

wiederzusehen, um ihm Grüße zu überbringen von seinem Liegnitzer Kollegen — Theodor Becker — — —

So manchem Entomologen ist ein Denkmal gesetzt worden, sehr wenigen aber wohl ein größeres als Eugen Amandus Schwarz durch die Worte von L. O. Howard: „What has made the Entomological Society of Washington valuable to us beyond all other organizations has been the constant presence and participation in its discussions of Eugene A. Schwarz“.

## Fauna Sumatrensis.

(Beitrag No. 56).

### Family *Muscidae* (Dipt.).

By J. R. Malloch, Washington D. C.

(with 3 Figures)

(Schluß)

Head as in *varia* Meigen; each orbit with four bristles. Thorax normal. Apical abdominal protuberance seen from behind with three processes above and two below (Fig. 2a and 2b, p. 299), the central upper one shortest, seen from the side with the upper process longer than the lower one. Legs as in *varia*, but there are a few rather long irregular erect hairs on upper side of second to fourth segments of fore tarsi that are not present in that species. Inner cross vein of wing at about one-third from base of discal cell; fourth vein hardly curved forward apically. — Length, 3 mm.

Type, Gunung Singgalang, west coast of Sumatra, 1800 m, 1925.

There are several species in which the apical abdominal prominence is tridentate, and of these two occur in the Oriental region, *dentifera* Malloch and *atripalpis* Malloch, but both of these species have the palpi black and differ in other respects from *tridens*. There is also an African species, *tridentata* Malloch, which has the same type of abdominal process, but in it the palpi are black, the abdomen is black at base and bright yellow at apex, and the legs are largely black, only the extreme apices of femora and the bases of tibiae being yellow.

I am unable to identify the female of this species amongst the material here.

### *Atherigona exigua* Stein.

I have several specimens of both sexes of this species before me which agree in all particulars with the types, with which I have compared them.

Locality, Fort de Kock, 1925.

Originally described from the East Indies. The type specimen of the male is from Singapore, Straits Settlements, and I have seen it also from Java.

Key to the Species.

1. Males . . . . . 2
- Females . . . . . 14
2. Fore femur with a distinct concavity above near apex, quite conspicuously attenuated before tip . . . . . 3
- Fore femur gradually tapered from middle to apex, without a dorsal concavity or depression on dorsal surface near apex . . . . . 6
3. Thoracic dorsum with three conspicuous black vittae which connect with the black disc of scutellum; fore tibia with three or four long setulose hairs at apex on anterior side, and the fore tarsus with about as long hairs on anterior side of basal segment, apical two segments of fore tarsus conspicuously thickened; wing with a conspicuous fuscous apical spot . . . . . *jacobsoni* sp. n.
- Thoracic dorsum less conspicuously vittate, the vittae not connected with a black discal spot on scutellum; other characters not as above; wing unspotted . . . . . 4
4. Palpi black or fuscous; fore tarsi without fine erect hairs  
*excisa* Thomson
- Palpi yellow . . . . . 5
5. Fore femur without a minute curved black spine at apex above thoracic dorsum indistinctly vittate, the lateral vittae not continued over sides of scutellum; hind tibiae and femora normal  
*excisa* var. *flavipalpis* nov.
- Fore femur with a minute black curved thorn at apex above; thoracic dorsum rather conspicuously vittate, the lateral vittae continued over sides of scutellum to about middle; hind tibia on basal half and hind femur on apical half with a knife-like ventral carina  
*crassiseta* Stein
6. Upper half of frontal orbits glossy black or distinctly shining . 7
- Entire frontal orbits dull, grey dusted . . . . . 9
7. Fore tibia with about three long setulose hairs at apex below; fore tarsus slender, with some long hairs on posterior side of basal segment and one at apex of third segment on anterior side; apical abdominal prominence almost bulbous, with a very small central protuberance (Fig. 3 a and 3 b); basal two antennal segments yellow.  
*orbitalis* sp. n.
- Fore tibia with a short, moderately strong, bristle at apex below; fore tarsus without outstanding hairs; antennae black . . . . . 8

- 8. Fore tarsus slender, black, apical one or two segments distinctly yellowish; apical abdominal prominence similar to that of *orbitalis*, but without a central protuberance, and with a slight angle on each lower lateral side . . . . . *confusa* sp. n.
- Fore tarsus entirely black, distinctly compressed and widened basally; apical abdominal prominence short and flat, with a short process on each posterior lateral angle . . . . . *laeta* Wiedemann
- 9. Palpi black, sometimes whitish at apices below . . . . . 10
- Palpi yellow, sometimes slightly darkened at extreme bases. . . . . 11
- 10. Each of the two divergent upwardly curved slender processes of the apical abdominal prominence at least as long as the third segment of hind tarsus (Fig. 1 a and 1 b), some erect fine hairs along posterior side of fore tarsus . . . . . *unguicauda* sp. n.
- Processes of apical abdominal prominence short, straight, and divergent from bases; no erect fine hairs of fore tarsus.

*bituberculata* Malloch

- 11. Apical abdominal prominence simply knob-like . . . *confusa* sp. n.
- Apical abdominal prominence branched or tuberculate at apex . 12
- 12. Apical abdominal prominence with the lateral processes directed upward, and with a much shorter process between them, so that when viewed from above it is tridentate (Fig. 2 a and 2 b); inner cross vein very little over one-third from base of discal cell.

*tridens* sp. n.

- Apical abdominal prominence with the apical processes directed laterad or obliquely backward, and with no central process between them; inner cross vein distinctly over one-third from base of discal cell . . . . . 13
- 13. Apical abdominal prominence with a rather sharp process on each posterior angle which projects almost straight laterad . *exigua* Stein
- Apical abdominal prominence with a pair of short blunt-tipped processes which project outward and backward . *bituberculata* Malloch
- 14. Thoracic dorsum with three conspicuous deep black vittae which connect with one or two black marks on the scutellum . . . 15
- Thoracic dorsum either not at all or inconspicuously vittate, if vittae are present they are not connected with black scutellar markings . 17
- 15. Dorsal vittae on thorax all connected with a large black mark occupying entire scutellum except a narrow lateral and apical margin; fore femora, all tarsi, and the tibiae except their bases, black . .

*jabobsoni* sp. n.

- Lateral dorsal thoracic vittae connected with a black mark on each lateral basal angle of scutellum, the central one not continued beyond hind margin of mesonotum . . . . . 16

16. Legs including coxae yellow, fore femora, all tarsi, and fore tibiae except bases, black; scutellum with four bristles on disc near apex the outer two longest and wider apart than apical marginal bristles.  
*crassiseta* Stein  
 — Legs black, trochanters and bases of all tibiae yellow; scutellum with two bristles on disc near apex which are over one-third as long as apical marginal pair and not wider apart than these.  
*dorsovittata* sp. n.
17. Frontal orbits glossy black, or at least distinctly shining, and not at all or very slightly grey dusted; hind tibiae infuscated . . . 18  
 — Frontal orbits densely grey dusted and not shining, or if faintly shining, and but slightly grey dusted, the hind tibiae are yellow. 19
20. Fore tibiae and tarsi entirely black, the former thickened apically, the tarsi thickened basally, the basal segment as wide as apex of tibia; fore femora not, or very slightly, darkened at apices.  
*laeta* Wiedemann  
 — Fore tibiae, tarsi, and apices of femora, black, tibiae thickened apically, tarsi not thickened, basal segment much thinner than apex of tibia . . . . . 21
21. Fore femora blackened at apices only; palpi yellow or brown.  
*orbitalis* sp. n.  
 — Fore femora entirely black; palpi black . . . . . sp.?
22. All tibiae blackened, yellow only at bases; thoracic dorsum with three conspicuous black vittae, the median one narrowest, the laterals not extending over scutellum, the latter brownish in centre at base; stigmal bristle reduced to a very fine short hair . . . . . sp.?  
 — At least the mid tibiae entirely yellow . . . . . 23
23. Palpi yellow . . . . . 24  
 — Palpi black or fuscous . . . . . spp.?
24. Orbits slightly shining; not more than the apical half of fore femur black . . . . . *confusa* sp. n.  
 — Orbits entirely dull, and densely pale grey dusted . . . . . spp.?

