

LXVI.—*Exotic Muscaridæ (Diptera)*.—XXV. By J. R. MALLOCH, Bureau of Biological Survey, Washington, D.C.

Family *Drosophilidæ*.

Genus *ACLETOXENUS*, Frauenfeld.

This genus is distinguished from all others in the family which have the arista pubescent or bare, except *Colocasiomyia*, de Meijere, by the lack of ocellar bristles. From *Colocasiomyia* it is distinguished by the flat face and several other characters.

There are two known species of the genus, *formosa*, Loew, found in Europe, and *meijeri*, Duda, recorded from Java only. I have before me what appears to be a third species, from Southern India. The three species may be distinguished as below.

*Key to the Species.*

1. The proclinate orbital bristle very small and fine, not nearly half as long as the anterior proclinate one, the three orbitals almost equally spaced; outer vertical bristle not half as long as the inner one; mesopleura with a large black mark; fourth visible tergite of abdomen with a triangular black mark in middle, its base on base of tergite. *indica*, sp. n.
- The proclinate orbital bristle not noticeably shorter than anterior reclinate one . . . . . 2.
2. Thoracic dorsum shining black, with the lateral margins pale yellow; mesopleura without a black mark; visible abdominal tergites 1 to 3 each with the base broadly blackened, the fourth with a black triangle in centre which has its base on base of tergite . . . . . *formosa*, Loew.
- Thoracic dorsum shining yellowish brown, with two broad black vittæ which are more or less confluent behind suture and do not extend to hind margin; mesopleura with a dark mark; visible tergites 1 to 4 of abdomen each with a dark spot on each side . . . . . *meijeri*, Duda.

*Acletoxenus indica*, sp. n.

*Female*.—Head clay-yellow, ocellar triangle, and occiput except on upper central part deep black; labrum fuscous; third antennal segment orange; aristæ brown. Thorax whitish yellow, shining, mesonotum with the following black marks which are distinctly shining: a broad central vitta narrowly separated from a submedian vitta on each side, the latter slightly interrupted at suture, and a sublateral post-sutural vitta on each side of these, none of which reaches the

posterior margin and all of them more or less fused owing to the presence of a brownish suffusion on the intervening pale areas, the extreme hind margin also with a narrow black transverse mark; pleura with two large dull black marks, one on mesopleura and the other on sternopleura, and some smaller paler marks on some of the other sclerites; scutellum with a deep black dot on each lateral basal angle. Abdomen yellow, with a fuscous basal fascia on visible tergites 1 to 3, most distinct laterally and possibly sometimes reduced to lateral spots, fourth tergite with a deep black triangle in centre, its apex near hind margin, fifth with a smaller spot of similar form. Legs whitish yellow. Wings hyaline. Halteres whitish yellow.

Frons over three times as long as wide, parallel-sided, seen from in front about half as wide as one eye at widest point, outer vertical bristle not half as long as inner, and a little shorter than the reclinate orbitals, the anterior one of the latter above middle of frons, proclinate orbital microscopic, almost indistinguishable, situated a little below middle of frons; vibrissæ not longer than anterior reclinate orbital; cheeks not visible from the side. Thorax as in *formosa*; sternopleurals 2. Legs normal, mid-tibia with a microscopic preapical dorsal bristle. Inner cross-vein almost directly below apex of first vein; outer cross-vein at about its own length from apex of fifth vein; fourth vein slightly deflected apically.

Length 2 mm.

*Type* and three paratypes, Coimbatore, S. India, 9-20. vi. 1928 (*T. K. V.*).

Labelled "Feeding on *Aleurodes* on Castor." Only the type-specimen is in perfect condition, the others being teneral. I assume that the feeding record refers to the larval habit, not to the habits of the adults, which were apparently reared.

Specimens returned to British Museum.

### Family Chloropidæ.

Genus CHLOROPISCA, Loew.

*Chloropisca rugiceps*, sp. n.

*Female*.—Clay-yellow, suffused with brownish and with black markings. Head shining on frontal triangle, cheeks, and occiput; ocellar region and some streaks on the upper occiput fuscous, sides of triangle and adjoining portions of interfrontalia brownish; antennæ, aristæ, and palpi yellow. Thorax with the usual black vittæ on mesonotum appearing four in number owing to fusion of the middle pair; scutellum

black, margin pale yellow; each pleural sclerite with a black mark. Abdomen with base of each tergite broadly black. Legs yellow, femora and tibiæ more or less suffused with brown, not sharply marked. Wings hyaline. Halteres white.

Head large, frons at vertex about twice as wide as one eye, widened anteriorly, with sparse microscopic hairs, triangle extending about three-fourths of the distance to anterior margin, no bristles present; antennæ small, entire length not half the height of cheek, situated well below middle of eye in profile; arista subnude; eyes bare; face in profile concave; cheek about two-thirds as high as eye, with quite coarse furrows running obliquely from upper posterior to lower anterior portion; palpi slender. Thorax quite prominently arched, dorsum with numerous quite evident setigerous punctures, only a single posterior notopleural bristle present; scutellum flattened above, without a sharp rim, with setigerous discal punctures and two approximated apical bristles; pleura practically bare. Abdomen broad, not longer than thorax. Legs stout, fore tarsi not dilated, sensory area on hind tibia well developed. Penultimate section of fourth vein equal to ultimate section of fifth, and about 1.5 times as long as outer cross-vein.

