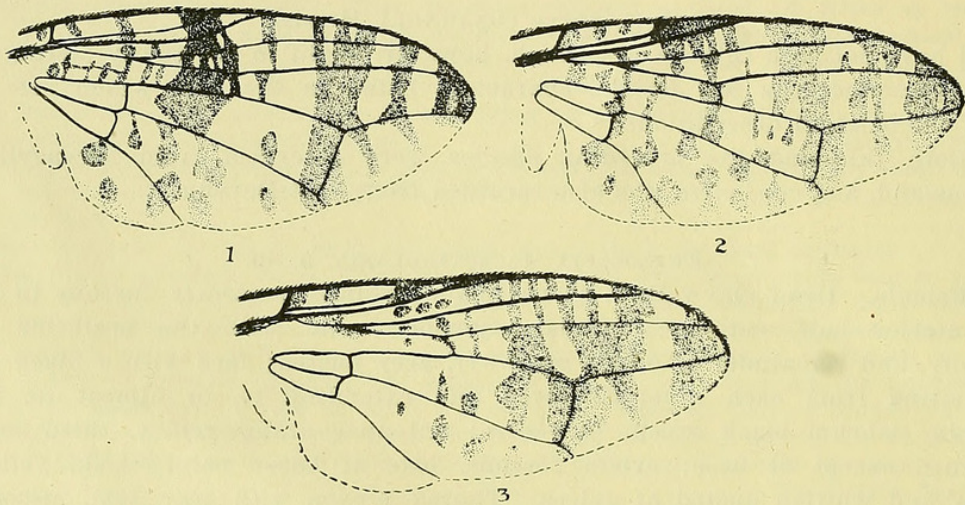
Head about 1.25 times as high as wide; frons depressed in centre; only the outer vertical bristles present, short and stout; ocellars lacking; antennae short, third segment not more than 2.5 times as long as wide, and shorter than distance from its apex to mouth margin; arista short haired at base; flat central portion of face finely transversely furrowed; palpi slightly widened, lanceolate. Dorsal bristles on thorax short, neither humeral nor notopleural bristles present owing to the great development of the closely adherent tegulae; suprasquamal ridge without trace of the long pale hairs so prominent in *separata*; scutellum with a slight central apical depression, and on each side of it two short rather closely placed bristles; mesopleura black-haired on disc, the series of hairs on hind margin white, those on upper portion of series slightly thickened.

Abdomen with pale sparse pear-shaped scales on third and fourth tergites, all hairs on second tergite fine, the fifth tergite with a granulose appearance on sides. Tarsi of fore legs thicker than those of other pairs; fore femur without ventral bristles. Venation of wing as in Text-fig. 1; tegulae elongate, shaped somewhat like the seed of some grasses, extending to humeri and adhering closely to notopleural suture, slightly scaled anteriorly, and with a tridentate scale below at apex in type (sometimes lacking).

Male.—Differs from female as noted in the key.

Length, 8 mm.

Type, Kuranda, Queensland (F. P. Dodd); allotype and 3 paratypes, Cairns, N. Queensland.



Text-fig. 1. *Euprosopia macrotegularia*. Wing.
 Text-fig. 2. *E. punctifacies*. Wing.
 Text-fig. 3. *E. tegularia*. Wing.

EUPROSOPIA MILIARIA Hendel.

This species is smaller and much duller coloured than *macrotegularia*, and has the wings dull brownish, with many small, paler, hyaline dots.

Hendel describes this species as new under the above name, but lists under it *Platystoma pectorale* Walker, with the name *Euprosopia diminutiva* Walker (of de Meijere) as a synonym.

Why the species name *pectorale* is not used by Hendel I do not know.

The records are from the New Guinea region and Molucca. The single specimen before me is from Arawe, New Britain (Dr. Heydon).

EUPROSOPIA MACULIPENNIS Guérin.

This species was described as *Platystoma australe* by Macquart, and thus, if *Platystoma australe* Walker is a distinct species of *Euprosopia*, it will have to be renamed.

I have not seen *maculipennis*, but it has been recorded from Australia and Tasmania. The characters cited in the key ought to suffice for its recognition.

EUPROSOPIA PUNCTIFACIES, n. sp.

Male.—Head testaceous, upper orbits, triangle, and vertex grey dusted; the frons slightly browned in part above; face with numerous small black dots on

the raised central portion; third antennal segment reddish, becoming brownish above; palpi testaceous yellow; cephalic hairs pale, bristles black. Thorax fuscous, quite densely grey dusted, dorsum with traces of seven dark vittae, none of them complete, the submedian pair distinct only for a short distance behind suture; pleura grey dusted, with a faint brown mark on mesopleura; hairs on thorax mixed pale and dark, the bristles black. Abdomen coloured as thorax, with a brown spot on each side of the median line on tergites 3 to 5, and a transverse brown streak near hind margin of tergites 2 to 4, which is more or less interrupted, and usually connected with the submedian spots on tergites 3 and 4. Legs brownish testaceous, femora darker, especially at apices, the apices of tibiae fuscous, basal segment of all tarsi white, its extreme tip and all of segments 2 to 5 black. Wings with dark brown markings as in Text-fig. 2. Calyptrae white, margin of upper one fuscous. Halteres yellow.

Head almost as wide as high; frons slightly depressed, ocellars microscopic; verticals all strong; postverticals lacking; third antennal segment about twice as long as its distance from mouth margin; arista short haired at base; face not furrowed; bristle on lower occiput long and strong. Humeral and both notopleural bristles present, four bristles on hind margin of mesonotum, and six on scutellum; hairs on hind margin of mesopleura not lanceolate. Abdomen without scales. Fourth wing-vein slightly curved forward at apex. Posteroventral bristles on fore femora well developed and quite numerous.

Length, 8 mm.

Type, Magnetic Is., Queensland (F. P. Dodd ?).

There is no collector's name on the label, but it is similar in appearance to those belonging to the collector suggested above.

EUPROSOPIA TEGULARIA, n. sp.

Female.—Head reddish testaceous, with a brownish streak from each antennal fovea to mouth margin; frontal and facial orbits grey dusted; third antennal segment brownish above; palpi rufous yellow; hairs pale, bristles black. Thorax fuscous, with dense yellowish-grey dust; mesonotum with three rather broad, conspicuous black vittae which are continued over the scutellum; hairs mixed black and yellow, bristles black. Abdomen coloured as thorax, with a broad black vitta on each side of dorsum. Legs rufous, coxae fuscous, tarsi black, basal segment of mid and hind tarsi broadly, of fore pair narrowly, reddish at base. Wings marked with fuscous as in Text-fig. 3. Calyptrae brown, margin of upper one fuscous. Halteres yellow.

Head nearly twice as high as wide; frons at vertex not twice as wide as third antennal segment, gradually widened to anterior margin where it is fully twice as wide as at vertex and fully one-third as wide as its length; vertex with one pair of bristles; postverticals minute; ocellars lacking; third antennal segment more than three times as long as wide and about equal in length to distance from its apex to mouth margin; arista short-haired at base; face not transversely furrowed in centre; cheek about as high as length of third antennal segment. Thorax with the posterior notopleural bristle on a prominent elevation; both notopleurals and humeral bristle present; scutellum with six bristles; suprasquamal ridge long-haired (almost bare in *miliaria*, *punctifacies* and *macrotegularia*). Abdomen without scales. Fore femora without well developed posteroventral bristles.

Length, 11-13 mm.

Type, Solomon Is., July-Aug., 1909 (W. W. Froggatt). One paratype with ms. label apparently 'Alu' or 'Ala'.

The very distinctly vittate thoracic dorsum must be very similar to that of *tigrina* Osten-Sacken, but the pleura in *tigrina* bear two golden vittae which are not present at all in *tegularia*. Possibly the tegulae in the male are normal.