N. B. It is not possible to make certain of the identity of the females of some of the species in the above key, and two of them appear to represent species new to science of which the males are not amongst the present material. The latter I prefer to leave without specific names pending receipt of the males.

#### Genus *Phaonia* Robineau-Desvoidy.

This genus is most numerously represented in Europe and North America, with a smaller representation in South America, about half a

dozen species in Africa, and only two in Australia so far as known. There is only one species recorded from the Nederland Indies.

*Phaonia sumatrana* sp. n.

Male. — A robust species, with much the same appearance as *Mydaea pagana* Fabr., but the thoracic dorsum inconspicuously though distinctly vittate, and the scutellum only a little more evidently yellow than remainder of thorax. Antennae and palpi black. Abdomen densely yellowish grey dusted, with a very faint dark dorsocentral line. Legs yellow, bases of coxae and all of femora black. Wings hyaline, yellow at bases. Calyptrae and halteres yellow.

Eyes rather conspicuously haired; frons almost linear at middle; arista plumose; palpi slender; cheek about three times as high as width of third antennal segment. Thorax with 2 + 3 dorsocentrals; prealar moderately long; sternopleurals 1 + 2; hypopleura haired above in front of spiracle; sides of scutellum bare. Abdomen short ovate, tergites with apical bristles which are long and slender, absent on middle portion of first, the fourth with a discal series; basal sternite haired. Fore tarsus without fine sensory hairs except at apices of segments: fore tibia without a median bristle; mid-femur with four or five posteroventral bristles on basal half; mid tibia with two posterior bristles; hind femur with a series of short anteroventral bristles, the apical two or three longer; hind tibia with two anterodorsal and two anteroventral bristles, the calcar short and well beyond middle. Inner cross vein a little beyond middle of discal cell. — Length. 8 mm.

Type, Gunung Singgalang, west coast of Sumatra, 1000 m, July 1925. The only other species recorded from Sumatra is *nepenthicola* Stein, but it has the eyes bare, and differs in other characters.

Genus *Eumyiopsila* Malloch.

This genus is distinguished from *Helina* Robineau-Desvoidy by the presence of setulose hairs at base of third wing vein both above and below. There are two species belonging to this genus before me from Sumatra.

*Eumyiopsila spinifemorata* Malloch.

Three specimens included as paratypes in the original description do not agree absolutely with the Philippine type specimen. Localities, Fort de Kock and Tandjunggadang.

*Eumyiopsila pellucida* Stein.

I did not include this species in my revision of the genus presented a few years ago in the Philippine Journal of Science. It differs from the one above listed in having only three well developed pairs of dorso-

central bristles on the postsutural area of thorax, the anterior (or fourth) pair represented by a pair of very short fine hairs; the tarsi and coxae yellow; the abdomen not noticeably shining, with smaller dorsal dark spots, with dark dots at bases of the transverse discal bristles on fourth tergite, and the apex of that tergite not paler than remainder of surface.

Locality, Fort de Kock, 1925. One specimen bears the record 'Larva in inflorescence of Scitamineae'. Ten specimens. Originally described from New Guinea, and placed in the genus *Mydaea* R.-D. Stein subsequently recorded it from Java (1909) and Sumatra (1919).

*Helina sumatrana* sp. n.

Female. — Head black, white dusted; antennae fuscous, second segment and base of arista yellowish; palpi fuscous. Thorax honey yellow, broadly blackened on dorsum, the black portion grey dusted, the usual vittae inconspicuous; pleura broadly fuscous on all sclerites; scutellum black only in centre below; metanotum fuscous. Abdomen yellow at extreme base, and in centre of apex of fourth tergite. Legs including coxae honey yellow, tarsi black. Wings hyaline, yellowish anteriorly, veins brown, yellow at bases. Calyptrae and halteres yellow.

Frons not one-fourth of the head width at vertex, widened anteriorly; third antennal segment fully three times as long as second; arista plumose; palpi slightly club-shaped; eyes almost bare. Thorax with 2 + 4 dorsocentrals; prealar long; both pairs of intra-alars present; scutellum bare on sides and below; sternopleurals 1 + 2; hypopleura with some hairs on upper margin in front and along lower margin of spiracle. Abdomen ovate, bristles on apex and middle of fourth and median portion of apex of third tergite weak. Fore tibia without a median posterior bristle; mid tibia without a distinct anterior median bristle, and with three posterior bristles; hind femur with rather strong bristles on apical half of anteroventral surface and fine setulae on basal two-thirds of posteroventral surface; hind tibia with two anterodorsal and about three short fine anteroventral bristles, the posterodorsal setulae as distinct as the latter. Venation normal for the genus. — Length, 7 mm.

Type, Fort de Kock, 1925. — This species runs to *dolosa* Stein in the key to the species of the genus *Mydaea* from the Orient published in 1918 by Stein, but differs from the description of that species in many respects. The most striking characters of *sumatrana* are the colour of the scutellum and hairing of the hypopleura. It is possible that *dolosa* Stein is a *Dichaetomyia* but I cannot say definitely as I have not seen it.

*Helina hirtifemorata* Malloch.

This species belongs to the same group as *duplicata* Meigen having the sternopleural bristles 2 + 2, the thorax and abdomen black, the latter

with paired black dorsal spots, and the legs black. The postsutural dorsocentrals are in four pairs, and the hind femora of the male are furnished with many long setulose hairs on the ventral surfaces, especially noticeable basally: Locality, Gunung Singgalang, West coast of Sumatra, 1800 m, 1925 Two specimens. Originally described from the island of Luzon in the Philippines.

*Helina mindanaensis* Malloch.

A smaller species than the foregoing one, with only three postsutural pairs of dorsocentrals, the tibiae yellowish, inner cross vein and apex of auxiliary vein of wing infuscated, and no long setulose hairs on ventral surfaces of hind femora basally. Locality, Fort de Kock, 1925, Nineteen specimens. Originally described from Mindanao in the Philippines. Possibly the same as *Mydaea nervosa* Stein, described from Java.

*Helina duplex* Stein.

One male evidently of this species is very similar to the above one, but the femora are entirely black and the tibiae are also black except narrowly at bases. The cross veins of wings are not clouded. The hind tibia has a short posterodorsal hair: Locality, Fort de Kock, 1925. One male.

*Helina coronata* Stein.

