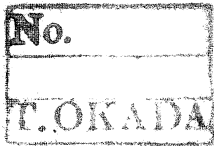


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NOTES ON AUSTRALIAN DIPTERA. No. iv.

By J. R. MALLOCH.

(Communicated by Dr. E. W. Ferguson.)

(Five Text-figures).

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Family DROSOPHILIDAE.

Since the completion of the manuscript of my paper in which I dealt with this family (These Proc., xlviii, 1923, 611) and before its appearance in print there appeared another paper, by Dr. O. Duda (Ann. Mus. Nat. Hungar., 20, 1923, 24),* dealing with Oriental and Australian Drosophilidae represented in the collection of the Hungarian National Museum. In this paper there are three species described from Australia, *Paradrosophila interrupta*, *Drosophila biradiata*, and *D. australica*. The first-named genus is not known to me, the second species appears to be a *Scaptomyza*, and the third is close to *inornata* Malloch, but has darker antennae and palpi.

In connection with the above-mentioned paper, it may be pertinent to indicate that, in the opinion of many students, there is too great a tendency on the part of some continental European specialists to split into a multitude of poorly differentiated genera larger groups which have very close structural and biological affinities. This rapid erection of new nomenclatorial units based upon minor structural characters that are appreciable only by the ultra-specialist tends to bring the whole systematic fabric into disrepute. I believe that it is only by the use of characters that one can swear by that the study of entomology, or any other branch of zoology, can enlist the number and the class of students that are essential to the development of a classification that will stand the test of time and biological co-ordination. The splitting and resplitting of generic concepts, unless on outstanding structural or fundamentally distinct biological characteristics, shows frequently neither good science nor good sense, and appears to me to warrant the statement, so often made, that a genus is merely a matter of opinion, whereas it ought to be just as much a matter susceptible to proof as the specific concept.

Most frequently the worker who indulges in these nomenclatorial calisthenics is one who confines his systematic work to one order, suborder, or even to one family, and the narrower the scope of the work, the more indulgence in generic and subgeneric differentiations there is, as a rule. It appears probable that the worker who confines his efforts to a certain group, or to a few small groups, in his enthusiasm for differentiation, forgets the relations of that zoological unit to

* This paper is in the Society's library.—Ed.

the whole. If all the others were judged by the same criteria, and the system carried to its logical conclusion, it would ultimately result in the erection of a genus for each species and the consequent elimination of relationship indices, which the present generic concepts really are.

In presenting the descriptions of new species in this paper, I do not give an extended key to the genera already so treated by me but in all cases I append data which may be used by anyone to locate the species in their proper places in the keys. Later on it may be possible to present a complete key to the species.

Types will in every case be returned to Dr. Ferguson, so that future students may have them available for reference when such is essential.

Genus GITONIDES Knab.

This genus is distinguished from all of those in my previously published key to genera of Australian Drosophilidae by the almost bare arista, all the others having long hairs both above and below. There is a vein separating the discal and second basal cells as in *Amiota*, the face has a low central ridge, there are rather long orbitals on each side which are about equally spaced, the anterior one proclinate, the other two reclinate, there are two sternopleurals, both near upper margin, and the prescutellar pair of acrostichals is well developed.

GITONIDES PERSPICAX Knab.

This is the only species, and it superficially resembles *Drosophila repleta* Wollaston, being marked on dorsum of head and thorax in similar manner. There is a distinct longitudinal band across middle of eye even in dead specimens, the pleura have two or three dark linear vittae, the apex of first vein is not blackened, and the legs are entirely yellow. Length, 3-4 mm.

One female, Sydney. Known from Hawaii and India. Larvae feed amongst mealy aphids, but there is no definite record of their feeding upon them.

Genus LEUCOPHENGIA Mik.

Dr. E. W. Ferguson has drawn my attention to the omission of *Drosophila albofasciata* Macquart from my previous paper on this family. This species is evidently a *Leucophengia* and, though described from New South Wales, it is still unknown to me except from Macquart's brief description, a copy of which I give below to facilitate its identification, if possible.

LEUCOPHENGIA ALBOFASCIATA (Macquart).

Drosophila albo fasciata Macquart, Dipt. Exot. Suppl. iv., Part 2, 1851, 277.

"Thorace testaceo. Abdomine fusco fascia alba. Capite rufis. Pedibus flavis."

