



NOTES ON AUSTRALIAN DIPTERA WITH DESCRIPTIONS.

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(Communicated by E. W. Ferguson, M.B., Ch.M.)

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Family MUSCARIDAE.

In this paper I give some notes on species which have usually been placed in the family Anthomyiidae. After a very careful investigation of a great mass of material from all parts of the world I have been forced to conclude that there is no line of demarcation between these so-called families, and consider that stressing a point or two merely to conserve the existing alignment in our catalogues is not the proper method of procedure to adopt. Stein in his most recent papers included the Muscidae as part of the family Anthomyiidae, but the former, being the oldest name for the complex, must be used in preference to the latter. All the genera which I deal with in this paper belong to the group which has the first posterior cell of the wing not or but little narrowed at apex, the fourth vein being but slightly or not at all curved forward apically and never angularly bent some distance from its apex.

Most of the species were submitted to me by Dr. Eustace W. Ferguson, to whom the types will be returned, but some are from a lot sent to Dr. Aldrich of the United States National Museum by Dr. J. Illingworth, and are placed in the institution which received them.

Subfamily PHAONIINAE.

MUSCINA STABULANS Fallen.

A very widely distributed species, occurring in Europe and America. I have before me two males from Blackheath, and Blue Mountains, N.S.W.

The flies often occur indoor and around houses. I have reared the species from decaying mushrooms in North America.

ANACLYSTA Stein.

This genus was erected by Stein in 1919. The name had been previously used by Brauer and von Bergenstafum, but their genus was based upon an undescribed species and their description was erroneous, so that he rightly refused to credit it to them. Stein himself included *flavescens* Stein, a species which does not belong to *Anaclysta* but to *Eulimnophora*. I now designate as genotype of *Anaclysta*, the species *multipunctata* Stein. The principal characters of *Anaclysta* are enumerated below.

XENOLISPA ALBIMACULATA Stein.

This species is readily distinguished from its allies by the markings of the wings which are present in both sexes, the yellow fore coxae, and the lack of any outstanding bristling of tibiae in either sex. The third abdominal sternite in the male is produced in the form of a stout process in middle of hind margin, the process being furnished with microscopic black setulae at its tip.

I have seen a male and female from Tarro, Hunter River, N.S.W., October 18, 1922.

XENOLISPA SYDNEYENSIS Schiner.

In the male sex this species is readily distinguished by the peculiar bristling of the hind femur as described in the key. The very distinctly vittate thoracic dorsum should readily separate the species in both sexes from *albimacula* which it most closely resembles.

Evidently the commonest species of the genus in Australia as I have seen it from Fish River and Sydney, N.S.W., and also from Burpengary, Queensland.

When I erected this genus I had but the female of the above species and did not recognise that it was the one described by Schiner, so inadvertently gave it a new name. This name, *atrifrontata* Malloch, becomes a synonym of *sydneyensis* Schiner.

XENOLISPA ALBIMACULA, n.sp.

♂. ♀.—Shining black. Frons black, parafacials white pruinose, yellowish below, face brownish-yellow pruinose, cheeks and lower half of occiput whitish pruinose; antennae black; palpi yellow, whitish apically. Thoracic dorsum not noticeably vittate; pleura pale gray pruinose. Abdomen of both sexes with a large white spot on each side of third visible tergite anteriorly, of female with a less distinct central elongate mark in middle of hind margins of tergites 2 and 3 and a large faint grayish spot on each side of fourth visible tergite. Legs black, coxae gray pruinose, fore and mid trochanters yellowish. Wings slightly brownish. Calyptres whitish. Halteres obscure yellowish.