A large species, with a superficial resemblance to certain species of the genus *Dichaetomyia*. The thorax is testaceous yellow, with the mesonotum except the lateral margins fuscous, grey dusted, and distinctly vittate; the abdomen is entirely black, densely drab grey dusted, and unspotted. The antennae are fuscous, with the apex of second segment and base of third yellow; palpi black. Legs yellow, tarsi black. Wings greyish hyaline, yellow at bases.

Frons of male linear; eyes pubescent; arista plumose. Thorax with 2 + 3 pairs of dorsocentral bristles, two long intra-alars, the anterior one in transverse line with the anterior postsutural dorsocentrals; scutellum with a few hairs on lower edges of sides; sternopleurals 1 + 2; hypopleura haired above in front and on disc. Fore tibia without a median posterior bristle. Tergal bristles long and strong. — Length, 8 – 10 mm.

Locality, Gunung Singgalang, west coast of Sumatra, 1000 m, 1925. — The number of species of the genus *Helina* occurring in the Orient is comparatively small, most of those referred to *Mydaea* by Stein belonging to *Dichaetomyia*. The great majority of those referred to *Mydaea* in Europe by the same author belong to *Helina* though some are true *Mydaeae*.

Genus *Pictia* Malloch.

This genus was recently erected for the reception of an Oriental species.

*Pictia xanthoceros* Walker.

Locality, Fort de Kock, 1925. Three specimens. The species is amongst my material also from the Philippine Islands and the Federated Malay States.

Genus *Xenosina* Malloch.*Xenosina pudica* Stein.

Locality, Fort de Kock, 1925. Eleven specimens.

*Xenosina pudica* var. *rufomarginata* Malloch.

Locality, Fort de Kock, 1925. Five specimens.

Genus *Dichaetomyia* Malloch.

This genus as at present limited is more numerously represented in the Orient than any other in the Muscidae. There are many segregates which might possibly be considered as entitled to at least sub-generic distinction, but the general habitus of the species is so similar, and there is so much yet to learn regarding them, that I am not inclined to make any definite declaration as to named segregates at this time.

I have in preparation a key to the species known to me which occur in Sumatra, Java, the Philippines, and the Federated Malay States, but there are so many species which are yet undescribed that I can not include it in this paper. Consequently I am including herein only descriptions of some Sumatran species with notes on some others already described which occur in the island. The outstanding group characters which occur in the species are mentioned in the descriptions. These consist of hairs or setulae on certain sections of the wing veins, and on the metanotum.

*Dichaetomyia pilinervis* sp. n.

Male. — Head fuscous, lower margin of face and the facial ridges yellowish, antennae brown, yellowish at apex of second and on base of third segment; palpi fuscous. Thorax fulvous yellow, dorsum with three broad fuscous vittae which become evanescent posteriorly, the central one filling nearly all the area between the dorsocentrals, its central portion as well as the pale stripes along lines of dorsocentrals showing whitish dusting when seen from behind; pleura with a spot below base of wing, and lower parts of sternopleura and hypopleura, fuscous; metanotum fuscous. Abdomen largely glossy black, most of first tergite, and apex of fourth, honey yellow. Legs fulvous yellow, tarsi fuscous. Wings yellowish hyaline. Calyptrae and halteres fulvous yellow.

Frons linear in middle; orbits setulose on anterior halves, and with one or two fine short hairs near anterior ocellus; parafacial almost invisible from side. Thorax with 2 + 3 pairs of strong dorsocentrals; the black erect hairs below lower calypter encroaching very slightly on supra-spiracular convexity; postalar declivity with a few microscopic pale soft hairs; hypopleura haired below spiracle; metasternum haired. Abdomen ovate, tergal bristles rather strong. Fore femur with a series of short bristles on apical third of anteroventral surface; fore tibia without a median posterior bristle; mid femur without a preapical comb; mid tibia with two posterior bristles; hind femur with fine short anteroventral and posteroventral bristles, strong at apices on both surfaces; hind tibia with one anterodorsal and three or four anteroventral bristles. Basal section of stem vein of wing with a series of short soft hairs on hind side, and some on lower surface of wing behind same section.

Female. — Similar to male, but third antennal segment paler, and no fore femoral comb of anteroventral bristles present. — Length, male, 6.5 mm, female, 5.5 mm.

Type, male, Pahang, Federated Malay States, Cameron's Highlands, 4800 feet, March 11, 1924 (H. M. Pendlebury); allotype, Fort de Koek, Sumatra, 920 m, 1925. — The presence of fine hairs on the hind side of basal section of stem vein of wing on upper surface is peculiar to this species and *setifemur* so far as I have seen. This is a character that is considered of subfamily value in the family Calliphoridae, but it is obviously merely adventitious here and I am not inclined to accept it as of even subgeneric value in *Dichaetomyia* without a recurrence of it in a number of other species.

*Dichaetomyia sumatrana* sp. n.

Female. — Head black, with white dusting, that on the orbits and parafacials silvery, epistome and facial ridges white; frontal lunule and entire antennae pale yellow; arista yellow at bases, elsewhere brownish; palpi black. Thorax honey yellow, dorsum seen from behind with two broad submedian black vittae which have silvery white dust between and laterad of them in front of suture, the usual sublateral vittae but little deeper in colour than ground colour of thorax; pleura with a small dark mark below base of wing; metanotum dark centrally. Abdomen concolorous with thorax, shining, with a broad deep black mark on second tergite, all of dorsum of third and fourth except the apex of latter deep black. Legs honey yellow, hind tibiae brown; tarsi fuscous. Wings brownish hyaline, noticeably darker along costa beyond apex of first vein. Calyptrae and halteres honey yellow.

Frons at vertex less than one-fourth, at anterior margin one-third,

of the head width; third antennal segment fully four times as long as second; face flat; facial ridges bare except just above vibrissae; palpi long and club-shaped; bristles and hairs of occiput except the marginal series yellow. Thorax with 2+3 pairs of strong dorsocentrals, both pairs of intra-alars strong prealar of moderate length; humeral hairs below and most of the pleural hairs yellow; the hairs on metathorax below lower calypter, on upper edge of convexity, and those on disc and lower posterior angle of hypopleura, difficult to see because of their pale colour; scutellar hairs descending a little below bristles. Abdomen ovate. Fore tibia without a median posterior bristle; fore tarsus with segments 3 to 5 slightly but distinctly broader than basal two; mid femur without long ventral bristles, and with a preapical semicircle of strong bristles above; mid tibia with two posterior bristles; hind femur with some anteroventral bristles on apical third; hind tibia with one anterodorsal and two anteroventral bristles. Stem vein of wing with some fine pale hairs below on basal section up to humeral vein; fourth vein very slightly bent forward apically. — Length, 11 mm.

Type, Fort de Kock, 1925. — A large robust species which superficially resembles some of those in the genus *Alluaudinella* Giglio-Tos. Stein's species *latitarsis* has the fore tarsus in the female distinctly broadened much as has this one.

#### *Dichaetomyia pallitarsis* Stein.

This shining black species has the antennae fuscous, with second segment yellowish, palpi black, thoracic dorsum faintly vittate in front of suture, humeri yellowish, abdomen entirely black, femora black, tibiae and tarsi yellowish, knobs of halteres fuscous, and wings yellowish hyaline.