"Long. 1 l. ♂♀. Palpes jaunes. Face fauve, à duvet blanc. Front fauve. Antennes jaunes: style à longs poils. Thorax testacé. Abdomen d'un brun noirâtre; base testacée; troisième segment à bande de duvet blanc au bord postérieur. Pieds jaunes. Ailes claires, à base un peu jaunâtre."

New South Wales.

The description does not fit any of the species in my previous key, nor does it agree with one now before me, which I received from Dr. Ferguson after my paper had gone to press. This last species I describe herein. *Leucophengia leucozona* Duda is closely related to Macquart's species, if not the same as it.

LEUCOPHENGA CONJUNCTA, n.sp.

Male.—Tawny yellow, pleura, apex of scutellum, and the legs paler. Scutellum with a large black spot on each side at base. First abdominal tergite yellow; second blackish-brown, the anterior margin narrowly yellow, the posterior margin with a silvery white line; third tergite blackish-brown, with a yellow mark in centre of anterior margin and the same margin in type narrowly silvery white; fourth tergite blackish-brown, with four large yellowish spots, two on disc and the other two between these and the lateral margins; fifth tergite coloured as fourth, but with a large central yellow spot only. Wings hyaline. Halteres yellow, with a large blackish spot on outer side.

Frons about one-fifth of the head width; ocellar bristles long, the anterior two close together; palpi slightly dilated; cheek linear. Thorax normal; pre-scutellar acrostichals large. Legs normal. Veins 3 and 4 subparallel apically; second vein approaching costa gradually to apex. Length, 3 mm.

Type and one paratype, reared from mushroom, 3.4.1912, no locality given on label.

This species belongs to the same group as *scutellata* and *poeciliventris* described in my previous paper, but the second (first visible) tergite is bipunctate in the former and tripunctate in the latter, instead of having a broad complete blackish band. There are also some other differences in the markings of the abdomen which distinguish them.

Genus DROSOPHILA Meigen.

The key to the species of this genus, which I previously published, may be elaborated as noted below to include the additional species. Preliminary captions may be added before Caption 1 as follows:

- A. Wings with conspicuous fuscous markings in addition to that over the cross-veins AA.
 Wings without distinct dark markings, at most slightly suffused with dark colour and rarely with the outer cross-vein clouded 1.
- AA. Wing with a large brownish or fuscous spot at apex of second vein, the dark cloud at tip consisting of a brownish suffusion along the apices of third and fourth veins, more or less coalescent in first posterior cell, mesonotum dark brown, with three linear yellow vittae, the median one not reaching anterior margin; scutellum yellow in centre, dark brown on sides of disc; pleura whitish-yellow, contrasting sharply with the dark brown mesonotum *mycetophaga*, n.sp.
- Wing without a dark spot at apex of second vein, the dark cloud at tip consisting of a broad curved brown patch which extends from middle of third section of costa to just over third vein, and over disc of wing to beyond fourth vein, but leaves a hyaline spot in apex of first posterior cell; mesonotum brown, with two poorly defined paler vittae which are carried over the lateral margins of scutellum, the centre of latter brown; pleura not noticeably paler than mesonotum *polypori*, n.sp.

Except in the matter of possessing two pairs of dorsocentral bristles, these two species might well be referred to the genus *Mycodrosophila*. In fact, there is a reduction in the size of the anterior pair of bristles in some specimens which rather suggests to me that the discovery of more species may yet obliterate this line of distinction and cause a fusion of the two genera under *Drosophila*.

DROSOPHILA MYCETOPHAGA, n.sp.

Male and female.—Frons and face brown, paler on sides and in centre, mouth margin and clypeus blackish, cheeks whitish-yellow; antennae yellow, third segment brown; palpi yellow. Thorax as described in diagnosis, upper anterior angle of propleura, and metanotum brown. Abdomen dark brown on dorsum, a yellow spot in centre of anterior margin of second tergite, one on each side of disc of fifth, and the lateral margins of all yellow. Legs pale yellow. In addition to the wing markings mentioned in the diagnosis both the cross-veins and the apex of first vein are clouded.

Eyes haired; proclinate and upper reclinate bristle long, the anterior reclinate one minute. Thorax with at least six series of intradorsocentral setulae; pre-scutellar acrostichals absent; scutellum slightly flattened on disc, as long as wide, with four equal marginal bristles. Second vein curved forward to costa apically; last section of fourth vein about 1.5 as long as preceding section, second section of costa about twice as long as third. Length, 2.5-3 mm.

Type, male, and allotype, Ourimbah, N.S.W., November, 1911, on *Polyporus* fungus.