Genus LAMPROGASTER Macquart.

This genus has many characters in common with *Euprosopia*, but differs in having the radius bare basad of the level of humeral cross-vein. I have not sufficient material to permit me to arrive at a conclusion as to the other characters that can be used for the distinction of the two genera. Hendel cites in his generic key only the fact that the species of *Lamprogaster* have the abdomen metallic, at least in part, and those of *Euprosopia* have it never metallic. It may be that the presence of a strong bristle on the upper hind margin of mesopleura in *Lamprogaster* and its absence in *Euprosopia* is a constant character, as indicated by my species, but I cannot say definitely without access to more material.

There are more than 20 valid species of the genus, many of them Australian.

I have before me several Australian species of the genus, and below I give a short synopsis of the available species to enable students of the group to identify them. I use different characters for my major grouping from those used by Hendel, as I always prefer to make use of structural rather than colour characters in such cases.

Key to species known to the author.

1. Scutellum with many hairs on disc in addition to the marginal bristles 2
 Scutellum without hairs on disc, only the marginal bristles present 5
2. Wings with a conspicuous broad dark brown costal vitta, and the outer cross-vein
 conspicuously clouded with brown *stenoparia* Hendel
 Wings either entirely yellowish hyaline or with quite faint brownish marks on costal
 region 3
3. Face with a broad fuscous streak from each antennal fovea to mouth margin;
 labrum with a fuscous mark on each side; wings yellowish hyaline, without
 dark markings *xanthoptera* Hendel
 Face and labrum yellow 4
4. Wings entirely yellowish hyaline, without any indication of brown markings; hairs
 and bristles entirely luteous *zelotypa* Hendel
 Wings more intensely yellow along costal half, and with indications of a brownish
 streak from costa to inner cross-vein, a small pale brown spot near apex of
 second vein, and a darker brown cloud along tip of costa; hairs and bristles of
 dorsum black *indistincta*, n. sp.
5. Wing with a conspicuous zig-zag black mark extending from humeral cross-vein across
 disc to apices of posterior basal cells, and in addition three other black marks
 along costa, the largest extending over inner cross-vein, a smaller spot near apex
 of second vein, and a narrow streak round apex of costa; thorax metallic blue-
 green in centre of disc, the sides and pleura fulvous yellow *bicolor* Macquart
 No conspicuous black mark basad of the one on costa which extends to inner cross-
 vein 6
6. Thorax fulvous yellow, with a broad metallic blue-green stripe on dorsum, on which
 are three grey-dusted vittae; the dark mark on costa at level of inner cross-vein
 large and subquadrate, deep black; outer cross-vein not clouded
 *flavipennis* Macquart
 Thoracic dorsum entirely metallic blue-green, without noticeable grey dusted vittae;
 the dark mark on costa at level of inner cross-vein narrow, usually pale brown
 except on inner portion, where it becomes black; outer cross-vein quite noticeably
 clouded *lepida* Walker

LAMPROGASTER XANTHOPTERA Hendel.

This species is dark blue-green, with a strong violet tinge on dorsum of abdomen, and the legs are entirely yellow except for the dark tips of tarsi. In addition to the dark marks on head mentioned in the key the cheeks are brownish.

Originally described from New Britain; I have before me a specimen from the Solomon Islands, collected in 1909 by W. W. Froggatt and sent by him to the United States National Museum.

LAMPROGASTER BICOLOR Macquart.

This species is one of a group which has the costal margin of the wings marked more or less distinctly with black or brown spots, the greatest number being four, as in the present species. One might be pardoned for doubting the claim of the various forms to more than varietal rank, but I believe, from an examination of the material in hand now, that the differently marked forms are really valid species, offshoots of one parent species. The species are very similar and it may be that the names given by Hendel are not correctly applied, but only an examination of the types, if these are in existence, will determine this. It appears possible that *laeta* Macquart might be the same as the species now before me.

Locality.—Mt. Kosciusko, N.S.W., 1893.

LAMPROGASTER FLAVIPENNIS Macquart.

I have but one specimen which I refer here before me. The large black mark at level of inner cross-vein is very conspicuous, the apical dark mark is less evident, and the small dark spot on second vein is quite inconspicuous. The legs are almost entirely black in the male before me, but there is evidently some variation in this character in this species, as there is a variety named *nigripes*.

Locality.—Gisborne, V. (Lyell).

LAMPROGASTER LEPIDA Walker.

Readily distinguished from the preceding two species by the uniform metallic blue-green dorsum of thorax and abdomen, and also by the less intense black colour of the spot on costa at level of inner cross-vein; the apical costal mark is usually darker than the other markings.

Localities.—Hamilton and Gordonvale, Queensland.

LAMPROGASTER INDISTINCTA, n. sp.

Male.—Head fulvous yellow, frons and cheeks brownish-red, orbits and lower occiput yellow dusted, antennae and palpi orange-yellow. Thorax fulvous yellow, centre of mesonotum broadly metallic blue-green, the dark colour not sharply margined laterally, and without grey vittae; scutellum without metallic lustre; hairs on mesonotum and all bristles black. Abdomen glossy brownish testaceous, with but slight metallic tinge, hairs mostly dark. Legs fulvous yellow, apices of tarsi fuscous. Wings yellow hyaline, with four faint rudimentary brownish marks situated as in *bicolor*, the apical costal one most evident. Calyptrae yellow.

Arista pubescent at base; head as in *bicolor*. Scutellum with a slight apical central depression, and eight marginal bristles. Outer cross-vein of wing sloping towards base of wing at its anterior extremity; veins 3 and 4 very slightly incurved at extreme apices.

Length, 10 mm.

Type, Banks Island, N. Australia (W. W. Froggatt).

Type specimen in United States National Museum.

LAMPROGASTER ZELOTYP A Hendel.

This is one of the few species of the genus in which the wings are without dark markings. The entire head, thorax, and abdomen are yellow in the male before me, the last having but a slight indication of a violet tinge on dorsum, though it is glossy. The hairs and bristles are yellow, and the strong bristle on upper hind margin of the mesopleura is hard to distinguish from the hairs on this account.

I have before me one specimen from Cairns, N. Queensland.

Hendel cites *L. ventralis* Walker as the same species, and lists it from New Guinea and Australia.

LAMPROGASTER STENOPARIA Hendel.

This species has the general colour of thorax and abdomen bright metallic blue, the abdomen more amethyst, the wings with a broad costal cloud of dark brown, and the outer cross-vein with a brown cloud. The legs are yellow, with the apices of the tarsi brownish. The mesopleural bristle is black and prominent.

The specimen before me is from Cairns, N. Queensland (A. P. Dodd).

Known only from Queensland.

Genus DUOMYIA Walker.

This genus was placed in the Stenopterini by Hendel, but my opinion is that it belongs to the Platystomini, the cephalic characters being very similar to those of *Lamprogaster* and *Euprosopia*. In fact, when one considers the head structure, large lower squama, and thoracic characters, no other conclusion remains but that its affinities (or at least those of the genotype) are with the two genera above named.

I have before me the genotype of *Duomyia* and cite as the distinguishing characters of the genus only those possessed by that species. It may be that at least some of the species included in *Duomyia* by authors do not agree with these characters in all respects. One Australian species before me does not.

Hendel, in distinguishing the tribes of Platystominae, selects the habitus of the insects as criteria almost exclusively, separating those with ant-like structure from the others, and further subdividing the remainder into groups of slender bodied and plump species after removing Trapherini on the structure of the epistome. The system is not an unqualified success, as can be seen from the inclusion in the slender bodied group Stenopterini, of the genus *Duomyia*, the genotype, *obscura* Walker, being one of the most robust species available to me at this time.

The material at my disposal, however, is insufficient to permit of an exhaustive survey of even the Australian species, so I merely deal with some of the more outstanding forms in this paper.