Length 4 mm., width of thorax almost 2 mm.

*Type* and two paratypes, Gatooma, S. Rhodesia, xii. 1927 and i. 1928 (*A. Cuthbertson*). No. 2017, S. Rhodesia Dept. of Agriculture.

This species might be removed to a new genus on the basis of the single notopleural bristle.

### Family Psilidæ.

#### Genus *STRONGYLOPHTHALMIA*, Heller.

The most striking character for the separation of this genus from its allies is the broad, rather elongate, and slightly convex prosternum, which feature has not previously been noted in this connection.

I have before me an apparently new species, which is described below. I append a key for the separation of this species from the two described from Formosa.

#### *Key to the Species.*

1. Wings entirely hyaline; face, frons, and humeri reddish yellow; mid and hind femora and tibiæ black-brown at apices . . . . . *coarctata*, Hendel.
- Wings with two dark marks, one at middle, the other at apices; head and thorax entirely black . . . . . 2.

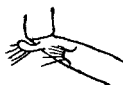
2. Legs black; apices of coxæ, the trochanters, knees narrowly, and basal two segments of tarsi yellow; fore tibiæ red, apices brownish ..... *maculipennis*, Hendel.  
 Legs yellow; mid and hind coxæ black; apices of hind femora, bases and apices of hind tibiæ, and apical two segments of all tarsi slightly browned ..... *luzonensis*, sp. n.

*Strongylophthalmia luzonensis*, sp. n.

*Male*.—Shining black, sides of face and postocular orbits silvery, antennæ rufous; legs coloured as noted in key; wings with two rather faint broad dark clouds, one over apical half of second vein which becomes narrower posteriorly and encloses the outer cross-vein, the other over entire apices of wings. Halteres dull yellow.

Head normal; arista very slender and bare; face slightly convex at middle. Thorax finely shagreened on dorsum, sparsely haired, two series of intradorsocentral hairs and two pairs of postsutural dorsocentral bristles present. Abdomen slightly constricted before hypopygium, the latter with two

Fig. 1.



*Strongylophthalmia luzonensis*, base of hind femur of male, from behind and above.

short slender downwardly-directed processes that are about twice as long as thick, each of which is furnished with a long apical bristly hair that is over twice as long as the process and slightly incurved at tip. Legs slender, hind femur with two processes at base on posterior side as in fig. 1. Inner cross-vein a little less than one-third from base of discal cell; third section of costa almost as long as second; apical section of second vein very little longer than apical section of fourth; first posterior cell at outer cross-vein almost twice as wide as at apex, and as discal cell at its tip.

Length 5 mm.

*Type*, Mt. Maquiling, Luzon, Philippine Islands (C. F. Baker).

Family Muscidæ.

Subfamily PHAONINÆ.

Genus CAMPTOTARSUS, Stein.

Stein originally compared this genus with *Limnophora*,

Robineau-Desvoidy, to which the species bear a striking similarity in habitus and markings, using as the distinguishing character of the genus the peculiar basal segment of the mid-tarsus of the male, which is always more or less arched owing to the concavity of the underside. The bare prosternum and third wing-vein sufficiently distinguish the genus from *Limnophora*, but Stein did not note this character of the latter genus. I can find no good distinguishing character for separating the genus *Camptotarsus* from certain of the segregates of *Helina*, Robineau-Desvoidy, and especially the group generally accepted as *Melanochelia*, Rondani. Usually the species of *Helina* have a distinct pre-alar bristle on the thorax, but some of the segregates lack this and are then similar to *Camptotarsus*, except for the curved basal tarsal segment of the male in the latter. I realise that sharp generic differentiations in both sexes are very difficult to find in this family, but that is no reason why one should accept as genera groups which can be distinguished in one sex only, as here. I incline to the opinion that this group is entitled at most to subgeneric rank.

As there is no key for the identification of the species of *Camptotarsus* I present one below which is based largely upon descriptions by Stein, so it should be used only in conjunction with those descriptions if authentic identifications are desired.

The species are exclusively African, and nothing is known of their immature stages. In all cases the abdomen is marked with large subtriangular black dorsal spots as in *Limnophora*, and the species are typically black.

### *Key to the Species.*

- |  |                              |
|--|------------------------------|
| 1. Legs yellow, fore and hind femora sometimes browned, tarsi somewhat paler yellow, with fine brownish annuli; all tibiæ almost bare.   | <i>pallipes</i> , Stein.     |
| Legs black, fore tibiæ whitish or pale yellow at bases .....   | 2.                           |
| 2. Fore tarsi white annulate.....  | <i>annulitarsis</i> , Stein. |
| Fore tarsi entirely black .....  | 3.                           |
| 3. Hind femora with rather long bristles on apical third of anteroventral surface.....   | <i>albibasis</i> , Stein.    |
| Hind femora with exceptionally long, fine, and rather dense bristly hairs on apical third on anteroventral surface, and the posteroventral surface densely fine-haired at apices ..... | <i>pilifemur</i> , Stein.    |
| Hind femur with only about three fine pre-apical anteroventral bristles .....  | <i>nitidus</i> , Stein.      |

### *Camptotarsus pilifemur*, Stein.

Three males, Durban, Natal, 31. vii. 1919 (*A. L. Bevis*).