DROSOPHILA POLYPORI, n.sp.

Female.—In addition to the distinctions between the two species listed in the diagnosis the following are noted: Margin of mouth and clypeus yellow like the remainder of face; scutellum shorter and more convex; dorsum of abdomen with two pairs of large yellow spots, one on the fourth and one on the fifth tergite, the lateral margins of tergites not yellow; second vein of wing approaching costa much more gradually. Halteres yellow in both species. Length, 2.5-3 mm.

Type and two paratypes, same data as preceding species.

DROSOPHILA SETIFEMUR, n.sp.

Female.—Shining yellowish-brown. Frons brownish-orange, orbits and ocellar triangle darker and slightly shining; third antennal segment brownish. Thorax not vittate. Abdomen glossy, brownish, paler basally, becoming black apically. Legs obscure yellow. Wings slightly greyish. Halteres yellow.

Lower reclinate bristle small; facial carina sharp and high, not broadened nor flattened below, extending nearly to lower margin of face; cheek linear; eyes hairy; vibrissae duplicated. About eight series of intradorsocentral setulae present; one long and two short sternopleurals. Fore femur with rather closely placed fine setulae beginning a little before middle and extending to apex on posteroventral surface, only the apical setula bristle-like, but not as long as diameter of femur, the anteroventral surface with a similar series of more closely placed and more regular setulae. Inner cross-vein at not less than two-fifths from base of discal cell; third section of costa fully one-third as long as second; outer cross-vein fully 1.5 its own length from apex of fifth vein. Length, 2.5 mm.

Type and three female paratypes, Sydney.

This species runs to Caption 1 in my key already published, but differs from *immigrans*, the only other species with fore femoral setulae, as follows:

- Fore femur with short closely placed fine setulae on more than the apical half of posteroventral surface, the longest one, at apex, not longer than the femoral diameter; third section of costa not less than one-third as long as second; facial carina narrow *setifemur*, n.sp.
- Fore femur with four or five widely spaced bristles on the entire length of posteroventral surface, the longest one, at middle, as long as or longer than femoral diameter; third section of costa about one-fourth as long as second; facial carina much broadened below . . *immigrans* Sturtevant.

The new species averages smaller in size and is paler in colour than *immigrans*.

DROSOPHILA NIGROVITTATA, n.sp. *→ Dethopsomyia*

Male.—Frons, when seen from behind, with a broad deep black stripe between the triangle and the narrow pale orbit on each side, the central portion, including ocellar region, grey pruinose; face tawny yellow, with the antennal foveae darker, and a blackish mark in middle below carina, the vibrissal angles and lower part of cheeks greyish; antennae black, apex of second segment yellowish. Thoracic dorsum black, with four pale grey vittae, with the appearance of having five black vittae; scutellum in type too much damaged to make cut clearly how it is marked, but apparently black, with the tip and lateral areas greyish. Abdomen black, markings not evident in type. Legs black, each tibia with a yellow ring at base and another beyond middle; tarsi brownish-yellow. Wings hyaline, with a rather distinct black mark on costa at apex of auxiliary vein. Halteres brownish-yellow.

Upper reclinate bristle long, lower one minute, in line with reclinate one; facial carina high, broadly rounded, extending to lower third of face, ceasing abruptly; eyes short-haired; cheek over one-third of the eye height; vibrissa single. Acrostichal setulae in about four series, confined to the black central vitta; anterior pair of dorsocentral bristles very close to suture. Bristles on posteroventral surface of fore femur confined to apical half, long. Incision at apex of auxiliary vein quite deep, the costa at this point with two long fine setulae; second costal division but little longer than third; second vein running obliquely into costa; last section of fourth vein about 2.5 as long as preceding section, the latter subequal to last section of fifth vein. Length, 1.5 mm.

Type, Sydney, 28 August, 1921.

This species is apparently referable to the genus *Spuriostyloptera* Duda, but I do not consider that genus is entitled to separation from *Drosophila*. The deep incision at apex of the auxiliary vein and the attendant black spot are to some extent present in *Drosophila repleta* and its allies, and this species Duda still retains in *Drosophila*.

In my key to the Australian species, *nigrovittata* will run to *buscki*, having five vittae, but these are broad and black instead of slender and brown. The annulate tibiae and differently coloured frons will readily separate the species so far as colour is concerned. Structurally they differ in *buscki* having no facial carina, and, though the latter also has a very evident notch at apex of the auxiliary vein, there is no black mark present, and the venation is different.