It is one of two species of the genus known to me in which the frons of the male is about one-fourth of the head width, the other species being African. The anterior pair of presutural and the anterior two pairs of postsutural dorsocentrals are very small, the posterior median bristle on fore tibia and the second one from base on anterodorsal surface of hind tibia are stronger than usual, as are also the costal setulae and the costal thorn. There are some hairs below lower calypter and on base of stem vein below, and the fourth vein is almost straight. — Length, 6—7 mm.

Locality, Fort de Kock, 1925. One male and two females.

#### *Dichaetomyia laeviventris* Stein.

A black species with entirely fulvous yellow legs. Antennae black, second segment and base of third yellow; palpi black. Thoracic dorsum rather faintly quadrivittate, grey dusted, humeri, propleura, and scutellum,

largely testaceous yellow. Abdomen entirely black, but faintly dusted, and almost glossy. Bases of wings, calyptrae, and halteres, orange, yellow.

Frons of male linear. Dorsocentrals 2 + 3, both intra-alar strong; scutellum with some very fine microscopic hairs on ventral surface, no hairs below lower calypter, hypopleura with some fine hairs on lower posterior angle. Fore tibia without a median posterior bristle; hind femur with a series of anteroventral bristles which are much shorter basally, and some fine posteroventral bristles on basal half or more. Some dark hairs in hollow on under side of basal section of stem vein of wing. — Length, 7 mm.

Localities, Fort de Kock, Gunung Singgalang and Tandjungadang, west coast of Sumatra, 1925. Originally described from Formosa and subsequently recorded by Stein from Sumatra. — I have before me an aberrant specimen from Formosa which has a well developed posterior median bristle on the fore tibia, but in other respects it is typical.

#### *Dichaetomyia ruficoxa* Stein.

This species belongs to the group in which the fore femora are armed with some stout bristles or spines on apical third of their anteroventral surfaces. The hind femora are also furnished in this species with some closely placed short bristles at apices of posteroventral surface. The antennae are entirely yellow, and the palpi are brownish at bases and yellowish at apices. Thorax black, humeri, lateral margins of mesonotum, and the entire scutellum, testaceous yellow. Basal half of abdomen yellow, apical half black. Legs rufous yellow, femora almost entirely black; tarsi fuscous. Wings brownish hyaline, not paler at bases. Calyptrae and halteres dull yellow.

Frons of male almost linear. Thorax with 2 + 3 dorsocentrals, anterior intra-alar short, scutellum bare on sides and below, some black hairs below lower calypter and on lower posterior angle of hypopleura. A few microscopic fine hairs in hollow on under surface of basal section of stem vein. Fore tibia without a median posterior bristle. — Length, 7 mm.

Locality, Anai Kloof, west coast of Sumatra, 500 m, 1926.

#### *Dichaetomyia semimutata* Stein.

This species is extremely like *ruficoxa*, but the male before me has the abdomen entirely shining black, the fore tarsi almost as pale as the fore tibiae, and only the extreme apex of the scutellum yellowish. — I have not seen this species from Sumatra, but it possibly occurs there. My only specimen is from the Philippine Islands. The species was originally described from a specimen supposed to be from Sulu in the Philippines.

*Dichaetomyia setifemur* sp. n.

Male. — Head black, sides of face and facial ridges testaceous yellow, orbits, face, and cheeks, densely white dusted, almost silvery; antennae and palpi yellow, the latter darkened at bases. Thorax shining fulvous yellow, mesonotum broadly black, with three white dusted vittae which divide the dark portion into four vittae; a small dark spot on pleura below wing base; metanotum fuscous in centre. Abdomen glossy black, basal segment partly, and fourth visible tergite at apex, yellow. Legs fulvous yellow, tarsi black. Wings brownish hyaline, veins yellow at bases. Calypterae and halteres fulvous yellow.

Frons linear; palpi slender. Thorax with 2 + 3 pairs of dorsocentrals, both intra-alars strong, some short yellow hairs on postalar declivity, some black hairs on metanotum below lower calypter, and some on lower posterior angle of hypopleura, the prosternal hairs yellow, and sides and ventral surface of scutellum without hairs. Abdomen ovate, bristles exceptionally strong and more numerous than usual on sides of all tergites; fifth sternite with a broad V-shaped apical excision. Fore femur with more than the apical third of anteroventral surface furnished with rather short stout black bristles; fore tibia without a median posterior bristle; mid femur with rather shorter anteroventral bristles than fore femur; mid tibia with two posterior bristles; hind femur with the anteroventral bristles rather short and stout apically, those on apical third of posteroventral surface much like those on mid femur; hind tibia with one anterodorsal and two or three anteroventral bristles. Stem vein of wing with fine yellow hairs on hind side of basal section above and in hollow of same section below. — Length, 9,5 mm.

Type, Fort de Kock, 1928. — This species has the same character of the haired stem vein of wing that is met with in *pilinervis*, but the antennae are darker, the palpi fuscous, and there is no mid femoral comb in the latter.

*Dichaetomyia nudinervis* sp. n.

Male. — This species differs from the foregoing one in having the palpi broadened and entirely orange yellow, the thoracic dorsum more widely blackened and with the whitish dusted vittae fused from a little behind the suture to near hind margin presenting a broad fascia of grey dust, the abdomen more extensively yellow at base, the tarsi paler basally, the stem vein bare above and almost bare below at base, the anteroventral bristles on fore femur less numerous, and those on apical portions of anteroventral surface of mid femur and posteroventral surface of hind femur lacking. — Length, 9,5 mm.

Type, Gunung Singgalang, west coast of Sumatra, 1800 m, 1926. —

Both this species and the one preceding it will run down to *setulipes* Stein in the key to the Oriental species of *Mydaea* published by Stein in 1918, but the latter has black palpi and differs in some other characters from either of the species now described. This group is apparently confined to the Orient; *setulipes* is Sumatran.

*Dichaetomyia latitarsis* Stein.

A large fulvous yellow species, with dorsum of thorax broadly blackened on disc, the black portion with three white dusted vittae, and the abdomen with apex of second tergite at least in middle, all of third and fourth except apex of latter, black above. The antennae are yellow, with most of third segment brown or fuscous, and the palpi are yellow. Legs yellow, tarsi black.

The distinguishing structural features are as follows: Third and fourth tarsal segments of fore legs in female distinctly widened, those of male normal; third vein of wing with a few black hairs at extreme base above, more extensively haired below; many black hairs on metanotum below lower calypter which extend over upper half of supra-spiracular convexity, and some on the slender ridge on upper fore margin of the pteropleura behind the rounded knob; postalar declivity with some hairs centrally. — Length, 9—10 mm.

Localities, Fort de Kock, 920 m; Tandjunggadang, west coast of Sumatra, 1000 m, 1925; Wai Lima Z., Sumatra, 1921 (K. Karny). Originally described in 1909 from Java and only the female recorded. I have two males and fifteen females before me from Sumatra. I also have both sexes from the Federated Malay States and the Philippines. I have two slightly aberrant females from India, one from Nubbu, Dawnat Range, 1300 feet, January 1891 (C. T. Bingham), and the other from Lower Ranges, N. Khasi Hills, Assam, 1878 (A. Chennell). These two have the dark mesonotal markings reduced to three fuscous vittae, overlaid with white dusting which is most evident when seen from behind. — The presence of fine hairs on upper side of third vein at base is unique in this genus and the character might be considered by some authorities as of at least subgeneric value, the general trend in the systematic treatment of this group being to use the absence or presence of setulae on this vein as generic criteria. It is remarkable that with this exception the setulae are present always only on the under surface of the third vein.