Genus *OPHYRA*, Robineau-Desvoidy.*Ophyra melliventris*, sp. n.

*Female*.—Head black, triangle, frontal orbits, and parafacials glossy, lunule silvery; basal two antennal segments fulvous, third fuscous; aristæ yellow at bases, becoming fuscous apically; palpi fuscous. Thorax black, quite densely grey-dusted, and only slightly shining, not evidently vittate, the lateral margins most densely dusted. Abdomen honey-yellow, glossy. Legs black, tibiæ brownish, the hind pair much paler than the others, almost yellow. Wings hyaline, veins yellow basally. Calyptræ white. Knobs of halteres pale yellow.

Eyes bare; frons at vertex a little over one-fourth of the head-width, gradually widened anteriorly, triangle not very wide, extending to anterior margin, its sides straight; cruciate bristles situated on triangle about midway from anterior ocellus to anterior margin; orbital bristles weak and sparse, the forwardly-directed one not stronger than the others; parafacials almost linear; cheek about as high as width of third antennal segment, the latter almost three times as long as second segment; arista bare. Thorax normal; the pre-sutural acrostichals in two series, quite strong at suture. Abdomen without strong bristles. Fore tibia without a posterior median bristle; mid-tibia with two posterior bristles; hind tibia with one posterodorsal, one anterodorsal, and one or two anteroventral bristles, all very short and weak; hind femur with a series of bristles on apical half of anteroventral surface. First posterior cell of wing slightly narrowed apically; inner cross-vein at distinctly less than one-third from apex of discal cell.

Length 6 mm.

*Type*, Estcourt, Natal, ix.-x. 1896 (*G. A. K. Marshall*).

This is the only species of the genus which has the abdomen yellow. In the absence of males I place the species in this genus without any hesitation, though there is a very slight possibility that it is an aberrant *Hydrotæa* somewhat similar to *fumifera*, Walker.

Genus *PHAONIA*, Robineau-Desvoidy.

Below I present a key to the African species of this genus at present known to me. The genus is very poorly represented in this region as compared with the Palæarctic and the Nearctic Region.

*Key to the Species.*

1. Eyes densely and rather long-haired; thorax with a black fascia behind suture in male, with a dark red fascia in female, three black spots and two or three pairs of acrostichals in front of suture ..... [(*magnifica*, Malloch).  
*annulipes*, Stein
- Eyes nude or very sparsely short-haired; thorax without black spots or fasciæ ..... 2.
2. Thorax with well-developed presutural acrostichals; veins 1 and 3 setulose ..... *setinervis*, Stein.  
Thorax without acrostichals, except the pre-scutellar pair; wing-veins without evident setulæ ..... 3.
3. Fore tibia with a submedian posterior bristle.. 4.  
Fore tibia without a submedian posterior bristle..... 5.
4. Only two pairs of strong postsutural dorsocentrals on thorax ..... *biseta*, Stein.  
Three pairs of strong postsutural dorsocentrals on thorax ..... *virgata*, Stein.
5. Thorax with three pairs of postsutural dorsocentrals ..... 6.  
Thorax with four pairs of postsutural dorsocentrals ..... 9.
6. Abdomen with dark paired dorsal spots..... 7.  
Abdomen without dark paired dorsal spots .. 8.
7. Thoracic dorsum seen from in front with a broad dark central vitta which is quite distinctly white-dusted when seen from other directions; no setulæ in front of anterior postsutural dorsocentrals ..... *abnormis*, Stein.  
Thoracic dorsum without any evidence of a dark presutural central vitta; usually one weak setula in front of each anterior postsutural dorsocentral bristle ..... *flavicornis*, Stein.
8. Thoracic dorsum with a broad black central vitta that almost covers the area between the dorsocentrals in front of suture, is wider behind suture, and extends over the scutellum; eye-facets small in male ..... *vittithorax*, Stein.  
Thorax clay-yellow, greyish-dusted, with four greyish vittæ; facets enlarged on portions of eyes in male ..... *suturalis*, Stein.
9. Bristles on frontal orbits long and strong, almost uniform, the upper one on each orbit about as long as the ocellar bristles; second abdominal tergite without a pair of outstanding bristles on middle of hind margin. *rhodesi*, sp. n.  
Bristles on frontal orbits long and strong at anterior margin, becoming decreasingly shorter and weaker as they progress backwardly, the posterior one very much shorter than the ocellars; second visible abdominal tergite with a pair of strong bristles on middle of hind margin ..... *ocellaris*, sp. n.

*Phaonia annulipes*, Stein.

This species was originally described in 1906\*, and a comparison of the description with that of *magnifica*, Malloch †, reveals certain differences. However, in 1913 ‡, Stein revised his previous description, so that it appears highly probable that the two names apply to the same species.