The genus *Duomyia*, as represented by the genotype, is readily distinguished from *Euprosopia* by the lack of hairs on the radius basad of the humeral cross-vein, and by the presence of fine hairs on hind coxae above bases of the femora. From *Lamprogaster* it is distinguished by the last-mentioned character, and the lack of a bristle on the upper portion of the hind margin of the mesopleura.

Of the 13 species placed in the genus by Hendel, 12 occur in Australia, and 1 in Chile. The last-mentioned species may not be congeneric with the Australian forms.

DUOMYIA OBSCURA Walker.

A synonym of this is *Stenopterina gigas* Macquart.

Two males, Brisbane; one female, Banks Island.

Genus ACHIAS Fabricius.

The species of this genus have the head widened, generally more so in the males than in the females, usually distinctly wider than the thorax, and in some cases with the eyes on prominent processes or stalks, much as in the family Diopsidae. In addition to this character, the arista is long haired on almost the entire length, the central plate of face has a sharp edge along inner margin of each antennal fovea and there is no bristle on the upper portion of hind margin of mesopleura.

Hendel records no species of the genus from Australia, but I have seen two from Kuranda, Queensland. There are about 16 described species, many of them from New Guinea. I am not certain of the identity of the two Australian species at present.

Subfamily RIVELLIINAE.

This subfamily is readily distinguished from the genera above dealt with by the very much smaller lower calypter. I may have an opportunity to go into more detailed definition of these groups at some future time if more material is available. Most of the specimens of the family collected by the late Dr. E. W. Ferguson were sent to Dr. Bezzi before the death of the latter and, unless that material is returned so that it can be used for a survey of the family, fresh specimens will have to be obtained from other sources.

Genus RIVELLIA Robineau-Desvoidy.

I have two species of this genus before me from Australia. Only one of them I have been able to identify as already described.

RIVELLIA CONNATA (Thomson).

Localities.—Coramba, Dorrigo Rd., 1,000 feet, 31.1.22; and Belaringar, 9.9.23, N.S.W.; Tammin, and Merredin, W.A., 1926 (E. W. Ferguson).

Genus ELASSOGASTER Bigot.

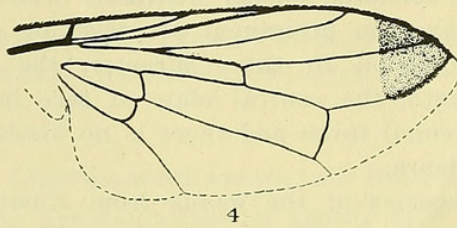
This genus is placed in Stenopterini by Hendel. The only distinguishing character which he cites for the group that applies to this genus is the shape of the abdomen. This is rather elongate, more or less compressed from the sides, and about uniformly wide from base to apex. The Rivelliini have the abdomen more ovate, and the Platystomini have it broad at base and tapered to apex. I hardly dare to suggest the use of such a character to anyone who does not have first a strong intuitive inclination to put the insects into their proper segregates, and incline to disregard the grouping.

I have not seen the genotype of *Elassogaster*, which is *metallicus* Bigot. Three or four of the 16 known species of the genus occur in New Guinea, and several in Africa. The records below are the first from Australia.

ELASSOGASTER SEPSOIDES Walker.

A metallic blue-green species. Antennae reddish-yellow; palpi black; frons dark brown; vibrissal angles yellowish. Thoracic dorsum somewhat granulose,

with a narrow central vitta of grey dust which is divided into two a little behind suture. Legs rufous yellow, usually with the mid and hind femora browned in part, fore tibiae and tarsi and apices of mid and hind tarsi fuscous, hind tibiae sometimes browned. Wings clear, with a large fuscous spot at apex as in Text-fig. 4.



Text-fig. 4. *Ellassogaster sepsoides*. Wing.

Frons with only the four verticals present; arista subnude; face convex centrally, without sharply defined foveae; palpi broad; third antennal segment fully three times as long as wide; labrum broadly exposed. Prosternum broad, hairy; only the bristle near humeral angle present on anterior margin of thorax, the acrostichal pair undeveloped; mesopleura with a strong upper hind marginal bristle; humeral and both notopleural bristles present; scutellum with four marginal bristles and no fine discal hairs. Wing venation as in Text-fig. 4.

Length, 6-8 mm.

Localities.—Hamilton, Queensland, January, 1890; Cairns, N. Queensland, 'dung' (J. F. Illingworth).

A widely distributed species, occurring in Ceylon, Formosa, Amboina, Philippine Islands and New Guinea.

The material which I have examined from the Philippines is the type series of *Plagiostenoptera hendeli* Knab, which is a synonym of *sepsoides*. The specimens are labelled, 'larvae feeding on egg-pods of *Locusta migratoria*'. The larvae may be more or less scavengers as indicated by the record on the specimen collected at Cairns.

ELASSOGASTER TERRAE-REGINAE, n. sp.

Male and female.—Similar to *sepsoides* in general colour, but the wing tips are without a dark spot, there being only a faint narrow pale brown suffusion along the apical portion of costa beyond apex of second vein, the legs are honey-yellow, except the fore tibiae and tarsi which are deep black, the dorsocentral white dusted vitta on the mesonotum is a little wider, not divided behind suture, and continued on to base of scutellum.

Structurally the two species are quite similar, but the fourth wing-vein in the new one is but slightly curved forward at apex, ending behind tip of wing and almost directly below apex of third, the disc of scutellum is not bare, but has many pale fine hairs similar to those on mesonotum, and the frons is distinctly broader and quite distinctly punctured.

Length, 6 mm.

Type, male, and allotype, the latter fragmentary, taken *in copula*, Townsville, N. Queensland (G. F. Hill); 4 paratypes, Como, N.S.W. (H. Petersen).

Returned to collector.

This species is closely similar to *albopilosus* de Meijere described from New Guinea, but it has a vertical band of white dust on the pleura which that species lacks. It is also rather similar to *metallicus* Bigot, described from Rodrigues Is., but the tibiae and tarsi of the latter are brown, and the thorax has three bluish vittae, the face is evidently more testaceous, and there are some other colour distinctions.

Genus PLAGIOSTENOPTERINA Hendel.

This genus was distinguished from *Stenopterina*, a New World genus, by the structure of the frons, which is puffed out ('wulstig') in *Stenopterina* and not so in the other, by the lack of an orbital bristle, and the distinctly narrowed first posterior cell of the wing. From *Elassogaster* Bigot it was distinguished by the obliquely placed inner cross-vein of wing, *Elassogaster* having this vein erect.

I have before me the genotypes of the two first-named and find it difficult to appreciate the puffed out frons, while the lack of an orbital bristle does not apply in all species of *Plagiostenopterina*. I find, however, that *Stenopterina brevipes* Fabricius, the genotype, has no strong bristle on the upper hind margin of mesopleura, and has the notopleurals 1 + 2, while all species of *Plagiostenopterina* before me have a strong mesopleural bristle, and the notopleurals 1 + 1.

PLAGIOSTENOPTERINA AENEA (Wiedemann).

The genotype. A metallic bluish or greenish black species, with hyaline wings, the latter marked with two narrow fuscous vittae, one extending along costa from apex of auxiliary vein to apex of fourth, the other extending from base of wing to, or almost to, outer cross-vein, filling basal cell, and hardly encroaching on discal cell. The scutellum has four marginal bristles and many fine discal hairs. Arista short haired on basal third or more.

Length, 8-11 mm.

Locality.—Cairns, N. Queensland (J. F. Illingworth). Hendel records it from Townsville, Queensland.

The same author places *Dacus basalis* Walker in *Plagiostenopterina*. It was described from Port Essington, N. Australia. I have not seen the species.

Family Ephydriidae.