♂.—Arista plumose basally; parafacial finely haired below, almost linear; palpi slender, with short moderately dilated apices. Thorax with one strong pair of prescutellar dorsocentrals; posterior upper sternopleural strong, the others minute; basal pair of scutellar bristles shorter than apical pair. Abdomen subcylindrical; third visible tergite longest on sides, fourth longest in centre; fifth sternite elongate, slightly asymmetrical, rounded apically; basal part of hypopygium (6th visible tergite) with a fringe of fine setulose hairs on its disc which are directed downward. Fore legs rather stout; mid femur swollen on basal half, slender on apical half; mid tibia very slender, with one posterior bristle; mid tarsus slender, basal segment with a few fine curved bristles at apex below; hind femur with three long fine downwardly directed bristles on basal half of anteroventral surface which are bent towards apices of femora at their tips, the rest of the femur with a fringe of short fine erect hairs; hind tibia stout and, like the two basal segments of hind tarsus, with some long setulose hairs ventrally. First posterior cell of wing hardly narrowed apically.

♀.—Differs from the male in having the hind femur without conspicuous bristles or hairs; the mid tarsus normal, and the hind tibia with a better developed anterodorsal bristle near middle.

Length, 4-5 mm.

Type, male, allotype, 1 ♂ and 1 ♀ paratype, Babinda, North Queensland (Illingworth).

The male has the fore tarsus but little broadened, unlike that of *sydneyensis* in which the apical two segments are rather conspicuously wider than the others.

XENOLISPA NIGRIMANA, n.sp.

♂. ♀.—Black, with a slight olive tinge. Frons brownish-black, opaque except on triangle; face yellow pollinose; occiput gray pruinose; antennae black, apex of second segment reddish; palpi yellow. Dorsum of thorax almost glossy, with faint pruinescence, most distinct on two narrow vittae anteriorly in female; lateral margins of mesonotum and the pleura pale gray pruinose. Abdomen shining, with a pair of yellowish pruinose spots on posterior margin of first visible tergite, a central elongate spot of same colour in centre of next three tergites, a large posteriorly rounded white spot on each side of third tergite which does not extend to posterior margin, and the fifth tergite white; in the female the markings are similar but not so distinct. Legs black, trochanters, apical half of mid and hind femora and all of mid and hind tibiae tawny yellow. Wings clear. Calyptrae white. Halteres yellow.

Frontal triangle narrow, extending to anterior margin of frons; ocellar and postvertical bristles weak; arista plumose; third antennal segment narrow, not extending to mouth; parafacial sparsely hairy; palpi moderately dilated. Thorax with one pair of precutellar dorsocentrals; basal scutellars weaker than apical pair; upper posterior sternopleural strong, the others very weak. Abdomen narrow, fifth sternite entire in male. Fore tibia and tarsus compressed in both sexes, more so in female, tibia with a fringe of very short, closely placed, slightly flattened, black hairs dorsally and ventrally; mid and hind femora thick at bases and much thinner at apices, without abnormal armature in female, but in the male the hind femur has a fringe of short setulose hairs along the anteroventral and posteroventral surfaces, and about 4 long fine bristles on basal half of ventral surface; the mid and hind tibiae of female are normal, the hind one having a short median posterodorsal bristle, but the hind tibia in male is slightly curved, and has a series of long setulose hairs on basal half of posteroventral surface, and a similar series of shorter hairs on anteroventral surface, the apical one much the longest; hind metatarsus in male slightly hollowed out and with long black hairs on anterior side. First posterior cell of wing narrowed apically; inner crossvein slightly beyond middle of discal cell.

Length, 5-6 mm.

Type, male, allotype, and 1 ♀ paratype, reared from pupae found in mud at edge of Burnett River, January 4, 1920. Paratypes, 1 ♀, Eidsvold, December, 1922; 1 ♀, Fish River, N.S.W., March 25, 1923.

The deep black dilated fore tibiae and tarsi readily distinguish this species.

Family DROSOPHILIDAE.

The members of this family so far found in Australia are all small, none exceeding 4 millimeters in length and though some of them are cosmopolitan in distribution there are several now before me that appear to be undescribed.

The larvae of several species occur in decaying or injured fruits and in fermenting matter, and may cause myiasis unless care is taken to prevent them ovipositing on articles intended for food. Uncooked soft fruits which have been exposed for any length of time should be carefully examined to prevent larvae from being ingested when such foods are eaten uncooked.