*Phaonia abnormis*, Stein.

This is, as I have previously recorded, the commonest African species of the genus.

I have before me specimens from Zungeru, S. Nigeria, 24. viii. 1910 (*J. J. Simpson*); Zomba, Nyasaland, 1. xii. 1911, 3000 feet (*Dr. R. Drummond*); Uganda (*E. D. W. Greig*); Mapanda Mt., N. Nyasa, 20. xi. 1909 (*Dr. J. B. Davey*); Bohotle, Somaliland, 1903 (*A. F. Appleton*); Sinoia, S. Rhodesia, vi. 1926 (*A. Cuthbertson*); and Salisbury, S. Rhodesia, 1. v. 1924, latrine. This last specimen is the only one with any indication of habits.

*Phaonia flavicornis*, Stein.

This species is extremely like *abnormis*, but the characters cited in the key readily distinguish the females before me from examples of that sex of *abnormis* now in my possession. The inner cross-vein of the wing is less noticeably clouded than in *abnormis*.

*Localities*.—Port Natal, 1856 (*Plant*); Entebbe, Uganda, 28. iv. 1909 (*C. C. Gowdey*).

*Phaonia setinervis*, Stein.

This species cannot be placed in *Phaonia* as at present accepted, because of the presence of setulæ on the first and third wing-veins. I have not seen it, so am not in a position to indicate its generic relations.

*Phaonia rhodesi*, sp. n.

*Male*.—Very similar to *abnormis*, but rather darker in general coloration; the third antennal segment is blackish, with pale base, the thorax has four brownish dorsal vittæ, when seen from behind, which do not extend to the hind margin of the mesonotum, and in front of suture there is a rather evident median dark vitta. Abdomen testaceous-yellow, third and fourth visible tergites fuscous, all tergites

\* Berl. Ent. Zeitschr. li. p. 83.

† Ann. & Mag. Nat. Hist. (9) vii. p. 425 (1921).

‡ Ann. Mus. Nat. Hungar. xi. p. 477.



with whitish dust, second with a pair of poorly-defined rufous spots, third with a similar pair of fuscous spots, the strong bristles on second, third, and fourth tergites inserted in dark dots.

Frons wider than third antennal segment; orbits strongly bristled to near anterior ocellus, upper bristle longer than ocellars. Thorax with four pairs of long postsutural dorso-central bristles. Otherwise similar to *abnormis*. Hind femora with fine bristly hairs on base of posteroventral surface and some strong bristles on apical third of anteroventral surface.

Length 7 mm.

*Type*, Salisbury, S. Rhodesia, February 1928 (*H. S. Leeson*). *Type* in British Museum.

*Phaonia ocellaris*, sp. n.

*Male*.—Similar to *rhodesi*, but the thorax is uniformly testaceous-yellow, the mesonotum has greyish dusting disposed in stripes anteriorly as in the other species, the abdomen is not so dark at apex, being more brown than black there, and the dark dots at bases of the strong bristles are more conspicuous. Tarsi brown.

Frons not wider than third antennal segment, orbits bristled as stated in the key. Thorax as in *rhodesi*. Abdomen with a pair of very striking bristles on middle of apical margin of second visible tergite, those near lateral margins also strong; third and fourth visible tergites each with discal and apical series of bristles, the third with the discal series rather weak. Mid-tibia with three posterior bristles; hind femur with some bristles on apical half or more of anteroventral surface and some hairs on basal third of posteroventral surface.

Length 7 mm.

*Type*, Port Natal, 1856 (*Plant*).

Family Glossinidæ, nov.

I consider that this group is entitled to family rank on account of both biological and structural characters.

Some years ago I published the statement that the calyptrate Diptera could be distinguished from the acalyptrate series by the presence of the abdominal spiracles in the tergites and the split second antennal segment in the former, and the presence of the spiracles in the membrane between the tergites and sternites and the entire second antennal segment in the acalyptrates. I indicated, however, that

there were some exceptions to the rule, the Gastrophilidæ having the spiracles in the membrane and at least a part of the Ephydridæ having tergal spiracles. The rule does hold good in general throughout the two series concerned. It must be noted, however, that the modification of the extreme base and apex of the abdomen in many calyptrates compel one to disregard the positions of the spiracles on the first and frequently the sixth and succeeding segments. In other words, the calyptrate series, with the exception of Gastrophilidæ, have the spiracles of the abdomen invariably situated in tergites 2 to 5, and the second antennal segment longitudinally cleft, while the acalyptrate series have these spiracles almost invariably in the membrane, and when they are in the tergites, as in some Ephydridæ, the second antennal segment is entire. These criteria align the Cordyluridæ with the calyptrate series, which is in accord with Frey's deductions based upon a study of the mouth-parts of the adults.

In proposing family rank for the present genus, I base my stand upon the position of the abdominal spiracles, which are clearly in the membrane, upon the lack of a chitinated prosternal plate and the unique development of the metasternum, this last being on a level with the mesosternum and projecting forward so as to separate the mid-coxæ.