Genus BRACHYDEUTERA Loew.

In a previous part of this series of papers I presented the description of an Australian species of this genus, and below I describe a second one. All three species known to me are very similar in structure, the specific distinctions consisting of slight differences in chaetotaxy, venation of the wings, and colour.

The two Australian species may be distinguished as below.

- A. Anterior notopleural bristle lacking; abdomen hardly shining, with dense grey dust on dorsum, most of the tergites with dark brown basal and apical fasciae, broadest on second tergite, and connected by a dark streak in centre on fourth, and sometimes on fifth; upper portion of mesopleura with yellowish or brownish dust showing on the grey *sydneyensis* Malloch
- AA. Anterior notopleural bristle present, not as long as posterior one; abdomen olivaceous black, slightly shining, with grey dust on lateral angles of dorsal exposure of tergites, and on most of apical tergite; entire pleura densely whitish grey dusted *pleuralis*, n. sp.

BRACHYDEUTERA PLEURALIS, n. sp.

Male and female.—Head brownish-black; frons dull; occiput brownish dusted above, lower half, cheeks, and face whitish-grey dusted, centre of latter darker; antennae black; palpi white. Thorax olivaceous black on dorsum, and with traces of three or five brown vittae, the humeral angles, and to a lesser extent the lateral margins of mesonotum, whitish-grey dusted; pleura entirely covered with dense whitish-grey dust; scutellum slightly grey dusted at base. Abdomen olivaceous black on dorsum, whitish-grey dusted on the incurved lateral parts of tergites, the pale parts showing slightly at anterior and posterior angles of tergites from above. Legs clay-yellow, coxae densely whitish-grey dusted, apices of mid and hind femora faintly brownish on upper surface, tarsi fuscous. Wings clear. Calyptrae and halteres white.

Structurally similar to *sydneyensis* but smaller; the anterior notopleural bristle present; second wing-vein slightly curved; outer cross-vein slightly bent, its upper portion sloping slightly towards base of wing, and the fourth vein slightly deflected apically, causing the first posterior cell to be slightly widened at tip.

Length, 2.5 mm.

Type and allotype, Townsville, Queensland (F. H. Taylor).

The label bears the notation 'Larvae live in water', and mounted with each of the specimens is an empty puparium similar to that of the North American species.

Family Drosophilidae.

I present below the description of a new species belonging to one of the recently described genera closely related to *Drosophila*. I hope to be able to present an enlarged key to the Australian genera of this family shortly.

Genus LIODROSOPHILA Duda.

This genus is quite similar to *Drosophila* Fallen, but there is no closed anal cell in the wings, the anal vein being short and curved, but the cell is open. In most characters the genera agree quite closely, but in the only species I have seen from Australia and in most of the other species of *Liodrosophila* the thorax or abdomen is at least partly metallic blue or green.

The species described below appears to be distinct from any already known, though rather similar to *metallesceus* de Meijere, which occurs in Java, Formosa, and New Guinea.

LIODROSOPHILA AUSTRALIS, n. sp.

Female.—Head fulvous yellow, frons entirely glossy, and with a metallic blue tinge except in front; antennae and palpi concolorous with head. Thorax glossy fulvous yellow, mesonotum gradually becoming more deeply suffused with metallic blue from middle to hind margin; scutellum dull fulvous yellow, paler at apex. Abdomen entirely metallic dark violet-blue above, the sternites yellowish; hairs and bristles black. Legs yellow. Wings clear, with an oblique dark cloud running from alulae forward along first vein to costa. Knobs of halteres dark brown.

Frons at vertex as wide as long in centre; postverticals short; all vertical bristles and the ocellars long and strong; proclinate and posterior reclinate orbital long, anterior reclinate very short; some setulose hairs in a curved series above antennae on each side extending backward to about middle of frons; arista with four rays above and two below; facial keel long, and rather flat above.

Thorax with about eight series of intradorsocentral hairs, two pairs of dorso-centrals, no prescutellar acrostichals, and two long sternopleurals; basal pair of scutellar bristles not half as long as apical pair. Legs normal. Second and third costal divisions of wing subequal; penultimate section of fourth vein about two-thirds as long as ultimate section.

Length, 2 mm.

Type, Mossman, Queensland (F. H. Taylor).

Family Sapromyzidae.

Genus SAPROMYZA Fallen.

I have already presented descriptions of many species of this genus and given a synoptic key for the identification of most of them. Since the key was published I have had access to more material and the appearance of the descriptions of many new species of the genus in two recent papers has made the key quite inadequate for purposes of identification. I therefore present below a new key, which I hope will serve to identify the 43 already described species, and have a longer period of usefulness than the preceding one. It is of course quite evident to me that there are many still undiscovered species of the genus in Australia, because with almost every lot submitted there are species which I have not previously seen, so that it will be merely a matter of time until this key also is out of date, and the sooner more material is available, especially from localities other than those from which the previous shipments emanated, the sooner this will take place.

I describe one new species in this paper, and also redescribe a species of Macquart's which he placed in *Sciomyza*. This species is redescribed from the type specimen and, unless most of Macquart's other species are available in type material, it will be impossible to place them correctly, as many were described in genera to which they do not belong, and only colour characters were used in his descriptions.

Key to the species.

1. Thorax with four pairs of strong dorsocentrals, the anterior pair in front of suture 2
 Thorax with three pairs of dorsocentrals, the anterior pair slightly, or distinctly, behind suture, and sometimes rather short and weak 12
2. Wings distinctly marked with dark colour, or almost entirely fuscous 3
 Wings yellowish or greyish hyaline, without dark markings 6
3. Fore femur with an anteroventral comb of minute setulae apically; thorax with about five pairs of strong acrostichal bristles; arista long haired 4
 Fore femur without an anteroventral comb; thorax without strong acrostichals except the prescutellar pair, only weak hairs present in two series anteriorly; arista microscopically pubescent 5
4. Wing with a dark brown cloud on costa from apex of auxiliary vein to tip, which becomes paler behind and disappears at or before reaching fourth vein, and does not connect with the two clouds over the cross-veins; thorax densely grey dusted, with six broken brown vittae on dorsum *plumiseta* Malloch
 Wing with a blackish-brown cloud from apex of auxiliary vein to tip, which extends inward over third vein from just beyond the cloud over inner cross-vein, but does not connect with the latter, and fuses with the one on middle of apical section of fourth vein, the second posterior and anal cells with fainter dark clouds; thorax densely grey dusted, with four brown vittae, the submedian pair narrower, fused behind, and carried over disc of scutellum *petersoni* Malloch
5. Wings infuscated at bases, the dark colour extending to a little beyond humeral cross-vein, to furcation of second and third veins, and to apices of the basal