In a subsequent paper I hope to be able to present a key to the families of

the Acalyptrata occurring in Australia but in this paper I include a key to the genera I have seen pertaining to the family Drosophilidae from Australia.

The types of all new species will be returned to Dr. E. W. Ferguson from whom I received the material.

Key to genera.

1. A distinct crossvein separating the discal and second basal cells of the wing; face without a well developed central vertical carina; costa to apex of fourth vein, without minute thorns at intervals on its penultimate section below; only one humeral bristle present. *Amiota* Loew.
No well developed crossvein between discal and second basal cells. 2.
2. Costal vein discontinued at apex of third vein or almost imperceptibly present beyond this point; the section between apices of second and third veins with a few microscopic thorns on its under side. *Leucophenga* Mik.
Costa continued distinctly to apex of fourth vein, without microscopic thorns below apically. 3.
3. Thoracic dorsum with at least six series of microscopic setulae in front of the space between the posterior dorsocentral bristles. *Drosophila* Fallen.
Thoracic dorsum with two or four such series. *Scaptomyza* Hardy.

N.B.—There are 25 valid known genera of the family.

AMIOTA Loew.

This genus is generally given the name *Phortica* Schiner by authors, but the generic name *Amiota* has some months priority and must be used. Sturtevant made it a synonym of *Stegana* Meigen in his paper on North American Drosophilidae, but I have since pointed out that this is an error. The two genera are quite distinct and *Stegana* is more closely related to *Leucophenga* than it is to *Amiota*.

Nothing is known of the larval habits of the species of the genus. The adults are attracted to persons by perspiration and when they are common cause annoyance by getting into the eyes and ears.

There is but one species before me from Australia and, having failed to associate it with any already described, I consider it as a new species.

v *AMIOTA ANNULATA*, n.sp.

A. (Phortica)?
♂.—Head ochreous, occiput with a large blackish mark on each side, gray pruinose along eyes; ocellar region and a spot on each side of vertex fuscous; frons whitish pruinose when seen from certain angles. Thorax darker than head, the disc of mesonotum and pleura largely fuscous, densely yellowish-gray pruinose, the dorsum with five interrupted dark brown vittae which resemble series of spots, one of these spots situated behind the presutellar acrostichals and between them; scutellum mottled with brown. Each abdominal tergite with an elongated dark brown spot in middle forming an interrupted vitta, a large transverse spot of same colour on each side, almost connected with the median one, and a small spot on each lateral margin below, the ground colour ochreous. Legs ochreous, femora slightly browned, fore pair most distinctly so, each tibia with three brown annuli, a faint one at base, and two more distinct, one at middle and the other at apex. Wings hyaline. Halteres ochreous.

Eyes bare; anterior reclinate bristle nearly half as long as the proclinate orbital and midway between it and the posterior reclinate one; ocellars strong; postverticals weak. Presutellar acrostichals distinct. Mid tibia slightly clubbed, and with about 4 erect hairs on the thickened apical part on anterior side, the longest one not as long as diameter of tibia. First posterior cell of wing nar-

rowed apically; outer crossvein at less than its own length from apex of fifth vein; penultimate section of fourth vein one-third as long as ultimate section.

Length, 2.5 mm.

Type, Eidsvold.

LEUCOPHENGIA Mik.

There are 45 recorded species of this genus: 19 of these are from Asia and the Orient, 11 from Africa and adjoining islands, 11 from the New World, 3 from Europe, and 1 from Queensland.

So far as is known the larvae feed in fungi.

Key to species.

1. A conspicuous black mark on each side of scutellum at base, the thorax yellow. 2.
- Thorax, including the scutellum, unicolorous yellowish. 3.
2. Abdomen with three elongate black spots on each tergite including the first visible, the spots almost contiguous near hind margin, but not connected by a hind marginal band, the outer spot of the three on each tergite broadly connected with the one on the incurved part of same tergite.

poeciliventris, n.sp.