*Dichaetomyia bistriata* sp. n.

Male. — Head black, antennae yellow, palpi fuscous, orbits, face, and cheeks, white dusted, facial ridges and lower margin of face testaceous under the white dust. Thorax fulvous yellow, shining, disc of meso-

notum broadly black, when seen from behind with a broad central vitta of brownish dust which becomes more diffuse outwardly behind suture; pleura with the usual dark spot below base of wing; metanotum fuscous in centre. Abdomen glossy black, yellowish on sides at base, and with a V-shaped yellow mark on apex of fourth tergite. Legs fulvous yellow, tarsi fuscous. Wings yellowish hyaline. Calyptrae and halteres orange yellow.

Frons linear; palpi slightly widened. Thorax as in *latitarsis*, but the hairs on postalar declivity very short and fine. Fore femur in male with about half a dozen short bristles on apical half of anteroventral surface; fore tibia without a median posterior bristle; mid femur without apical bristles ventrally; hind femur with a series of anteroventral bristles which are stronger apically, and a similar posteroventral series which does not extend to apex; hind tibia with one anterodorsal and about three anteroventral bristles. Third wing vein without basal setulae above; some fine hairs in hollow on under side of basal section of stem vein. Otherwise similar to *latistriata* Malloch. — Length, 9 mm.

Type, Fort de Kock, 1925; paratype, Gunung Singgalang, west coast of Sumatra, 1600 m, 1926. — This is another species which runs down to *setulipes* Stein in the key to Oriental species of *Mydaea* published by Stein in 1918.

#### *Dichaetomyia dubia* Malloch.

This species was described from the Philippines in 1925, but in 1919 Stein had described a *Mydaea dubia* from Ceram which almost certainly belongs to *Dichaetomyia*. It therefore appears necessary to change the species name which I do herewith. The name *dubitalis* may be accepted as supplanting *dubia* Malloch. — The species is not amongst those before me from Sumatra, but possibly occurs there.

#### *Dichaetomyia niveipalpis* Stein.

A shining brownish yellow species, with grey dust on thorax dividing the fuscous, or brown, disc into four dark vittae, the abdomen glossy black except on a variable portion at base, and the narrow apex of fourth visible tergite. The palpi are deep black on basal halves and vary from snow-white to yellowish white at apices. Legs yellow, tarsi fuscous. The palpi of the female are quite noticeably dilated. The black hairs on the metanotum do not extend on to the suprspiracular convexity, the postalar declivity has a few weak hairs centrally, and there are no hairs on the pteropleural ridge. Fore tarsi in both sexes normal, fore tibia without a median posterior bristle.

Locality, Fort de Kock, 1925. Two females. Originally described from Java. I have seen it from Formosa, the Federated Malay States,

and the Philippines. Paratype specimens of *flavipalpis* Stein are this species.

*Dichaetomyia cognata* Stein.

I have specimens of both sexes of a species before me which I refer here though they do not agree absolutely with Stein's key characters. The thorax has really four pairs of dorsocentrals behind the suture and not three pairs, but the anterior pair is extremely small and it probably was overlooked by Stein. The antennae are pale yellow, and the palpi fuscous. Thorax and abdomen fuscous, the latter slightly yellowish at base, both covered with dense brownish grey dusting, the thorax with four narrow dark vittae, the abdomen with a narrow dark dorsocentral line, and when seen from behind and one side with traces of a pair of dark spots on second tergite. Legs dull testaceous yellow, coxae, and the femora except their apices, fuscous, tarsi not darker than tibiae. Knobs of halteres brownish.

Frons of male linear; palpi not dilated. Thorax with 2 + 4 dorsocentrals, no hairs below lower calypter, and a few very minute hairs on postalar declivity; sides and venter of scutellum, and bases of third and stem veins above, bare. — Locality, Fort de Kock, 1925. Known only from Java heretofore.

*Dichaetomyia quadrata* Wiedemann.

This widely distributed species is rather variable in some characters, or else there are two or three closely related species confused under the same specific name. In the typical form there are four pairs of postsutural dorsocentral bristles, but there is another form in which there are but three pairs present. I hope to obtain enough material shortly to enable me to decide if both forms belong to the same species. The scutellum has strong black hairs on sides which slightly invade the ventral surface, and there are no evident hairs on the metanotum below the lower calypter.

Locality, Fort de Kock, 1925. Seven specimens. One female with only three pairs of postsutural dorsocentrals is amongst the material from Gunung Singgalang, west coast of Sumatra, 1000 m., 1925. It agrees in all particulars with one from Perak before me. Stein has placed his species *lineata* as a synonym of *quadrata*, but it has only three pairs of postsutural dorsocentrals and in this case appears to be the variety herein referred to. Consequently if the species are distinct Stein's name will have to be applied to this form.

*Dichaetomyia dimidiata* Stein.

This species is apparently considered as the same as *maculiventris* Stein by its describer in his key to the Oriental species of *Mydaea*

already referred to as he puts both in the same caption in the key with *maculiventris* in brackets.

I have before me one female specimen which I consider belongs here. It has the same habitus as *ruficoxa* Stein but has the legs black, with only the bases of fore tibiae yellowish, the thoracic dorsum black, with only the humeri yellow, and has no strong anteroventral bristles on apices of fore femora. It is also very similar to *flavocaudata* Malloch, but the latter has the lateral margins of mesonotum yellow, and the coxae and tibiae brownish yellow, while the apex only of the fourth visible tergite is yellow.

Locality, Fort de Kock, 1925. One female specimen. Judging from the original descriptions Stein is not correct in his synonymy. The original, specimens of *dimidiata* were collected in Java.

*Dichaetomyia maculiventris* Stein.

I have before me two specimens which appear to belong to this species. They are slightly immature, and the colours of the abdomen are not clearly indicated. The principal distinctions between this species and *dimidiata* lie in the larger size of the latter (6.5—7 mm : 5 mm), and in the yellowish scutellar margin of *maculiventris*, *dimidiata* having the scutellum entirely black. Although these may appear rather trivial characters upon which to base a specific distinction I find that such characters are remarkably constant in this genus, and I retain both names, at least tentatively, despite Stein's evident implication of synonymy.

Locality, Fort de Kock, 1925. Two males.

*Dichaetomyia scutellaris* sp. n.

Female. — Belongs to the same group as *armata* Stein and *rigidiseta* Stein, most closely similar to the latter, having only three pairs of postsutural dorsocentral bristles. It differs in having the third antennal segment black except at extreme base, the palpi fuscous, the mesonotum without evident brownish or white dusted vittae, and the abdomen black except at extreme base. The fore tibia has one anterodorsal and one posterior bristle near middle, the mid tibia has two long posterior bristles and a series of short setulae on posterodorsal surface; the hind femur has one or two bristles on basal half of posteroventral surface and one very strong one near apex on anteroventral surface; hind tibia with one long anterodorsal bristle, and two shorter bristles on anteroventral surface, the posterodorsal surface with some well developed setulae, two on basal half longest. In other respects similar to *rigidiseta*. — Length. 8 mm.