If the suppression of the prosternal plate may be laid to the excessive development of the base of the proboscis, conversely may the development of strong bristles on the bases of the fore coxæ be indicative of the development of a structure for the protection of this swollen portion, the preservation of which is vitally important to the species. It would also suggest itself to the student who tries to find a reason for the presence of peculiar structures that the excessive development of the metasternum is essential to enable a close attachment to the body of the host when feeding.

Lack of material in the group prevents me from going farther into details of the relationships involved, and possibly I could add nothing to what has already been done by Major Austen in the differentiation of the species.

### Family Calliphoridæ.

I present below some notes on certain genera which are intended to elucidate certain matters of generic and specific status, without attempting a comprehensive survey of the entire family as represented in Africa.

Subfamily *CALLIPHORINÆ*.Genus *TRICYCLEA*, van der Wulp.

In my last paper of this series I presented a key for the identification of the genera of Calliphorinæ known to me from Africa, and included this genus. I followed the general acceptance in the matter of *Tricyclea*, considering it as identical with *Zonochroa*, Brauer & von Bergenstamm; specimens of the genotype of the latter, *fasciata*, Macquart, are now before me. It will be observed, however, that Surcouf in his paper on the Muscidæ Testaceæ \* described van der Wulp's species *ferruginea*, the genotype of *Tricyclea*, as having three pairs of postsutural dorsocentral bristles, which is contrary to Curran's statement in his key, where he places that species amongst those that possess four pairs of postsutural dorsocentrals. I have seen no species that agrees with Surcouf's redescription of *ferruginea*, and am uncertain as to whether it belongs to the same genus as *fasciata*. Definite allocation of this generic name must await a careful examination of the genotype.

I have now before me a number of species referable to *Tricyclea* in Curran's sense and to *Hemigymnochæta*, Corti, as I accept it. In the present discussion I omit all species in which the propleura is bare in the middle, the species under consideration all having distinct hairs there and so falling within *Tricyclea*, sens. lat. There are, however, at least two distinct groups which might be considered as entitled to subgeneric, or even generic, distinction, the characters which are used for the major groupings in the key below forming the basis for that assumption. I include in the key only those species now available to me.

It may be noted in connection with this genus that *Zonochroa pterostigma*, Bezzi, was omitted by Curran from his papers referred to subsequently in this paper, and it and the following species are omitted from my key, being unknown to me: Wings hyaline, *ferruginea*, van der Wulp, *latifrons*, Curran; wings with costal cloud, *semithoracica*, Villeneuve, *nigroseta*, Curran.

*Key to the Species.*

1. Outer posthumeral bristle always present; the bristles on lateral presutural area normally five in number; lower calypter distinctly lobed, lying close to, or touching, the basal lateral angle of scutellum (*Zonochroa*) . . . . 2.

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\* Nov. Arch. Mus. d'Hist. Nat. Paris, (5) iv. p. 104, 1914 (1920).

- Outer posthumeral bristle absent, the bristles on lateral presutural area never more than four, sometimes three, in number ..... 9.
2. Wings with distinct dark costal markings.... 3.  
Wings without dark costal markings ..... 8.
3. Costa with two elongate well-differentiated dark marks, one between apices of auxiliary and first veins, and the other on apex of second vein; fifth abdominal sternite of male with a series of quite strong bristles along the inner margin of each process basally .. *perpendicularis*, Vill.
- Costa with but one dark mark, which may be continuous from base to apex of second vein, sometimes slightly interrupted at apex of first vein, or of variable extent and confined to the section beyond apex of first vein .. 4.
4. The dark costal border entire, usually paler proximad of apex of auxiliary vein ..... 5.  
The dark costal border distinct only beyond apex of first vein ..... 7.
5. A small hyaline mark just beyond apex of first vein almost divides the dark costal streak into two at that point, but falls short of attaining the costa; bristles on facial ridges closely placed and not as long as width of parafacials ..... *bivittata*, Curran.
- No hyaline mark in costal streak just beyond first vein; bristles on facial ridges not closely placed, some of them much longer than width of parafacial ..... 6.
6. Sternopleurals two in number (1:1) ..... *spiniceps*, sp. n.  
Sternopleurals three in number (1:1:1) .... *spiniceps*, var. ?
7. Costal cloud beginning at apex of first vein .. *fasciata*, Macq.  
Costal cloud beginning distinctly beyond apex of first vein ..... *unipuncta*, Curran.
8. Parafacials and the greater portion of cheeks yellow-haired; fourth abdominal tergite with a pair of transverse black spots at apex ..... *evanida*, Vill.  
Parafacials and cheeks with only black hairs; fourth abdominal tergite without black apical spots .....  *analis*, sp. n.
9. A diffuse, but distinct, cloud over inner cross-vein which is connected with the one on costa of wing, the latter extending from a point on costa between apices of auxiliary and first veins to beyond apex of second vein, becoming faint posteriorly; pleura almost entirely yellow; five or six bristles on each facial ridge which are almost as long as the longest hairs on the arista .... *diffusa*, sp. n.
- Wings entirely hyaline; thorax fuscous, densely grey-dusted, only the humeral angles and part of the scutellum testaceous; facial ridges with very short black hairs ..... *palliventris*, Curran.