Abdomen with two widely separated black spots on dorsum of first visible tergite, a broad posterior band of black on each of the other tergites which is noticeably extended forward in middle and less so at sides, and a spot on lateral incurved margin of each tergite except first visible, which is not connected with the marginal band. *scutellata*, n.sp.

3. First visible tergite with about 4 long strong bristles along hind margin on each side of median line, the margin of segment snow white, as is the entire next tergite, base of third broadly silvery; the dark markings on dorsum consist of a pair of large transverse blackish spots on tergites 1, 3, 4, and 5, which are narrowly separated except on 5th, ventral portions of tergites on basal half of abdomen snow white, on apical half black and glossy. *niveifasciata*, n.sp.

First visible tergite yellow, with a black spot on each side on dorsum, second glossy black with a yellow spot on each lateral angle anteriorly, tergites 3 and 4 each black with a yellow spot on each side of median line anteriorly, lateral ventral portions of tergites black on their posterior margins.

polita, n.sp.

N.D.—A rather striking peculiarity of the four species is that in every case the halteres are yellow, with a black spot on the outer side of the knob. In the New World species the halteres are unicolorous yellow and only in two or three Javanese species described by de Meijere does this character occur again in the genus. One of the latter is very closely similar to *niveifasciata*, but I believe they are distinct, no mention of the very conspicuous bristles being made by de Meijere. I believe, however, that he has erroneously assigned another species from Java to this species, *albicincta*, and that the one described in 1914 is distinct from the one he had in 1908.

One species described as a *Drosophila* from Australia by Bergroth is evidently a *Leucophengia*, but it is distinct from any before me. I give a copy of his description to facilitate its identification.

✓ *DROSOPHILA BELLULA* Bergroth.

"Fulva, dorso abdominis macula laterali segmenti primi, macula media subapicali segmenti secundi, macula laterali et media subapicali segmenti tertii et quarti (laterali segmenti quarti interdum deficiente), saepe etiam puncto media

segmenti quinti nigris ornato, ventre macula laterali segmenti tertii, quarti quinque nigris notato. Palpi longi et lati, compressi, apicem epistomatis sat longe superantes. Alae subhyalinae, ad apicem venae cubitalis brevissime apiculatae, costa solum ad apicem venae cubitalis pertracta, vena subcostali brevi, ante venam transversam anticam desinente, vena radiali apicem versus recta, longa ultra medium alae producta, vena cubitali apice a vena radiali quam a vena discoidali circiter duplo longius remota, segmento ultimo venae discoidalis penultimo paullo plus quam duplo longiore, vena transversa postica a vena transversa antica quam ab apice venae posticalis paulum longius distante. Pedes pallide testacei. Long. 2-2.5 mm." Queensland.

✓ *LEUCOPHENGA POECILIVENTRIS*, n.sp.

♀.—Head tawny yellow, ocellar spot fuscous, third antennal segment slightly brownish; upper half of occiput, except margin, black. Dorsum of thorax shining fulvous, pleura paler and thinly silvery pruinose; scutellum fulvous, paler along apical margin, and with a large black spot on each side at base. Abdomen as described in key. Legs stramineous, knees of mid and hind pairs a little darkened. Wings immaculate, all veins distinct. Halteres yellow, with a black spot on outside of knobs.

Frons one-fourth of the head width; palpi slightly broadened; eyes bare; rays of arista 7:3. Prescutellar pair of acrostichals minute, not clearly differentiated. Bristles on hind margins of second and third visible tergites of moderate and regular lengths, rather widely and evenly spaced. Legs normal. Wing slightly pointed, third vein ending in tip; first posterior cell not narrowed apically; last section of fourth vein as distinct as others, about 2.25 times as long as preceding section; outer crossvein nearly erect and at about its own length from apex of fifth vein.

Length, 3 mm.

Type, Blue Mts., January 26, 1922.

✓ *LEUCOPHENGA SCUTELLATA*, n.sp.

♀.—Differs from the preceding in being less shining, in having the apex of scutellum more noticeably yellowish-white, the black lateral spots on same smaller, and the abdomen marked as stated in key.