Type, Gunung Singgalang, west coast of Sumatra, 1800 m, 1925. One specimen. — In keying out the species of the genus this species

will run down to the section with setulose hairs on the sides and invading the ventral surface of scutellum. To this group belong the two species above mentioned and *quadrata* Wiedemann and its related forms such as *lineata* Stein.

Genus *Rhyncomydaea* Malloch.

This genus differs from *Dichaetomyia* in having the prosternum bare, and a quite prominent nose-like carina on upper half of face.

*Rhyncomydaea tuberculifacies* (Stein).

This collection contains the first recorded male of this species, of which I present a brief description. — Frons not wider than third antennal segment; facial carina not continued much below middle of face, epistome slightly convex; head short and broad; cheek about three times as high as width of third antennal segment; arista very long plumose; palpi slender; antennae whitish yellow. Thorax black, densely grey dusted, dorsum with four interrupted dark brown vittae; prosternum and centre of propleura bare; pteropleura haired in centre; sides of scutellum haired basally; dorsocentral bristles 2+4; prealar bristle minute. Abdomen ovate, colored as thorax, when seen from behind with a pair of small submedian spots at base of tergites 2 to 4, an irregular mark on each side of tergites 3 and 4, and minute dots at bases of bristles and hairs, dark brown. Fore tibiae unarmed at middle; mid tibia with two posterior bristles; hind femur with one or two preapical anteroventral bristles and a group of fine erect hairs near apex on posteroventral surface; hind tibia with one or two anterodorsal and about four anteroventral bristles. Third vein setulose at base below; fourth vein quite noticeably curved forward at apex. — Length, 7 mm.

Locality, Fort de Kock, 1925. Originally described from Java.

Genus *Hebecnema* Schnabl.

There are six species of this genus recorded from the Orient. Of these two, *fumosa* Meigen and *umbratica* Meigen, are European and have been recorded only from Formosa by Stein, *luzonensis* Malloch was described from the Philippines, one other, *halterata* Stein, was described from Ceylon, while the other two were described from Java. I have before me two species from Sumatra and present below a key for the identification of the species above mentioned and one new species. I have seen *halterata* Stein from Negros, Philippine Islands.

Key to the species.

1. Eyes quite long haired above; base of third wing vein bare above and below; tibiae not, or very little, paler than femora; abdomen entirely black; knobs of halteres yellow . . . . . 2

- Eyes bare, or very indistinctly pubescent . . . . . 3
- 2. Abdomen pearl-grey dusted, with distinct black dorsocentral vitta or series of elongate spots . . . . . *umbratica* Meigen
- Abdomen brownish grey or drab grey dusted, without a dark dorsocentral vitta . . . . . *fumosa* Meigen
- 3. Thorax with three pairs of postsutural dorsocentral bristles; entire thorax, and abdomen, shining black, without trace of pale dusting hind femur with some long bristles on apical half of anteroventral and posteroventral surfaces; the legs and knobs of halteres black  
*nitens* Stein
- Thorax with four pairs of postsutural dorsocentral bristles; tibiae yellowish . . . . . 4
- 4. Hind femur with three or four preapical posteroventral bristles; abdomen entirely black, grey dusted, and with a pair of elongate black submedian spots on second tergite . . . . . 5
- Hind femur without preapical posteroventral bristles; abdomen more or less translucent yellowish, without paired dorsal spots . . . 6
- 5. Second and third abdominal tergites each with a pair of black spots; frons of male about as wide at narrowest point as third antennal segment; length 3,5 mm . . . . . *luzonensis* Malloch
- Only the second tergite with a pair of black spots; frons of male linear on most of its length; length 5 mm or over. *halterata* Stein
- 6. Facets in male not much enlarged on upper half of eyes, the linear portion of frons in that sex not as long as the wide anterior triangular portion . . . . . *nigrithorax* Stein
- Facets in male very much enlarged on upper half of eyes, the linear portion of frons very much longer than the anterior triangular portion  
*megophthalma* sp. n.

#### *Hebecnema nitens* Stein.

I suspect that this species does not belong to *Hebecnema* as all the others have four pairs of postsutural dorsocentral bristles while this one has but three pairs. The species is known only from Java but may yet be found in Sumatra.

#### *Hebecnema nigrithorax* Stein.

Apparently a common species in Sumatra. It has the humeral angles and abdomen in female conspicuously testaceous yellow, but in the male the former are rather inconspicuously yellowish, and the abdomen is infuscated apex. The legs are testaceous yellow, with the coxae and femora black, and the antennae are brownish yellow in female, but darker in the male. Structurally the male differs from that of the next species in the shape of head and the enlarged upper eye facets. Both these species

have the third wing vein with a few fine hairs at base and below, and the fourth wing vein very slightly curved forward at apex. — Locality, Fort de Kock, 1925. Seventeen specimens. Originally described from Java. I have seen the species from Ceylon and the Philippine Islands.

*Hebecnema megophthalma* sp. n.

Male. — Very similar to the preceding species, but larger, and darker in colour. The abdomen is more brownish than yellow at base and when seen from behind shows traces of a pair of very large subtriangular dark spots on each tergite similar to those on some species of *Heliographa*, which are separated by a fine grey central line. Calyptrae and halteres dark brown. The facets of upper halves of eyes are about four times as large as those on lower halves, and the frons is linear on at least two-thirds of its length. — Length, 4.5–5 mm.

Type and five paratypes, Fort de Kock, 1925. — It is possible to distinguish *halterata* Stein, *luzonensis* Malloch, and the last two foregoing species from all others of the genus known to me by the setulose base of third wing vein and this might be accepted as a subgeneric character, but I do not propose to separate the species from the others at this time. A thorough revision of all the species of the genus appears necessary to decide the importance of this and other characters and I do not have sufficient material to permit of that procedure now.

**Subfamily Muscinae.**

Genus *Xenosia* Malloch.

*Xenosia unguolata* (Stein).

Locality, Fort de Kock, 1925. One specimen.

Genus *Passeromyia* Villeneuve.

This genus has as its genotype *heterochaeta* Villeneuve (= *longicornis* Stein, not Macquart). The acceptance of *heterochaeta* as the valid name for the species is due to the fact that *longicornis* Macquart has been assigned to the same genus. Stein's species was described as a *Muscina* while Macquart's was described as a *Cyrtonoura*. These genera are not synonymous so that should the Australian and Asiatic species ultimately prove to be entitled to generic separation *longicornis* Stein will have to be reinstated. Superficially the species are closely alike, but I find that in the Oriental form there are no setulae on the postalar declivity while in the Australian form there are many such present. This character may be of generic significance and is so considered in certain allied groups of species.

*Passeromyia heterochaeta* Villeneuve.

Six specimens, Fort de Kock, 1924–6.

Genus *Morellia* Robineau-Desvoidy.

There are two species in the material before me, one of them apparently new to science which is described below.

*Morellia hortensis* Wiedemann.

This species is closely related to *simplex* Loew of Europe; the distinguishing characters were pointed out recently by the present writer. Locality, Fort de Kock, 1925. Seventeen specimens. Generally distributed throughout the Orient.

*Morellia nigrisquama* sp. n.