*Tricyclea perpendicularis*, Villeneuve.

This species was compared with *distigma*, Curran, by the describer of the latter, the only marked distinction between them which he mentioned consisting of the broader dark mark on the mesonotum in *distigma*, which extends over the entire intradorsocentral region proximad of the suture, while in *perpendicularis* it is stated as covering only the area between the acrostichals in front of the suture. Villeneuve described his species from two females, Curran had males only of *distigma*, and the latter suggested in his original description the possibility that the specimens were the sexes of one species. I have specimens of both sexes before me and unhesitatingly assign both names to the same species.

The lower calypter is lobed, its inner margin lying close to the lateral basal angle of the scutellum.

*Locality*.—Benguella, Angola (F. O. Wellman). U.S. National Museum. Three males and one female.

*Tricyclea bivittata*, Curran.

I have before me one female specimen which I refer here with some doubt. The specimen agrees very well with the original description, but the mesonotum shows only very faint traces of two dark dorsal vittæ anteriorly and has no dark pleural marks, while *bivittata* is described as having two broad mesonotal vittæ and a dark mark on the hypopleura. Curran's figure of the wing\* agrees very well with the wing of the specimen now before me, but he shows no suffusion in the costal cell, whereas in my specimen there is a brownish tinge present which fades out basally.

*Locality*.—Bap, Sierre Leone, 22. xi. 1924 (E. Hargreaves).

*Tricyclea spiniceps*, sp. n.

*Male and female*.—Testaceous-yellow, with the following parts black: upper half of occiput, posterior third or more of frontal orbits, the vertex, mesonotum except lateral margins, postnotum, a mark on hypopleura, an apical fascia on second, and another on third, visible tergite, which are widest at middle and do not extend to the lateral extremities, and a transverse mark on each side at apex of fourth visible tergite; upper portion of interfrontalia and a line on each side at apex of first visible abdominal tergite brown. Costa of wing with a conspicuous brown cloud which is rather faint basad of apex of auxiliary vein and extends over field

\* Ann. & Mag. Nat. Hist. (9) xix. p. 523 (1927).

of wing almost to third vein on most of its extent. There is sometimes a subhyaline streak along costal vein beyond apex of first vein.

Frons of male fully three times as wide at narrowest point as distance across posterior ocelli, orbits quite strongly bristled on their entire length, four verticals present in female but the outer pair lacking in the male; parafacial with one or two series of rather long black hairs on more than the upper halves; two or three of the bristles close to middle of the facial ridges almost as long as the longest hairs on arista; cheeks black-haired; palpi but slightly club-shaped in both sexes. Acrostichals 3+3, dorsocentrals 2+4, sternopleurals 1+1. Fifth abdominal sternite of male blackened apically, seen in profile as in fig. 2. Fore tibia with two anterodorsal and one posterior bristle; mid-tibia as usual; hind tibia with one posterodorsal and two anterodorsal bristles. Third vein setulose to, or almost to,

Fig. 2.



*Tricyclea spiniceps*, fifth sternite of male in profile.

inner cross-vein, the latter situated close to middle of the discal cell.

Length 7-8 mm.

*Type*, male, allotype, and one female paratype, Buea, Kamerun (*C. Bigge*). Hamburg State Zoological Museum.

A female specimen agreeing with the others in all particulars, but with the sternopleurals 1+1+1 is probably the same species, but more material is required to determine this. Same locality and collector.

### *Tricyclea fasciata*, Macquart.

In his paper on the genus\*, Curran described *unipuncta*, a new species, which in his subsequent paper on the Diptera of the Belgian Congo† he distinguished from *fasciata* on certain characters in his key.

It may be that there are two species, but before me there

\* Ann. & Mag. Nat. Hist. (9) xix. p. 513 (1927).

† Bull. Amer. Mus. Nat. Hist. lvii. art. 6, p. 365 (1928).

are two females and one male which appear to disagree with his stipulations for either species. The male has the costal cloud beginning at apex of first vein, as he says it should in *fasciata*, but the palpi are not wider than the third antennal segment, whereas if he is correct these should be broader than the third antennal segment. The females have the costal cloud beginning beyond the apex of first vein, as in Curran's figure of the wing of *unipuncta*, though not so far as there shown, but the palpi are fully as wide as the third antennal segment, whereas he states that these in *unipuncta* are narrower than that segment. I suspect that the palpi are wider and the costal cloud less extensive as a rule in the female than in the male in the genus. I accept the male before me as *fasciata*, Macquart.

*Locality*.—Entebbe, Uganda, 10. iii. 1911 (C. C. Gowdey).

*Tricyclea unipuncta*, Curran.

The two females mentioned above are referred rather doubtfully to *unipuncta*. The disc of the mesonotum is much less extensively darkened than described by Curran, and the hairs on the cheek are all, or almost all, yellow. If, as suggested above, the palpi are broader in the female than in the male, which is certainly the case in some of the other species of the genus, this discrepancy in the description is explained, but a series of each form is essential to the determination of their specific status.

*Localities*.—Durban, Natal, 3. viii. 1919 (A. L. Bevis); Bellair, Natal, 6. i. 1919 (E. C. Chubb). Durban Museum.