The head and thorax are as in last species, but the pair of prescutellar acrostichals are large and conspicuous. The mid tibiae in both species have the usual series of microscopic hairs on the posterodorsal surface. The wing is less pointed than in *poeciliventris*, the fourth vein has a very faint forward curvature at apex, and the penultimate section of fourth vein is half as long as ultimate.

Length, 3 mm.

Type, Sydney. One paratype, bred from fungus, Sydney, May, 1915.

✓ *LEUCOPHENGA NIVEIFASCIATA*, n.sp.

♂. ♀.—Head and thorax as in preceding species, but there are no black marks on the scutellum. The very conspicuous silvery white mark on abdomen which covers apex of first visible tergite, all of second, and the basal half of third tergites is the most characteristic feature of this species. In addition to this mark there are paired black spots as stated in the key, but the female has these less distinct basally and the apical two or three tergites are mostly blackish brown. Structurally as the preceding species, but the long bristles on first visible tergite, which are less conspicuous in the female, readily distinguish it from the others.

Presentellar acrostichal bristles distinct. Wings as in *scutellata*. Palpi slender, with some fine black hairs.

Length, 3-3.5 mm.

Type, male, and 1 ♂ paratype, Woolgoolga, N.S.W., January 27, 1923. Allotype, Eidsvold, December, 1922. Paratype, ♂, Sydney, February 12, 1921.

✓ *LEUCOPHENGIA POLITA*, n.sp.

♀.—Shining fulvous, the abdomen with black markings as noted in the key. As in the last species the legs are entirely stramineous.

Palpi as in last species; frons nearly one-third of the head width. Wing as in *scutellata*.

Length, 3 mm.

Type, Woolgoolga, N.S.W., January 27, 1923.

DROSOPHILA Fallen.

This genus is the most generally distributed and the largest in point of number of species in the family. It is amongst the species of the *melanogaster* group that the species are found which have yielded such interesting results in laboratory work on evolution and heredity, etc. Most of them live but a short time in any stage, but they occur indoors at all times of the year. The larvae closely resemble those of the Ephydriidae, having two breathing tubes of variable length at the anal end; in the pupal stage, however, these tubes are retracted and sometimes the prothoracic pair are very much elongated. This reversal is due to the fact that in the larval stage the head is kept under the surface of the pabulum in feeding and the connection with the air is maintained by means of the anal tubes, while in the pupal stage the connection with the air is maintained by means of the anterior tubes which are correspondingly lengthened.

The key given here is not intended to give an idea of the number of species in Australia, which must be large, but to include only those which I have seen.

Key to species.

1. Fore femur in both sexes with a comb-like series of minute black spinules on apical half of anteroventral surface; species almost entirely yellow; thorax with 8 or more series of minute setulae between dorsocentrals.
immigrans Sturtevant.
2. Fore femur without such a series of spinules in either sex. 2.
Thoracic dorsum with minute dark brown dots at bases of all the bristles and hairs, some of them aggregated on certain areas into larger spots. . . . 3.
Thoracic dorsum with 4 conspicuous broad dark brown vittae, the outer one on each side interrupted at suture, the submedian pair fused in front of scutellum; disc of scutellum of the same colour as vittae, the anterior lateral angles gray pruinulent. *lativittata*, n.sp.
Thoracic dorsum with 5 or 7 very slender dark brown vittae, pleura with two or three similar but broader vittae; disc of scutellum not much darker than basal lateral angles; third antennal segment fuscous, conspicuously darker than second. *buscki* Coquillett.
3. Thoracic dorsum entirely without either distinct dots or vittae. 5.
Facial carina practically absent except between bases of antennae where it is sharp and linear; eyes bare. *obsoleta*, n.sp.
Facial carina conspicuous below where it is rather broad and vertically sulcate; eyes with stiff erect microscopic hairs. 4.
4. At least the first three tergites with a yellowish spot on the part that is incurved on venter. *repleta* Wollaston.