- cells; thoracic dorsum grey dusted, with two broad submedian brown vittae which are blackish on their inner margins, and numerous large lateral brown markings *hieroglyphica* Malloch
- Wings almost uniformly deep fuscous brown; thorax shining brownish testaceous, not evidently vittate or marked with brown *suffusa* Malloch
6. Only the posterior two pairs of acrostichal bristles long and strong 7
- Four or more pairs of the acrostichal bristles long and strong 8
7. Arista with its longest hairs about as long as its basal diameter; fore femur with a distinct anteroventral comb on apical half; third antennal segment narrowed just beyond insertion of arista, slightly tapered to apex; abdomen subopaque, brownish or fuscous; mid femur with a series of stout bristles on apical half of anterior surface; mid tibia with two long apical ventral bristles *hirtiventris* Malloch
- Arista practically bare; fore femur without an anteroventral comb; third antennal segment hardly longer than wide; abdomen glossy black; mid femur without anterior bristles; mid tibia with only one long strong apical ventral bristle *pilifrons* Malloch
8. Arista ranging from almost bare to distinctly pubescent, the longest hairs not noticeably longer than its basal diameter; fore femur without an anteroventral preapical comb; mid tibia with but one long strong apical ventral bristle 9
- Arista with its longest hairs conspicuously longer than its basal diameter, at least as long as half the width of third antennal segment; fore femur with an anteroventral preapical comb; mid tibia with two long strong apical ventral bristles 10
9. Head and thorax fulvous yellow, the former with ocellar spot, a spot below each eye, and one on each side of face, fuscous; abdomen yellow, glossy black on dorsum except at base; legs entirely fulvous yellow; frons entirely shining *tonnoiri* Malloch
- Head fulvous yellow, the ocellar spot and labrum fuscous, orbits hardly darkened, antennae bright fulvous; thorax black, with slight greenish tinge, the entire surface densely grey dusted; abdomen black, with conspicuous greenish lustre; legs yellow, fore pair except knees, mid and hind femora at bases, and same tibiae and tarsi at apices black *subaeneiventris* Malloch
10. Arista short haired, the longest hairs not, or but little, longer than half the width of third antennal segment; palpi, third antennal segment, apices of femora, of tibiae, and of mid and hind tarsi, and all, or most, of fore tarsi black; frontal triangle, the lines on which the fronto-orbital bristles are situated, and a line along each lateral part of anterior margin silvery dusted; submedian thoracic vittae uniform *bicoloripes* Malloch
- Arista plumose, the longest hairs more than half as long as width of third antennal segment; antennae yellow, third segment at most brownish; legs not sharply bicoloured, either uniformly yellowish, or the femora infuscated except apically 11
11. Femora infuscated except apically; thorax with four narrow brown interrupted vittae on dorsum, and a broader dark brown one on upper part of pleura; abdomen densely opaque grey dusted, a medianly interrupted chocolate-brown fascia on base of each visible tergite from second to fifth, and a brown spot on the incurved lateral part of each tergite from first; the one on fourth connected with basal fascia *variventris* Malloch
- Legs unicolorous tawny or testaceous yellow; pleura not vittate, thoracic dorsum very faintly or not at all vittate; abdomen unicolorous, or very faintly marked *spinigera* Malloch
12. Antennae as long as head, third segment more than three times as long as wide, first and second segments subequal in length on outer side, or the first longest, first with a few microscopic hairs below at apex; parafacials white dusted, with a velvety black mark between each antenna and eye; abdomen glossy black .. 13
- Antennae much shorter than head, first segment much shorter than second 14
13. Mesopleura with two long strong bristles, which are rather closely placed and above the middle on hind margin; mid tibia with two long apical ventral bristles; thorax without dark dorsal vittae; wings honey-yellow, apices narrowly and faintly brownish; third antennal segment fully three times as long as wide *magnicornis* Malloch

- Mesopleura with one long strong bristle above middle on hind margin; mid tibia with one short and one long apical bristle; thorax with two submedian vittae, and the lateral margins conspicuously whitish dusted; wings honey-yellow; third antennal segment more than six times as long as wide *tenuicornis* Malloch
14. Thoracic dorsum with the anterior one or two pairs of postsutural dorsocentral bristles much weaker than the posterior pair, almost hair-like, the anterior pair almost invariably well behind suture; arista pubescent or almost bare 15
 Thoracic dorsum with the three pairs of postsutural dorsocentrals almost equally long and strong, the anterior pair very close to, or at suture; arista variously haired 34
15. Frons and face deep black, the parafacials yellowish or whitish 16
 At least the face yellow or brownish-yellow 17
16. Entire frons shining; third antennal segment fully twice as long as wide; knobs of halteres black *sciomyzina* Schiner
 Frons opaque velvety black, orbital stripes and ocellar triangle glossy; third antennal segment very little longer than wide; knobs of halteres pale yellow *brevicornis* Malloch
17. Entire insect including head and its appendages, and the legs testaceous yellow .. 37
 At least some part of the head, body, or legs, black or fuscous 18
18. Pleura, metanotum, and abdomen black, densely grey dusted; dorsum of thorax and the head yellow, upper occiput and ocellar spot fuscous; antennae and palpi black; fore and hind femora and bases of mid pair fuscous *flavodorsalis* Malloch
 Species not coloured as above 19
19. Frons entirely opaque, the orbital stripes forming two complete grey or dark vittae 20
 Frons with at least the orbital stripes shining and undusted 21
20. Frontal orbits densely pale yellowish-grey dusted; wings without dark markings; thoracic dorsum with two conspicuous brown vittae; mesopleura largely fuscous; scutellum reddish-yellow, darker on disc, with a deep black spot at base of each apical bristle, grey dusted between them *riparia* Malloch
 Frontal orbits black, forming two velvety vittae; wings conspicuously spotted with fuscous; thoracic dorsum and pleura conspicuously vittate with black; scutellum flattened and black on disc, yellow on sides *magnifica* Malloch
21. Antennae largely or entirely black 22
 Antennae entirely yellow 32
22. Femora and tibiae testaceous yellow *immaculipes* Malloch
 Femora and tibiae of one or more pairs of legs marked with black 23
23. Frons black 24
 Frons tawny yellow, or yellowish-brown 25
24. Frons black, face yellowish-white, occiput tawny yellow; the fore femora blackened beyond basal third *alboatra* Malloch
 Frons, centre of face, and occiput black; fore femora entirely black .. *mariae* Malloch
25. Frons yellowish brown; occiput with a large black mark on each side of upper half; all femora largely black *occipitalis* Malloch
 Frons tawny yellow; occiput without black marks on upper half 26
26. Wings without dark markings 27
 Wings with distinct dark markings 31
27. Face with a black line along sutures between central part and parafacials; abdomen black, yellow at base; humeri with some microscopic fine hairs besides the strong bristle; areas mesad of the humeral angles very sparsely furnished with weak setulae; fore tarsi with a lanceolate bristle at apex of basal segment on posterior side which is about as long as width of the segment *lancifer* Malloch
 Face entirely tawny yellow; fore tarsi without abnormal shaped bristles at apex of basal segment on posterior side 28
28. Palpi broadly blackened at apices 29
 Palpi yellow 30
29. Fore legs except the coxae and trochanters blackened, mid and hind pairs yellow; pleura entirely yellow *atrimana*, n. sp.
 Fore, mid, and hind legs all with the femora narrowly black at apices, and the tibiae more broadly blackened at apices; mesopleura blackened on upper margin, more broadly behind *nigricornis* (Macquart)