*Tricyclea evanida*, Villeneuve.

This species is quite similar in general habitus and coloration to the male *fasciata*, Macquart, but the wings are entirely hyaline. In the male the frons is not as wide as third antennal segment, the orbits have setulæ on the anterior halves which become rapidly shorter and weaker to middle, the parafacial and genal hairs are pale, and the palpi are only slightly widened and much narrower than in the female. The disc of mesonotum is more broadly blackened than in the female.

Originally described from the female only.

*Locality*.—Benguella, Angola (F. C. Wellman). U.S. National Museum.

*Tricyclea analis*, sp. n.

*Male*.—Similar in coloration to *evanida*, but the parafacial

and genal hairs are black, and the abdominal markings on the second and third visible tergites are much more extensive, that on the second consisting of an entire, rather broad, median stripe which connects with a broad apical fascia, and the third tergite being entirely black on its exposed dorsal surface except a narrow apical pale fascia, the black markings extending beyond the curve but not to lateral margins; the fourth tergite lacks black marks.

Structurally the species are very similar in all particulars, but the frons is even narrower in  *analis*  than in  *evanida* , and the hairs on parafacials and cheeks are stronger.

Length 7 mm.

*Type*, and two male paratypes, Benguella, Angola (*F. C. Wellman*). U.S. National Museum.

*Tricyclea diffusa*, sp. n.

*Male*.—Head testaceous, upper half of occiput and the ocellar triangle black; parafacial and genal hairs black. Thorax testaceous, mesonotum shining fuscous, with slight grey dusting which does not disclose vittæ, humeral angles testaceous, scutellum hardly paler at apex than on disc; pleuræ clouded on some of the sclerites, most of their hairs black. Abdomen shining testaceous, with the following black marks: a broken line on apex of first visible tergite, a broad black fascia on apex of second, and another on third which are widest in middle, and a medially interrupted fascia on fourth; apices of processes of fifth sternite broadly black. Legs yellow. Wings greyish hyaline, with a brown cloud on costa which begins at middle of costal cell and extends to apex of second vein, as it passes on to the field of the wing it becomes fainter and does not reach third vein except at inner cross-vein where it connects with a diffuse cloud over that vein. Calyptræ brownish, margins fuscous.

Frons reduced to a mere line above, anterior half of each orbit setulose, the setulæ becoming short and weak posteriorly; eye-facets not exceptionally enlarged above; parafacials much narrower than third antennal segment, with some fine short blackish hairs above; each facial ridge with about six bristles on lower half or more, the longest of which is as long as the longest hairs on the arista; palpi slightly club-shaped. Thorax with three bristles on lateral presutural area, the other armature as in *fasciata*. Bristles on apices of second and third visible tergites and on the disc of fourth short and fine, those on apex of fourth long and strong; processes of fifth sternite broad, straight on



lower margins, broadly rounded at apices, with rather dense, very short hairs along inner margins, and numerous hairs and bristles on disc, longer and shorter apically. Antero-dorsal setulæ on fore tibia very weak, two in number; mid-tibia without a ventral bristle; hind tibia with two bristles and some long setulose hairs on anterodorsal surface, no other bristles present. Third wing-vein setulose to beyond inner cross-vein on upper side, to about midway from base to that vein below.

Length 7.5 mm.

*Type*, Amani, German East Africa, January 1908 (*J. Vosseler*). Hamburg State Zoological Museum.

*Tricyclea palliventris*, Curran.

A female specimen referable here is the darkest-coloured specimen I have seen belonging to this genus, quite closely resembling certain grey species of *Rhyncomyia* in general appearance.

*Locality*.—Gatooma, S. Rhodesia, ii. 1928, No. 2167 (*A. Cuthbertson*).

Genus *HEMIGYMNOCÆTA*, Corti.

This genus was described in 1895 and redescribed and figured by Surcouf in 1920. There are two apparent synonyms, *Auchmeromyiella*, Townsend 1918, and *Tricyclodes*, Curran 1927. I believe there will be no difficulty experienced in segregating this genus by means of the key to the genera of Calliphorinæ which I published in the preceding paper in this series. The species are largely yellow in colour, and the genus is exclusively African. The lack of hairs on centre of propleura, and the narrow rounded lower calypter, which is without an inner lobe and distinctly removed from lateral basal angle of scutellum, readily distinguish the species from those of the preceding genus.

Curran has in some recent papers, already referred to herein, included three species in *Tricyclodes*, one of which, *difficilis*, Curran, I consider is synonymous with *lutea*, Corti, the genotype of *Hemigymnochæta*. Whether Curran is correct in placing *Tricyclea verticella*, Villeneuve, in this genus I cannot determine, as the species is unknown to me, but I assume he had data upon which he based his decision.

I have several species before me at this time, including examples of *pallens*, Curran, and *difficilis*, Curran, which were given to me by their describer. I have also examined

the specimens standing as *angola*, Townsend, in the United States National Museum, and report below on my findings in regard to this species.

*Hemigymnochæta angola* (Townsend).