- None of the tergites with a yellowish spot as above. . . . *hydei* Sturtevant.
5. Facial carina obsolete below, distinct and linear on upper part of face between bases of antennae; wings hyaline, outer crossvein slightly clouded; penultimate section of fourth vein half as long as ultimate. . . . *inornata*, n.sp.
6. Facial carina conspicuous and broad on lower half of face. 6.
- Large species, at least 3 mm. in length; wings evenly brownish, the outer crossvein narrowly but very noticeably clouded, easily seen with the unaided eye; last section of fourth vein 1.75 times as long as preceding section. *brunneipennis*, n.sp.
- Smaller species, averaging under 2 mm. in length; wings hyaline, outer crossvein not clouded; basal segment of fore tarsi in male with a comb of stiff contiguous bristles at apex on anterior side; last section of fourth vein over twice as long as preceding section. *melanogaster* Meigen.
- N.B.*—I include the description of *balteata* Bergroth, but suspect that it is a synonym of *melanogaster*. This cannot be decided without an examination of the type.

✓ *DROSOPHILA OBSOLETA*, n.sp. (f. *australica* Duda 1923
Wheeler 1959: 196)

♀.—Head ochreous, brown on ocellar region, at base of anterior orbital bristle, and less so at bases of the other frontal bristles; third antennal segment blackish; palpi fuscous. Thorax fuscous, densely yellowish-gray pruinose, a minute brown dot at base of each bristle and hair on disc of mesonotum; humeri and scutellum yellowish, the latter darker on disc. Abdomen shining dark brown, hind margins of tergites yellowish. Legs, including coxae, dirty straw-coloured, with a very slight indication of a darker annulus at base of each tibia. Wings clear, crossveins almost unclouded. Halteres yellow.

Lower reclinate bristle small, close to base of proclinate; postvertical pair rather large; eyes without hairs; vibrissae well differentiated. Thorax with 6 series of setulae between the dorsocentrals; sternopleurals 1:2. Legs normal. Sixth wing-vein subobsolete; penultimate section of fourth vein half as long as ultimate; outer crossvein at about its own length from apex of fifth.

Length, 1.75 mm.

Type, Sydney, March 7, 1921. Paratype, Glenreagh, N.S.W., January 29, 1923.

✓ *DROSOPHILA REPLETA* Wollaston.

A larger species than the preceding, averaging about 3 mm. in length, and more robust. Usually there is a darkening of the apex of first wing-vein present which in some cases is quite conspicuous.

There are three closely allied species recorded from North America, only two of which I have seen from Australia. Though the adults of these species are very similar, according to Sturtevant the immature stages are abundantly distinct.

Loc.—Sydney, Blue Mts., Lord Howe Island, and South Australia. Some of the specimens were taken in houses. The species is very common in lavatories in America.

✓ *DROSOPHILA HYDEI* Sturtevant.

Distinguishable in the adult stage when pinned only as indicated in the key.

Three specimens from Sydney.

✓ *DROSOPHILA BUSCKI* Coquillett.

Another very widely distributed species which may be distinguished from its allies by the very narrow dorsal thoracic and broader pleural vittae.

Synonyms of this species are *rubrostriata* Becker and *plurilineata* Villeneuve. Recorded from North America, Western Australia, Canary Islands, Europe, and Africa.

Length, 2 mm.

One specimen, Sydney, January 8, 1921.

✓ *DROSOPHILA MELANOGASTER* Meigen.

Commonly listed as *ampelophila* Loew and known popularly as the Vinegar Fly.

There are one or two other species which have a comb at apex of basal segment of fore tarsus in the male, but none of these have been found amongst the material from Australia.

Loc.—Sydney, and South Australia.

✓ *DROSOPHILA IMMIGRANS* Sturtevant.

Easily distinguished from its allies as stated in the key. The presence of a closely set series of minute black setulae on the apical third or more of the anteroventral surface of the fore femur is characteristic of many species of the family Lauxaniidae (Sapromyzidae) but the present species is a true *Drosophila*.