Male and female. — Another species closely allied to *simplex*. While *hortensis* is smaller, with more conspicuous whitish dusted markings than in *simplex* and the calyptrae are pure white instead of having the disc of the lower one browned as in that species, *nigrisquama* is larger, darker, with less conspicuous white dusting, and has the lower calypter and its fringes black in male and fuscous in female. Both the old species have three pairs of presutural dorsocentrals while the new one has but two pairs. The hind tibia has fine erect hairs on the anteroventral surface apically in the latter which are not longer than the tibial diameter, much as in *hortensis*, while in *simplex* the ventral surfaces are all furnished apically with erect fine hairs which are mostly much longer than the tibial diameter. In other respects similar to *simplex*. — Length, 7.5—9 mm.

Type, male, allotype, and one male and six female paratypes, Gunung Singgalang, west coast of Sumatra, 1800 m, 1925; nine female paratypes, Pahang, Federated Malay States (H. M. Pendlebury).

Genus *Orthellia* Robineau-Desvoidy.

This is the genus generally referred to as *Cryptolucilia* Brauer and Bergenstamm. The genus is world wide in its distribution and quite a large number of species are found in Sumatra and surrounding islands. I list those now before me from Sumatra.

*Orthellia caeruleifrons* Macquart.

This species is similar to *chalybea* Wiedemann, but is smaller, and lacks the black bases to the wings though they are slightly yellowish or brownish on some sections of costal half. The thorax has usually the prescutellar dorsocentrals, acrostichals, and intra-alars, distinct, and in rare cases there is a weak second pair of dorsocentrals present. The frons in female is not over one-fifth of the head width at vertex, the orbits are glossy black, with a violet or blue tinge on their upper halves, are about as wide as interfrontalia, and in neither sex do they have a strong forwardly directed supraorbital bristle. The anteroventral bristles

on hind femur are much stronger than in *claripennis* Malloch, and the calyptrae usually much paler than in that species. — Locality, Fort de Kock, 1925. Fourteen specimens.

*Orthellia claripennis* Malloch.

Very similar to the preceding species, but the wings are hyaline, the calyptrae fuscous, there are no prescutellar acrostichals nor intralars present, the hind femur has very fine short anteroventral bristles, and the frons of the female is a little wider, and the orbits are distinctly wider than the interfrontalia and have a depression at middle. — Localities, Gunung Singgalang, west coast of Sumatra, 1000 m, 1925, and Fort de Kock, 1925. Thirty-two specimens.

*Orthellia diffidens* (Walker).

This common Oriental species is readily distinguished by the characters cited in my key to the species of the genus published a few years ago in the 'Annals and Magazine of Natural History'. The facets are much enlarged on upper halves of the eyes in the male. — Localities, Gunung Singgalang, west coast of Sumatra, 1800 m, 1925, and Fort de Kock, 1925. Forty-five specimens.

*Orthellia-lauta* (Wiedemann).

Another very widely distributed Oriental species, which occurs also in Africa and Australia. The pale yellow wing bases, and the violet-blue bases to the abdominal tergites readily distinguish the species: Localities, Fort de Kock, 1925, Tandjunggadang, and Gunung Singgalang, west coast of Sumatra, 1000 and 1600 m, 1926. Six specimens.

*Orthellia siamensis* Malloch.

This species is more similar in general habitus to those of *Lucilia* which have the abdomen unbanded than are the preceding species. — Localities, Gunung Singgalang, west coast of Sumatra, 1600 m, 1925, and Fort de Kock, 1925. Eleven specimens. Originally described from Siam and not known from other sections of the Orient at present.

*Orthellia chalybea* (Wiedemann).

The largest species of the genus known from the Orient. Readily distinguished by its violet-blue colour and the black wing bases. — Localities, Fort de Kock, 1925, and Tandjunggadang, west coast of Sumatra, 1000 m, 1925.

Genus *Graphomyia* Robineau-Desvoidy.

*Graphomyia mellina* Stein.

A hairy eyed species, with the frons in male linear, and the eyefacets in the same sex much enlarged on upper halves of eyes. Anterior sterno-

pleural bristle absent. Femora and tibiae honey yellow, fore femora sometimes darkened basally, all tibiae sometimes darkened apically. Thoracic vittae five in number, submedian pair narrow, interrupted, median one continued on to base of scutellum. Abdomen honey yellow in male, darker in female, with the usual dark spots and pale dusting. — Locality, Fort de Kock, 1925. Five specimens

#### *Graphomyia vittata* Stein.

A species very similar in all respects to *maculata* de Geer, but smaller, with the tibiae usually yellowish, the orbits of frons narrower, more densely pale grey dusted, and more copiously haired. I have seen only the female. — Locality, Fort de Kock, 1925. Five specimens.

#### Genus *Musca* Linné.

##### *Musca domestica* Linné.

This species is the only one referable to *Musca* in the strict sense that I have seen from the Orient, *vicina* Macquart being, in my opinion, merely a form of this one in which the frons of the male is considerably narrower than usual. There is however no clear line of demarcation between the two forms, the width in different specimens varying to a considerable degree, and as there are no other characters by means of which the extremes may be separated I consider there is but one species involved. In addition to having the centre of the propleura haired the species has the central upper part of the hypopleura and the sides of first abdominal sternite haired: Locality, Fort de Kock, 1926.

#### Genus *Byomya* Robineau-Desvoidy.

The above is the original spelling of the genus name, but it has been amended to *Biomyia*. There is another genus originally spelt *Biomyia* by Rondani which assumably ought to receive the same treatment making it a homonym, but the fate of the latter does not require discussion here as it belongs to the family *Tachinidae*. Entomological purists will no doubt hold out for exactitude, while those who prefer to give the original authors the right to fix the forms of their generic names will adhere to the original spellings.

The genus has usually been considered as a synonym of *Musca*, but recently I pointed out that there are characters for the separation of the group containing the genotype from that represented by *domestica*, and accepted the segregate as of at least subgeneric status. It contains quite a number of species, possibly more than does *Viviparomusca* Townsend, which is the only other group in the old concept of the genus *Musca* which rivals it in numbers. It is very well represented in the Orient, where some of the species are very widely distributed. Amongst

the material now before me there are two which appear to be new, both of them being rather striking forms that are not very closely related to any others known to me. I append a key for the recognition of the species in this collection, to which I have added one or two that ought to occur also in Sumatra, though not in the present collection.

Key to the Species.

1. Fore tibia with an outstanding bristle near middle on posterior side . . . . . 2
- Fore tibia without an outstanding bristle near middle on posterior side . . . . . 3
2. Second, and all or a part of fifth, abdominal sternites, and entire dorsum of basal tergite in male black or fuscous; hind femur with an isolated bristle on anteroventral, and another on posteroventral surface about one-fifth from base . . . . . *conducens* Walker
- All abdominal sternites yellow, basal tergite very slightly darker in male; hind femur with a rather regular series of anteroventral and posteroventral bristles basally . . . . . *planiceps* Wiedemann
3. Abdomen in both sexes entirely, or almost entirely, orange or red, extreme base of first tergite fuscous, and sometimes the apex of abdomen slightly infuscated, but the dorsum never with distinct black pattern; mid tibia without any noticeable anteroventral bristles; hypopleura rarely with any hairs on upper central portion below spiracle; frons of male linear, the narrow orbits obliterating the interfrontalia on the greater portion of its length; the two black submedian thoracic vittae not extending to posterior margin. . . . . *ventrosa* Wiedemann
- Abdomen largely or entirely black, or with distinct black dorsal pattern; frons of male about as wide as, or wider than, third antennal segment, the interfrontalia distinct on its entire length . . . . . 4
4. Mid tibia with two or three short but distinct anteroventral bristles beyond the middle; abdomen nowhere yellow; the two black submedian thoracic vittae separated from the laterals, discontinued about midway from suture to hind margin, best seen when the thorax is viewed from behind; frons of male about as wide as third antennal segment . . . . . *tibiseta* sp. n.
- Mid tibia without any evident anteroventral bristles beyond the middle . . . . . 5
5. Abdomen in male almost entirely black, faintly yellowish on the sides; thoracic vittae as in *tibiseta*, but less abruptly and sharply discontinued; frons of male about three times as wide as third antennal segment; hypopleura not distinctly haired on upper part below spiracle . . . . . *jacobsoni* sp. n.