30. Humeri exceptionally prominent, bare except for the single strong bristle, the hairs on mesonotum adjacent to humeri much more numerous, shorter, and bristle-like than usual *regalis* Malloch
 Humeri not unusually prominent, with a few microscopic fine hairs besides the single strong bristle, the hairs on mesonotum adjacent to humeri neither exceptionally numerous nor stronger than usual *avicola* Malloch
31. Wing with a narrow fuscous cloud extending from base along costa to apex of fourth vein, and another faint brownish cloud over outer cross-vein; thoracic dorsum bivittate with fuscous *fuscocostata* Malloch
 Wing with the dark markings confined to a fuscous suffusion of the cell between apices of auxiliary and first veins; thorax not vittate *stigmatica* Malloch
32. Legs with conspicuous black markings; abdomen largely glossy black; arista almost bare 33
 Legs and abdomen testaceous yellow; arista long pubescent, the longest hairs fully as long as its basal diameter *parviceps* Malloch
33. Face flat or slightly concave, not at all evident between bases of antennae, and distinctly less shining than the uniformly shining fulvous frons; fore femora blackened except basally; mesopleural hairs weak; fore tarsi yellow, but little darker apically; fifth tergite of male produced downward on anterior margin, and with a slender backwardly directed process on each side which projects on each side of the very large hypopygium *flavimana* Malloch
 Face prominently convex vertically, quite prominent between bases of antennae, and very distinctly shining, the frons opaque black except the glossy orbital stripes; fore femora black at apices; mesopleural hairs almost bristle-like; fore tarsi black except the basal segment *mariae* Malloch
34. Arista plumose; a well developed bristle present on thoracic dorsum slightly behind and mesad of the supra-alar bristle; fore femur without an antero-ventral preapical comb of minute setulae 35
 Arista very short haired or indistinctly pubescent; no evident bristle on thoracic dorsum behind and mesad of the supra-alar bristle 36
35. Submedian pale brown vittae continued to anterior margin of mesonotum; no conspicuous spots on posterior margin of mesonotum *aberrans* Malloch
 Submedian pale brown vittae broken near anterior margin of mesonotum; a pair of black spots on posterior margin of mesonotum which appear velvety in some lights and which extend on to base of scutellum *maculithorax* Malloch
36. Longest hairs on arista distinctly longer than its basal diameter; wings copiously spotted with fuscous, appearing reticulated; face with two dark spots; frons with two brown vittae; mesonotum with four brown vittae; mesopleura with two brown spots; fore femur without a comb; antennae entirely black; mid tibia with two unequal apical ventral bristles *ocellaris* Malloch
 Arista very indistinctly pubescent, the hairs not longer than its basal diameter; wings without dark spots, sometimes with clouds along veins 37
37. Entire insect, including the legs, shining testaceous yellow; fore femur with a distinct preapical anteroventral comb of minute black setulae 38
 Entire insect not shining testaceous yellow, bicoloured, the legs partly black .. 39
38. Inner cross-vein of wings a little beyond apex of first vein, the penultimate section of fourth vein fully two-thirds as long as ultimate section; legs stout; anterior pair of orbital bristles about twice as long as, and much stouter than, ocellar pair; hairs on entire body strong *unicolorata* Malloch
 Inner cross-vein of wing below apex of first vein, the penultimate section of fourth vein not more than half as long as ultimate section; legs slender; anterior pair of orbital bristles not as long as ocellar pair; hairs on body weak
 *urbana* Malloch
39. Thorax entirely fulvous yellow, conspicuously shining, without evident dusting or vittae; head yellow; antennae almost entirely black; ocellar bristles microscopic *strahani* Malloch
 Thorax black or brown, densely dusted, and not vittate, or yellowish, with conspicuous dorsal vittae 40
40. Thoracic dorsum not vittate, densely greyish or brownish dusted 41
 Thoracic dorsum conspicuously vittate, densely greyish or brownish dusted 43
41. Thoracic dorsum with a dark dot at base of each hair and bristle
 *punctiseta* Malloch
 Thoracic dorsum without dark dots on dorsum 42

42. Face with a dark vertical central stripe; dorsum of thorax brownish dusted
 *aureocapitata* Malloch
 Face without a dark central stripe; dorsum of thorax grey dusted
 *griseodorsalis* Malloch
43. Frons rather densely covered with short black setulose hairs anteriorly; face with
 a vertical line on each side, and frons with a central line, blackish; thoracic
 dorsum with linear blackish vittae, the lateral pair short and indistinct; costal
 and second wing-veins, and outer cross-vein, and sometimes also third vein,
 bordered with fuscous *fuscolimbata* Malloch
 Frons practically bare except for the strong bristles; face and frons without fuscous
 lines as above; thoracic vittae brown, quite broad, and all four entire; veins of
 wings not bordered with fuscous 44
44. Palpi yellow; fronto-orbital bristles situated on a narrow grey stripe which is
 separated from the grey margin anteriorly by a narrow stripe of the same
 golden colour as the interfrontalia; fore femur without an anteroventral comb
 *victoriae* Malloch
 Palpi black; fronto-orbital bristles situated on the wide whitish lateral stripes; fore
 femur with a weak but evident preapical anteroventral comb
 *brunneovittata* Malloch

SAPROMYZA NIGRICORNIS (Macquart).

Female.—A testaceous yellow species, with frons dull, the orbital stripes shining, third antennal segment black, second yellow, palpi broadly black at apices, upper margin of mesopleura fuscous, more broadly so posteriorly, thoracic dorsum shining, not vittate; abdomen shining, without black markings. Legs yellow testaceous, apices of femora narrowly, of tibiae more broadly, black, apical three tarsal segments fuscous. Wings yellowish hyaline. Halteres yellow.

Frons a little longer than wide, all the bristles well developed; postocular fringe strong, bristle-like above; antennae normal, third segment slightly tapered apically and about twice as long as wide; arista pubescent; palpi normal. Thorax with three pairs of postsutural dorsocentrals, the anterior pair not very much reduced, but farther from suture than from next pair; humeral angles haired, the hairs on mesonotum adjacent to the humeri setulose. Mid tibia with two long and one short apical ventral bristles. Inner cross-vein below apex of first vein and a little beyond middle of discal cell.

Length, 7.5 mm.

This species is redescribed from the type specimen sent by M. E. Seguy to Dr. A. L. Tonnoir at his request, and sent by the latter to me. The specimen is in good condition, except that it is entirely overlaid with a fine web such as the spinning mites make. There is no locality on the label, but Macquart cited Tasmania and Akaroa in his paper. I suspect that it belongs to Tasmania only. I have placed the species in my key amongst those with the anterior postsutural dorsocentral bristle much reduced and far from suture, but if one decides to place it amongst those which have the anterior bristle little reduced and rather close to suture it will run down to *strahani* Malloch, from which species it may readily be distinguished by the less extensively blackened legs, and the long and strong ocellar bristles.

SAPROMYZA ATRIMANA, n. sp.

Male.—Quite similar to *nigricornis* in colour and structure, but the fore legs are fuscous from near base of femora to tips of tarsi, the mid and hind legs are yellow, the pleura yellow, the ocellar bristles are microscopic, the entire antennae are dark brown, the anterior pair of postsutural dorsocentral bristles

is quite small, and there is one long and one short apical ventral bristle on mid tibia.

Length, 6 mm.

Type, Perth, W.A., Nov. 15, 1926 (Nicholson).

In connection with the preceding species it may be well to indicate that Hendel lists a species under *Sapromyza* as *nigricornis* Robineau-Desvoidy. This was described as a species of *Lycia* and without access to the type specimen it would appear to me impossible to determine if it belongs to the genus *Sapromyza*. It has not been identified since its original description.

Family Calliphoridae.

Genus ANTHRACOMYIA Malloch.

This genus was erected in my recent paper on Australian Calliphoridae, but the name is preoccupied by *Anthracomyia* Rondani. I therefore propose to supplant it with *Anthracomyza*, n.n. I recently referred to this genus under the latter name in a paper on Calliphoridae of Sumatra.

Family Stratiomyiidae.

Heretofore I have dealt almost exclusively with families in the Cyclorrhapha, but amongst the material either in my possession or available to me there are many representatives of practically all families in the order and the following notes on a family of Brachycera may have some value to students of the Diptera of Australia.

I have been in possession for some years of material in certain genera of this family from New Zealand and Australia, but press of other work has prevented me from offering any observations on the species. Miller in 1917 published a paper in which he dealt with a few genera, and in 1921 Enderlein published a paper in which were included notes on certain New Zealand and Australian genera (*Mitt. Zool. Mus. Berlin*, Bd. 10, heft 1, pp. 153-214).

I have decided that in view of the interest taken in the geographic distribution of genera a few notes on some of the material before me would be appropriate at this time, especially as some students consider that there is a very decided affinity between the Australian fauna and that of South America rather than with that of the Oriental region and particularly with the Aethiopian region. I incline to the opinion that in the present state of our knowledge of generic limits any conclusions drawn must be based upon rather unstable grounds, but possibly the notes below will provide grounds for thought along these lines.