I have seen *immigrans* from Sydney and it occurs in Western Australia, North and South America, Europe, and the Hawaiian Islands.

S. capit. dros.

✓ *DROSOPHILA INORNATA*, n.sp.

♀.—Ochreous yellow, slightly shining. Occiput and ocellar region infuscated, orbits gray pruinose, antennae and palpi ochreous. Dorsum of thorax slightly grayish pruinose and with very faintly indicated grayish vittae; postnotum brown, grayish pruinose. Abdominal tergites each with a dark area on each side which become larger posteriorly, the apical two tergites almost entirely brown or fuscous. Wings clear, outer crossvein slightly clouded. Halteres yellow.

Eyes sparsely haired; lower reclinate orbital bristle not half as long as proclinate one and close to base of latter; postvertical bristles long. Thorax with 8 intradorsocentral series of setulae; prescutellar acrostichals distinct; sternopleurals 1:2, the upper posterior one large. Legs normal. Section of costa before apex of second vein four times as long as the one beyond it; outer crossvein at about its own length from apex of fifth vein.

Length, 2.5 mm.

Type, Blue Mts., January 15, 1922. Paratypes, two poorly preserved specimens, Sydney.

✓ *DROSOPHILA BRUNNEIPENNIS*, n.sp.

♀.—Dark fulvous, slightly shining. Head without distinct markings. Thoracic dorsum with faint indications of four darker fulvous vittae. Posterior third of each abdominal tergite fuscous. Legs fulvous yellow. Wings evenly browned, outer crossvein rather noticeably clouded with dark brown.

Eyes sparsely haired; frons a little over one-third of the head width; lower reclinate orbital bristle much less than half as long as proclinate one and a little closer to base of latter than to the upper reclinate one; rays of arista 4:2; facial carina almost equally wide on its lower two-thirds, flattened but not sulcate; vibrissae short and weak; palpi broadened. Eight series of intradorsocentral setulae; both the posterior sternopleural bristles long and strong; thoracic dorsum damaged by the pin so that it is impossible to say if the prescutellar acrostichals

are present. Legs normal. Outer crossvein at about its own length from apex of fifth vein; section of costa before apex of second vein three times as long as the one beyond it.

Length, 3.5 mm.

Type, Sydney, September 24, 1922.

Scaptomyza

✓ *DROSOPHILA LATIVITTATA*, n.sp.

♂. ♀.—Head fulvous, grayish on orbits, conspicuously so at bases of bristles, face whitish on sides; third antennal segment brownish above; palpi yellow; occiput blackened except on margins. Thoracic dorsum with 4 broad chocolate-brown vittae and the lateral margins of same colour, the narrow more or less broken interspaces gray pruinose; pleura dark brown, with some small gray areas. Each abdominal tergite with a broad transverse chocolate-brown mark on each side of median line on hind margin, which is dilated at inner and outer extremities on dorsum and more or less connected with a spot on lateral margins below, apical tergite in male yellow, in female dark brown. Legs tawny. Wings clear. Halteres yellow.

Eyes with dense stiff erect hairs; orbital bristles as in *brunneipennis*; facial carina with a short round flattened area below; vibrissae distinct. Thorax as in *brunneipennis*, the prescutellar pair of acrostichals distinct, the upper posterior sternopleural bristle long and strong. Section of costa before apex of second vein about 3 times as long as the one beyond it; outer crossvein at its own length from apex of fifth vein; last section of fourth vein about twice as long as preceding section.

Length, 2-2.5 mm.

Type, female, and allotype, Sydney. One ♀ paratype, Sydney, Aug. 28, 1921.

✓ *DROSOPHILA BALTEATA* Bergroth.

"Testaces, limbo postico segmentorum dorsalium abdominis nigro, segmentis tribus ultimis interdum totis nigris, quinto raro toto flavido. Alae subhyalinae, costa usque ad apicem venae discoidalis pertracta, vena subcostali brevi, ante venam transversam anticam desinente, vena radiali subrecta, sat longe ultra medium alae producta, vena cubitali apice a vena radiali quam a vena discoidali plus quam duplo longiore, vena transversa postica a vena transversa antica et ab apice venae posticalis subaeque longe remota. Pedes testacei. Long. 1.8-2 mm." Queensland.