DROSOPHILA ALBOSTRIATA, n.sp. 15 Wau 2x1927
at 6/2/27

Female.—Black, slightly shining. Sides of face and frontal orbits white; second antennal segment yellowish, third missing. Thorax with two narrow

white pruinose dorsal vittae which extend from anterior margin over entire length and on to lateral basal angles of scutellum; humeri yellowish; lateral margins of the mesonotum greyish; pleura brown; tip of scutellum whitish pruinose. Abdomen more shining than the thorax, basal tergite yellowish, second usually yellow in middle anteriorly, the others with a narrow pale hind margin and a yellow spot on each side anteriorly, the latter visible only when abdomen is distended. Legs pitchy, knees, apices of tibiae, and the tarsi paler. Wings hyaline. Halteres yellow.

Lower reclinate bristle and the postvertical bristles minute; eyes hairy; facial carina broad, rounded, quite prominent; third antennal segment and arista missing in all specimens before me; cheeks narrow. Humeral two; sternopleurals two; six series of intradorsocentrals present, only four of them between the vittae, the other two almost in line with the dorsocentrals, the median two series longer than usual; prescutellar acrostichals small; basal pair of scutellars distinctly shorter than apical pair. Legs normal. Inner cross-vein a little beyond middle of discal cell and apex of first vein; outer cross-vein about 1.5 its own length from apex of fifth; last section of fourth vein about three times as long as preceding section; section of costa beyond apex of second vein nearly half as long as the one in front of it; second vein approaching costa gradually. Length, 2 mm.

Type and eight paratypes, apparently all females, Eidsvoll, Queensland. Type and two paratypes mounted on same pin.

It is possible, but improbable, that the antennae will furnish characters that will justify the removal of this species from *Drosophila*, but there are no other characters evident to me which suggest that the species is not properly placed in this genus.

The conspicuous white dorsal lines extending from mouth margin over dorsum of head and thorax to base of scutellum readily distinguish this species from any in my previously published key. *Paradrosophila interrupta* Duda has the thorax marked as in this species, allowing for the oily condition of his type specimen, but is otherwise different.

calivittata Rida

DROSOPHILA FUSCITHORAX, n.sp.

Female.—Fuscous, thorax subopaque, with very slight greyish pruinose; abdomen more shining, also slightly grey pruinose. Frons brown, darker posteriorly, orbits, ocellar region, face, and cheeks greyish pruinose; antennae brown, third segment black; palpi yellow. Thorax not vittate. Abdomen in type without obvious markings. Legs dirty yellow, bases of coxae darker. Wings slightly greyish. Halteres brownish-yellow.

Eyes with extremely short hairs, only visible against reflected light with a high power lens; facial carina obsolete even between bases of antennae; parafacial invisible from side; cheek linear; no outstanding bristle below vibrissa; lower reclinate orbital bristle minute, in line with proclinate one; arista with 3 + 2 rays. Thorax with two humerals, eight series of intradorsocentral setulae, a short but distinct pair of prescutellar acrostichals, and three sternopleurals, the lower one longest; basal pair of scutellar bristles a little shorter than apical pair. Legs normal. Last section of fifth vein distinctly longer than penultimate section of fourth, and about three times as long as outer cross-vein; last section of fourth vein fully three times as long as penultimate; section of costa before

apex of second vein a little less than three times as long as the one beyond it. Length, 2.75 mm.

Type, Sydney, 13 September, 1923.

This species will run in my key to the first section of Caption 5, but is readily distinguished from *inornata* by its much darker colour, and different venation.

DROSOPHILA FLAVOHIRTA, n.sp.

Female.—Tawny yellow. Orbits and ocellar region slightly shining; face paler than frons. Thorax shining, rarely with traces of four darker, reddish vittae. Abdomen unicoloured. Legs concolorous with body. Wings hyaline. Halteres yellow. All hairs and bristles luteous.

Eyes hairy; lower reclinate bristle small; facial carina sharp only at upper extremity, becoming gradually broader below and very much flattened, sloping off imperceptibly into mouth margin; cheek narrow; one short bristle below vibrissa; palpi rather broad. Thorax with eight series of intradorsocentral setulae; the prescutellar pair of acrostichals not differentiated; scutellars subequal; sternopleurals two; humerals two. Inner cross-vein at middle of discal cell and distinctly beyond apex of first vein; second section of costa about 2.5 as long as third; outer cross-vein about twice its own length from apex of fifth vein, the last section of latter a little shorter than penultimate section of fourth; veins 3 and 4 a little convergent at apices. Legs normal. Length 1.5-2 mm.