If one examines the various papers dealing with the family Stratiomyiidae there will be found a great similarity of treatment, but few departures from the accepted methods having taken place within the past half century, all of the authors confining their definitions and distinctions of genera to the characters presented in the structure of the antennae, wing venation, armature of the scutellum, and the abdomen. It is remarkable that in most of the tribes, or subfamilies if one elects to call them that, there is a quite commendable adherence to the general plans as specified by the various authors of these papers, but there is one subfamily, the Pachygastrinae, in which development of antennal and scutellar characters has run riot, and an appalling number of poorly represented genera has been proposed. There are almost a hundred of them now on record, and many of them are monobasic. Fortunately this is exceptional in the family, there being more stability in the other subfamilies.

In the course of my investigations to discover whether there were any supplementary characters for the segregation of doubtful forms, I found that there were some present which had been ignored by preceding writers dealing with the family.

One instance of a striking character that is unmentioned is the presence of erect upwardly directed hairs on the prominent convex metanotum of the Sarginae, and the existence close to the base of each halter on its mesial side of a short piliferous tubercle. The great majority of the genera of other subfamilies before me lack hairs on the metanotum, and it may therefore be proper to consider their occurrence in other groups as of more than specific import. In fact it appears to be possible to distinguish the genus *Stratiomyia* from *Odontomyia* by this character, the former having erect metanotal hairs and the latter lacking them. One exception to this rule is *Odontomyia vertebrata* Say, a North American species, but in it the metanotum has very short pale tomentum which adheres closely to the surface and is quite distinct from the erect well developed hairs present in *Stratiomyia*.

To carry the matter further, and to apply it to an Australian example, I may cite *Neoexaireta spinigera* Wiedemann.

The genus *Neoexaireta* and some closely related to it bear a very striking resemblance to the Xylophagidae, there being very little difference between the head of *Neoexaireta* and *Xylomyia*, and the wing venation being quite similar except in a few details. The costal vein is rather faint behind the wing tip in *Xylomyia*, but in the present genus and its allies it is lacking on the hind margin. The Xylophagidae known to me all have strong apical tibial spurs, while none are present in Beridinae, and it is noteworthy that the postscutellum, or upper convex portion of the metanotum, is very prominently convexly developed in *Neoexaireta* and its allies, and almost undeveloped in Xylophagidae. In some Beridinae this feature is rather poorly shown. We are, however, not at this time interested in this major grouping, merely introducing it because Enderlein in the paper already referred to has considered the Xylophagidae as a subfamily of Stratiomyiidae on a par with Beridinae, in which latter group he includes *Neoexaireta* and its allies.

Subfamily BERIDINAE.

Genus NEOEXAIRETA Osten-Sacken.

This name was proposed to replace *Exaireta* Schiner which was preoccupied. The genotype is *spinigera* Wiedemann, a species which occurs in New Zealand, Australia, and Hawaii.

I have before me many specimens from all three countries and find that on each side of the convex metanotum there are many white *downwardly directed* hairs, and there are less conspicuous hairs on the pteropleura. Both of these portions of the thorax are bare in the other species placed in *Exaireta* by Hutton and Miller which I have before me. It is also noteworthy that the South American species which have been referred here have the metanotum bare, but in them the pteropleura is haired in part. It is also worth mention that the anal lobe of the wing, or alula, is much larger in *Neoexaireta* than it is in the other two genera.

Enderlein has erected a genus, *Exaeretina*, for the reception of a Chilean species, *aurocoma* Enderlein, distinguishing the genera on the presence of a

preapical transverse furrow on tergites 2 to 6 in *Neoxaireta* and on tergites 2 to 5 in *Exaeretina*. In the New Zealand species with bare metanotum there is a distinct transverse impressed line on the sixth tergite, so that in this character they differ from the Chilean species. I have examined a number of South American species which would be referable to *Exaeretina* and in all the pteropleura is partly haired, so that I incline to the opinion that we have three recognizable genera, or if one prefers it so subgenera, distinguished as follows:

1. Sides of metanotum and part of pteropleura haired; alula well developed
 *Neoxaireta* Osten-Sacken
 Metanotum bare; alula not at all or poorly developed 2
2. Pteropleura bare *Huttonella* Enderlein
 Pteropleura haired in part *Exaeretina* Enderlein

NEOEXAIRETA SPINIGERA Wiedemann.

As indicated above this is the only species I consider belongs to the genus. With the segregation of this species the distribution of the genus is limited to Australia, New Zealand, and Hawaii, but I should expect to it occur in some of the intervening Pacific Islands.

Genus HUTTONELLA Enderlein.

Both Enderlein and Miller segregated *Exaireta alpina* Hutton from the other New Zealand species placed in *Exaireta* by Hutton on the basis of the presence of but three veins emanating from the discal cell. Enderlein erected a new genus for its reception, and pointed out that there is a slight angle on the discal cell at the point where the usual vein is missing. Miller had only the type specimen of *alpina* before him and placed the species in the genus *Berismyia*, an American genus which differs in several respects from *alpina*.

In my opinion the type specimen of *alpina* is abnormal and the species should not be separated from the others placed in *Exaireta* by Miller, all of them being referable to *Huttonella*.

I have a number of the New Zealand species before me, but am unable to identify all of them for lack of sufficient material to permit me to judge the limits of variation in colour in the sexes.

It should be noted that *scoloralis* Miller may lack the third vein emanating from the discal cell and then the only character that would distinguish *alpina* would be the slightly lower placed antennal insertions, which latter in themselves do not amount to very much as generic indices in this group, unless strikingly below or above the middle of eyes, and in *alpina* they are very slightly below middle. In Miller's key to the species of this genus there is but one species listed with very dense silvery pubescence on dorsum of abdomen, but I have at least two such species from New Zealand.

Genus NEACTINA Enderlein.

This genus has the general habitus of *Beris*, but the hind femora are thickened from near bases to apices, in both the species before me they are at their thickest point at least three times as thick as the hind tibiae, and they are furnished on apical portion of ventral surface with many microscopic spinules. The upper portion of the hypopleura and the central portion of pteropleura are haired, and the eyes are pubescent. Third branch of media present, but incomplete.

Genotype, *Actina opposita* Walker, a New Zealand species. There is at least one other species of the genus occurring in New Zealand. There are no records from any other region.

Genus *BERIS* Latreille.

It is extremely difficult to distinguish the genera related to *Beris*, and though the keys presented by Enderlein appear very good on paper, they are not at all satisfactory in practice. In dividing Beridinae into two tribes, Beridini and Actiini, he depends upon wing venation, citing the latter as having three branches to media and Beridini as having but two. In other words, with four or three veins emanating from the discal cell, the posterior one being the anterior branch of cubitus. As pointed out in the preceding discussion the third branch of media is quite variable in length, and may in some cases be absent in specimens of a species in which it is normally present rudimentarily. Thus the selection of this character for the separation of tribes is hardly one to be commended. In fact Enderlein evidently did not bear the character in mind when he drew up his keys as he included *Actina*, in which the species normally have but two branched media, and *Huttonella*, in which the only species has the same character, in the group which he states has three branched media.

At present we are concerned only with the Australian and New Zealand forms and will leave consideration of extralimital genera to others, though of course the available genera are used in determining the value of the characters as generic indices.

No species referable to *Beris* or closely related genera has hairs on the upper convex portion of the metanotum so they may readily be separated from *Neoxaireta*. From *Huttonella* most of the species may be at once separated by the presence of hairs on either the pteropleura or the hypopleura, or on both, or, if these are absent, by the lack of microscopic spinules on the apical portion of ventral surface of hind femora. The hind femora in all species of *Huttonella* and *Neoxaireta* are gradually swollen from near base to apex and the apical third or less of the ventral surface is furnished with microscopic stiff spinules. The only other genus of Beridinae from New Zealand in which this character occurs in *Neactina* Enderlein, and in it both the pteropleura and hypopleura are haired in part.