SCAPTOMYZA Hardy.

All the species of this genus are distinguished from those of *Drosophila* by their more slender form and the presence of either two or four series of intradorsocentral setulae on the thorax. Otherwise the genera are very similar. The larvae sometimes mine in the leaves of cultivated vegetables.

Only one species from Australia is known to me. It rather closely resembles one described under the name *substrigata* by de Meijere from Java.

✓ *SCAPTOMYZA AUSTRALIS*, n.sp.

♂. ♀.—Head testaceous yellow, upper half of occiput black, ocellar triangle, vertex in centre, and orbits, whitish-gray pruinose; antennae and palpi yellow. Thorax black to yellow, in well preserved specimens densely gray pruinose and opaque, when rubbed showing glossy under the dusting. Abdomen brownish or yellowish basally, dark brown or black apically, with much less conspicuous dust-

ing than thorax. Legs including the coxae tawny yellow. Wings clear. Halteres yellow.

Eyes densely haired; facial carina complete; rays of arista 5:2. Thorax with 1 humeral, two series of intradorsocentral setulae, and sternopleurals 1:1. Abdomen and legs normal. Section of costa before apex of second vein about three times as long as the one beyond it; third vein with a very slight downward bend at apex so that the cell behind it is slightly narrowed at apex, the vein ending in wing tip; last section of fourth vein about 1.5 times as long as penultimate section; outer crossvein at a little over its own length from apex of fifth vein.

Length, 2-2.5 mm.

Type, female, and allotype, Sydney, the form with yellowish thorax. Paratypes, two from Sydney, also the yellow form, Nov. 12 and Dec. 6, 1920. Paratypes, mostly of the blackish form, Illawarra, N.S.W. (H. Petersen). This last lot sent me by Dr. C. F. Baker of the College of Agriculture, Philippine Islands.

Family CHLOROPIDAE.

I have very little material in this family from Australia at present, but take the opportunity afforded in this paper to mention the existence of a new character for the recognition of the family and to redefine one of Becker's genera.

The character referred to above consists of a distinct flexure of the fifth vein directly below the inner crossvein. This peculiarity is emphasised in many cases by a slight elevation of the field of the discal cell which runs obliquely backward and upward to the fourth vein in front of the inner crossvein, and at this point the fourth vein is usually slightly weakened.

I have found this character of great value in determining the family relations of doubtful species such as belong to *Parahippelates*, and in only a very few cases of species which, in other respects, were without doubt true chloropids, have I found this flexure almost indistinguishable. No other family has this character, so far as I can discover, except some aberrant Ephydriidae.

PARAHIPPELATES Becker.

This genus has been found only in New Guinea and Australia. It differs from nearly all other Chloropidae in having the orbits and interfrontalia with rather strong setulae, in possessing a pair of distinct cruciate postvertical bristles, moderately strong dorsocentral thoracic bristles, one incurved and one outcurved humeral bristle, at least one sternopleural, and two or more discal setulae on the scutellum besides the long marginal bristles. The curved bristle at apex on outer, or anterior, side of hind tibia, which it possesses in common with *Hippelates*, is sometimes very short. The genus belongs to the subfamily Oseminae, the costa being continued to apex of fourth vein and the hind tibiae having a flattened sensory area at middle on dorsum.

Nothing is known of the habits of the species, but in the adult stage *Hippelates* is very annoying to persons in North America by buzzing round the face in summer and getting into the eyes and nostrils, evidently attracted, like *Phortica* species, by the perspiration.

I have before me three species, none of which agrees with the description of *nudisetata* Becker, the only Australian species so far known.

Key to species.

1. Wing with a large black patch in middle covering about one-third of its area; arista practically nude, not twice as long as third antennal segment; femora largely black. *ornatipennis*, n.sp.