Type and ten paratypes, December, 1923, collected on flowers, Como, N.S.W. (H. Petersen).

This species will run to Caption 5 in my key, but may be distinguished from any subsequent species by the entirely yellowish hairs, the hairs and bristles on all the others being largely or entirely black or fuscous.

Its most closely related allies are to be found in the *ampelophila* group. In my last paper I recorded this last species as *melanogaster* Meigen. Duda, who has apparently examined Meigen's type, states that the species are distinct, so that the name *ampelophila* will stand for the Australian species.

Family CHLOROPIDAE.

Since the completion of my last paper dealing with some genera of this family, I have received some additional material from Dr. E. W. Ferguson, and from Dr. C. F. Baker. This material contains some undescribed species, some of which are dealt with herein.

Genus GAURAX Loew.

Becker considers that *Batrachomyia* Skuse is a synonym of this genus. I have not seen the genotype of the former, but I believe Becker has stretched the definition of the genus beyond reasonable limits to accommodate this view. *Gaurax* is a very poorly differentiated genus, being distinguished from *Oscinis* Auct., and *Siphonella* only by the distinctly short-haired arista. To this character Becker has added, in his paper on the Australian Chloropidae, another, the shape of the third antennal segment, which is not borne out by the genotype. This variation in the definition of a genus in different faunal regions is not permissible, the only criteria being the characters possessed by the genotype. Based upon the latter dictum, we have a genus which is, as already stated, distinguished

from *Oscinis* only by the more distinctly haired arista, that of the latter being at most pubescent, while in *Gaurax* it is short haired. That this character is not a reliable one is clearly shown by the fact, that Loew placed one or more species in *Oscinis*, which later Becker removed to *Gaurax*.

The genus *Siphonella* is yet more closely related to *Oscinis*, though the genotype appears to be abundantly distinguished by its long geniculated proboscis and angulated vibrissal angle. The degree of elongation and geniculation, as well as the chitinization of the proboscis, is quite variable within this particular group and it is extremely difficult to place some of the species, or individuals of some species, in one or the other genus. This will be evident when it is explained that Becker described one North American species in *Siphonella* and *Oscinella* (*Oscinis*), under different specific names.

Possibly the three genera ought to be associated under one generic name. This paper is, however, not the proper place to consider this matter so I leave it for future consideration, possibly by another worker.

GAURAX ATRISETA, n.sp.

Female.—Head ferruginous, upper half of occiput and frontal triangle shining black; antennae yellow; arista black and black haired. Thorax ferruginous, dorsum with three slender blackish lines which are connected at anterior and posterior extremities, the lateral lines less distinct than the central one in type; base of scutellum blackened; centre of postnotum broadly black, shining. Abdomen shining black, basal segment yellowish. Legs tawny yellow. Wings slightly brownish, veins black. Halteres yellow. Cephalic and thoracic hairs black, those on legs paler.

Frons distinctly wider than either eye, and about as long as its greatest width, the hairs quite long, almost bristle-like and not very numerous; triangle extending four-fifths of the distance to anterior margin of frons, the ocellar and postvertical bristles cruciate; longest hairs on arista about twice as long as its basal diameter; eyes hairy; cheek almost linear. Mesonotum with the hairs suberect and moderately long; scutellum subtriangular, with four marginal bristles and some erect discal hairs. Legs normal, rather longer haired than usual. Last section of fifth vein over three times as long as outer cross vein and a little longer than penultimate section of fourth. Length, 3 mm.

Type, Sydney, 31 December, 1923.

Of the yellow species from Australasia, which Becker puts in this genus, the new one comes closest to *quadri-lineatus* Skuse and *nigritarsis* Skuse. The former has the arista bare, and the latter has the antennae and some parts of the legs black. He lists no other species from Australia though there are some from New Guinea.

Genus CAVICEPS, nov.

Generic characters.—Frons without a differentiated triangle extending beyond ocellar region; postvertical bristles distinct, slightly incurved; face deeply concave, with two rounded antennal pits separated by a slight ridge, most conspicuous above; mouth margin slightly produced (Fig. 1); palpi long, slender, slightly curved; one short vibrissal setula present. Thorax with four bristles on hind margin in front of scutellum, the latter slightly longer than usual, flattened