Using as a basis the characters of the genotypes of the European genera recorded from New Zealand and Australia, and the characters of the species now before me, I present the following key for the recognition of those now available to me in so far as the genera are concerned.

Key to the genera.

1. Hind femora thickened apically and with microscopic stiff spinules on apical third or less on ventral surface which are distinct from the long fine hairs 2
Hind femora not very noticeably thickened, or, if slightly so, then without microscopic stiff spinules, only fine hairs present 4
2. Metanotum with quite long downwardly directed white hairs on each side of upper convex portion; pteropleura haired in part; alulae well developed
..... *Neoxaireta* Osten-Sacken
- Metanotum without evident hairs on upper convex portion 3
3. Pteropleura and hypopleura bare *Huttonella* Enderlein
Pteropleura and hypopleura haired in part *Neactina* Enderlein
4. Complex antennal segment (apparent third) not longer than first and second segments combined; scutellar spines slightly thickened or knobbed at apices
..... *Berisina*, n. gen.

- Complex antennal segment much longer than first and second combined; scutellar spines tapered to apices 5
5. Pteropleura bare; eyes of male bare or almost so, and not touching *Chorisops* Rondani
- Pteropleura haired in part 6
6. Palpi rudimentary *Beris* Latreille
- Palpi well developed, projecting *Actina* Meigen

It will be seen from the above key that, even using the characters listed, we find *Actina* and *Beris* running very close together, and though *Chorisops* appears to be better distinguished, I found in the material in the United States National Museum two distinct species standing as one, and evidently so named by Bezzi. One of them has the centre of the pteropleura with fine hairs and the other has the pteropleura bare. Using only the characters of width of frons and presence of hairs on the eyes one will get different groupings than in using the above listed characters, but I believe the latter to be the best and, as they can be applied to both sexes, they are better for the purpose of associating the sexes.

I have seen no species of *Beris* from Australia or New Zealand.

Genus ACTINA Latreille.

There is at least one species referable here which I have seen from Australia, *victoriae* Hill, but whether it is identical with one of the species included in the genus by Enderlein I cannot say. The species so included are *filipalpis* Macquart, *fusciventris* Macquart, *incisuralis* Macquart, *nitidithorax* Macquart, and *nigricornis* Enderlein. Only *incisuralis* is recorded from Australia, the others are from Tasmania. White has recorded other species, but his concept is different.

The New Zealand species recorded by Miller as belonging to *Actina* are now in *Neactina*.

Genus CHORISOPS Rondani.

There is one species before me, which appears to be *lacuans* Miller, that may properly be referable to this genus, but I have only one female and do not care to give a definite opinion on a single specimen, especially as I am not certain of its specific identity.

Genus BERISINA, nov.

Despite the multiplicity of genera in this group I feel that the species now before me can safely be referred to a new genus.

In structure rather more robust than typical species of *Beris*, the mesonotum not longer than its greatest width, and the scutellum nearly twice as wide as long, with the apex almost transverse, and the four spines short and slightly thickened apically. Eyes not touching above in male, with quite long hairs centrally, becoming very short haired above; frons and face long haired, the latter widened below; basal antennal segment fully three times as long as thick and longer than second, the two combined longer than the complex third segment, the latter indistinctly segmented, terminating in a short point, and haired at apex; palpi well developed, with numerous quite long apical hairs. Pteropleura haired in part, hypopleura bare. Hind femora and tibiae thickened apically, the latter thicker than femora, basal segment of hind tarsus thickened. Venation as in *Beris*, three veins emanating from discal cell.

Genotype, the following species.

BERISINA MACULIPENNIS, n. sp.

Male.—Glossy black, base of hind metatarsus slightly yellowish; wings fuscous, with two hyaline spots, one between the stigma and fork of radius, the other in apex of anterior basal cell. Hairs all black.

Frons about as wide as third antennal segment. Many of the hairs on dorsum of thorax, including the scutellum, long and erect, with a secondary short hairing between them. Wings extending beyond apex of abdomen. Fourth tarsal segment the shortest on all legs.

Length, 5.5 mm. to apex of abdomen.

Type and two male paratypes, Wanganui, New Zealand (M. M. Watt).

The type specimen will be returned to New Zealand for disposition in some museum where it will be available to students in the country of origin.

Genus METOPONIA Macquart.

I have before me three specimens of the genotype. The genus is closely related to the American *Allognosta* Osten-Sacken, and was placed with it and several other genera in the tribe Metoponiinae by Enderlein in his work already referred to herein. Practically the only character useful in distinguishing the group from Beridinae is the lack of scutellar spines, which in my opinion is insufficient to justify the separation of the group from Beridinae either as a tribe or subfamily. I have only male specimens before me and the following characters are drawn from that sex.

The eyes are finely haired, and closely contiguous on most of the frons; basal antennal segment about four times as long as thick, second much shorter, third (complex) segment longer than the two basal segments combined, with rather evident annulations, and a deep broad sulcus or channel along one side on all except the basal segment of the complex; insertion of antennae well below middle of face, the head almost horizontal from lower margin of insertions of antennae to mouth; palpi small but distinct. Pteropleura and hypopleura without distinct hairs; scutellum without spines. Fourth segment of all tarsi as long as fifth. Three veins emanating from discal cell.

METOPONIA RUBRICEPS Macquart.

Three males, Botany Bay, N.S.W. (H. Peterson). The specimens were sent to me by the late Dr. C. F. Baker.

Subfamily PACHYGASTRINAE.

I have already indicated in this paper that the subfamily Pachygastrinae has been very freely handled in so far as the erection of genera is concerned, and it is time someone with an eye to affinities indicated by more reliable indices than the structure of the antennae and scutellum gave the matter of generic limits his careful attention. Unfortunately the insects are not at all common and it will be very difficult to get enough material to check up the work already done on the group, not to mention obtaining the types of the already established genera for examination.

However, an intensive study of the genera available in Australia and Tasmania would do much to determine whether trivial differences in the two characters mentioned ought to be given weight in separating genera in the subfamily.

Before me there are several species which, according to present criteria, ought in the main to be placed in distinct genera, but I have insufficient material to do good critical work so merely offer a few notes.

Genus LONCHAEASTER White.

This genus was erected for the reception of a Tasmanian species, *armata* White, of which I have a specimen before me.

If the species is run through the generic key to Pachygastrinae published by Kertész it will run down to *Prostomomyia* Kertész. The latter, however, is not the first name for the genus, *Monacanthomyia* Brunetti apparently being the first in line of acceptance, with *Ceratothyrea* de Meijere coming second. All three genera were erected for Oriental species and though it is possible that the species are not all the same they undoubtedly belong to the same genus, *Monacanthomyia*.

The Tasmanian species I consider is distinct from the others. I have seen a specimen from Townsville, Qld. (G. F. Hill).

Genus PACHYGASTER Meigen.

I have before me a species which appears to be congeneric with an American one referred here. The antennae are short, with the third segment disc-like, and the scutellum is rounded in outline, and has some very minute warts along part of the lower lateral margin on each side. Of the two species described by Hardy, it most closely resembles *whitei*, but there are fewer warts along the sides of scutellum than he gives as the number distinguishing that species. However, this character is not a very reliable one for distinguishing species when they amount to more than six or eight.

Locality, Brisbane, Qld., in house (A. J. Turner).

It is extremely probable that careful search under bark of trees will discover the larvae of these species and provide material for a comparative study of the insects. In fact I have found the species only in this sort of habitat and amongst the material before me from Australia there is one species which was reared from larvae found under dead bark.



Malloch, John Russell. 1928. "Notes on Australian Diptera. No. xvi."
Proceedings of the Linnean Society of New South Wales 53, 343–366.

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