In the original series named thus there are two distinct species, the type-specimen belonging to that subsequently described as *pallens* by Curran, the dark vittæ being quite evident. The other specimens have but three pairs of postsutural dorsocentral bristles, a distinction which Townsend unaccountably overlooked. I can see no differences between the Townsend type and the example of *pallens*, Curran, now before me.

Townsend's type is from Benguella, Angola (F. C. Wellman).

(?) *Hemigymnochæta verticella*, Villeneuve.

I rather doubt the generic assignment of this species made by Curran in his paper on the Belgian Congo Diptera already referred to herein. The species has the costal markings similar to certain species of *Tricyclea*, and though Villeneuve has stated that there are three pairs of postsutural dorsocentral bristles in his type, it is rather evident from his wording that the example was aberrant, and possibly the normal number in the species is four pairs. All species of *Hemigymnochæta* known to me have the wings entirely hyaline.

I have not seen this species.

*Hemigymnochæta* species.

I have in my hands some material which at present I am not satisfied to identify specifically. There are some external

Fig. 3.



*Hemigymnochæta* sp. Hypopygium of male from Salisbury, S. Rhodesia, in which the eye-facets are very large above.

structural characters present which ought to be sufficient to justify specific separation, but the genital characters do not

bear out these as specific criteria. Later on I hope to be able to establish definitely the status of the specimens and publish my conclusions regarding them. In fig. 3 is shown the genital characters of the male of a species with three pairs of postsutural dorsocentrals, one form having large and the other small eye-facets.

### Family Tachinidæ.

#### Genus HERMYIA, Robineau-Desvoidy.

I consider that *Orectocera*, van der Wulp, is the same as *Hermyia*. A peculiarity of the genus is the almost complete obliteration of the median portions of the tergal sutures of the abdomen.

#### *Hermyia diabolus* (Wiedemann).

I have before me a male of this species. It is extremely closely related to *beelzebul* (Wiedemann), from the Orient, but the narrow submedian black thoracic vittæ do not extend much beyond suture, whereas in the other species they extend to almost midway between the suture and the hind margin of the mesonotum; the calyptræ in *diabolus* are entirely fuscous, while in *beelzebul* they are white, with a narrow fuscous margin to the lower one, and in the former the wings are not so uniformly fuscous as in the Oriental species.

*Locality*.—Salisbury, S. Rhodesia, 3. iv. 1927, No. 93, swept from the long grass at R. Makabusi (*A. Cuthbertson*).

#### *Hermyia beelzebul* (Wiedemann).

Three male specimens before me were used in making the above comparisons.

*Localities*.—Pahang, F.M.S., Lubok Tamang, 3500 feet, 24. vi. 1923; Khao Luang, Nakon Sri Tamarat, Peninsular Siam, 5800 feet, 4. iv. 1922; Selangor, Bukit Kutu, 3500 feet, 17. iv. 1926, all taken by *H. M. Pendlebury*.

A female, which is rather greasy, appears to belong to this species, as the cheeks are yellow, but the facial colour is not determinable.

*Locality*.—Perak, F.M.S., Batang Padang, Jor Camp, 1800 feet, 6. vi. 1923 (*H. M. Pendlebury*).

#### *Hermyia micans*, van der Wulp.

A smaller species than the preceding one, with uniformly blackish wings and white calyptræ as in that species. The

face and cheeks are silvery white and not yellow-dusted, and the abdomen has a much more evident grey-dusted dorso-central vitta, so that when seen from behind the dorsum has the appearance of having a pair of large subtriangular black marks on each tergite.

*Locality*.—Selangor, F.M.S., Kuala Lumpur, three males, 2. i. 1922, 12. vii. 1921, and 10. ix. 1922 (*H. M. Pendlebury*).

*Hermymia ditissima* (Speiser).

This species is readily distinguished from the others by the rufous abdomen, which is grey-dusted on the sides, and has a brownish dorsocentral vitta.

An African species not seen by me.

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LXVII.—*Note on the "Tea-tree Itch-mite"* (*Trombicula hirsti*, *Sambon*=*T. pseudo-akamushi*, *Hatori*?) \*. By STANLEY HIRST, Zoological Department, University of Adelaide, South Australia.

IN the south-eastern part of South Australia, especially in the coastal districts from Kingston to Robe, a larval form of mite occurs which is the source of much annoyance to human beings. It is very abundant during the summer months, especially January. Owing to the fact that this mite is usually met with near tea-trees, it is often called "the tea-tree mite," and the irritation set up by it is known as "tea-tree itch." The mite is encountered amongst the undergrowth in the tea-tree scrub, especially in marshy places along the salt lagoons of the Coorong. Besides attacking man, it also molests horses when grazing in the scrub.

During a recent visit to Robe (Dec. 3rd-6th, 1928) the author collected numerous specimens of this mite. This is easily done, for one has only to lie under or near tea-trees in the infested locality and the mite can soon be seen as a minute pale reddish speck moving actively on boots and clothing. Owing to its pale coloration the mite is very visible on a dark surface. The inhabitants of Robe call this mite "red spider." It appears to be identical with the form causing "scrub itch" in North Queensland. This species has been described by Dr. Louis Sambon under the name

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