- Abdomen in male largely yellowish, with black pattern; submedian and lateral thoracic vittae fused except in front, the dorsum appearing bivittate; frons of male about as wide as third antennal segment; hypopleura very distinctly haired on upper part below spiracle.

*vetutissima* Walker

*Byomya conducens* Walker.

This species averages smaller than *planiceps* Wiedemann, rarely exceeding 5 mm in length, and frequently being as small as 3.5 mm. The only characters of value for distinguishing it, apart from any that may exist in the hypopygium, are listed in key.

The specimens I have before me agree very well with a male specimen in my own collection identified by, and received from, Dr. M. Bezzi. This specimen is rather immature so that the positive identification is difficult.

There are three species which I have examined that have a bristle near middle of posterior side of fore tibia, *pulla* Bezzi, *planiceps* Wiedemann, and *conducens* Walker. The latter differs from the other two in having the first visible tergite black, and in the specimens from Sumatra the basal two sternites also are black.

Locality, Fort de Kock, 1925. Nineteen specimens. — It appears pertinent to state that I have examples of *Musca craggi* Patton before me that were named by Major Patton, and if this identification is correct the species is not a synonym of *pulla* as stated by Patton. In fact the species belongs to *Emusca* and not to *Byomya*.

*Byomya planiceps* Wiedemann.

This species, originally described from Java, occurs in Ceylon and India, but I have not yet seen it from Sumatra, though it possibly occurs there.

*Byomya ventrosa* Wiedemann.

This widely distributed Oriental species is readily distinguished from its allies by the orange or red abdomen, which is usually without a dark suffusion, and is sharply contrasted with the glossy black, slightly vittate thorax. There are silvery white dusted markings on the apical two tergites of abdomen, most evident in the male. — Locality, Fort de Kock, 1925. Specimens from Formosa which I have examined are considerably smaller than those from Sumatra.

*Byomya vetutissima* Walker.

This name I accept for some specimens which agree very well with Oriental and Australian examples before me. The thoracic dorsum in the

males is not so deep black as in the average of these latter specimens, but it has the acrostichal hairs fine and not stout as in *sorbens* Macquart, and the entire dorsal portion of the first visible tergite of abdomen is black, whereas in *sorbens* it is orange, with at most a black central vitta. Both species have the hypopleura with numerous hairs on central part above, and the basal sternite of abdomen bare: Locality, Fort de Kock, 1925. Three specimens.

*Byomya jacobsoni* sp. n.

Male. — Black, slightly shining, resembling a large dark specimen of *domestica*. Thoracic dorsum with four dark vittae, the inner pair moderately wide and more clearly defined than the laterals, becoming evanescent near posterior margin. Abdomen with a large semipellucid yellowish spot on each side of second visible tergite which is not at all conspicuous, the dorsum otherwise with pruinulent checkerings as in *domestica*. Antennae, palpi, and legs black. Wings greyish hyaline. Calyptrae and halteres whitish.

Eyes bare; frons about one-third as wide as one eye, the orbits linear and setulose; arista not as long as third antennal segment, swollen on basal half, the hairs long; proboscis normal. Thoracic dorsum with 2+4 or 5 dorsocentrals, of the postsutural pairs only the two pre-scutellar pairs long; sternopleurals 1+2; hypopleura with some hairs on lower posterior angle. Fore tibia unarmed at middle; mid tibia with about three posterior bristles; hind femur with an almost complete anteroventral series of bristles which are longest apically, and a few on middle of posteroventral surface; hind tibia with a short posterodorsal bristle, a series of short anterodorsal setulae amongst which are one or two longer bristles, and three or four short anteroventral bristles. Stem vein bare at base above; third vein sometimes bare above, setulose below from base almost to apex; venation normal. — Female. — Similar to the male but with broad frons. — Length, 7 mm.

Type, allotype, and one male paratype, Fort de Kock, 920 m, 1925. Named in honour of the collector. This species resembles *Ptilolepis inferior* Stein in colour and habitus, but that species has the lower calypter with erect black hairs on part of disc, the radius with some hairs above basally, and a few short hairs on anteroventral surface of mid tibia. It must also be closely similar to *fletcheri* Patton and Senior White, but it differs in many respects from the description of that species, especially in the colour of the abdomen.

*Byomya tibiseta* sp. n.

Male. — Similar to the preceding species in colour. Differs in having the dorsal vittae of thorax less clearly defined, the submedian

pair distinct only before the suture, becoming broader and poorly defined beyond it. There is no trace of yellow markings on the abdomen, which is entirely black, with grey dust on dorsum which gives it the same appearance as that of *inferior* Stein. The frons is narrow, about one-seventh as wide as one eye, the dorsocentrals are similar to those of the preceding species but shorter, the fifth abdominal sternite has a short process on each side at apex, there is no median bristle on the fore tibia, but there are one or two short bristles beyond middle on the anteroventral surface of mid tibia similar to those present in *inferior*. The base of radius has three or four hairs behind on upper side, and the third vein is setulose both above and below, the setulae on upper side ceasing before reaching inner cross vein, and those on under side extending almost to apex of the vein. Otherwise as *jacobsoni*. — Type, and one paratype, Fort de Kock, 920 m, 1925.

#### Genus *Ptilolepis* Bezzi.

There is but one known species of this genus.

#### *Ptilolepis inferior* Stein.

A large black species with the characteristic grey dust on dorsum dividing the ground of thorax into black vittae and that of the abdomen into checkerings. The peculiar erect black discal hairs on the lower calypter distinguish the species from any of its allies. These hairs are met with in certain genera in Calliphoridae (e. g. *Calliphora*, and some species of *Sarcophaga* sens. lat.), and in *Nemorea* in Tachinidae: Locality, Anai Kloof, west coast of Sumatra, 500 m, 1926. Seven specimens.

#### Genus *Viviparomusca* Townsend.

There are several species of this genus in the material now before me but I am not able to positively identify all of them so leave them until a subsequent paper on the family.

#### Subfamily *Lispinae*.

#### Genus *Chaetolispa* Malloch.

#### *Chaetolispa geniseta* Steio.

Locality, Fort de Kock, 1925. Four specimens.

#### Genus *Xenolispa* Malloch.

#### *Xenolispa kowarzi* Becker.

This species is readily distinguished from its congeners by the white colour of the apical four segments of the fore tarsi in both sexes. — Locality, Fort de Kock, 1925. Nine specimens.

Genus *Lispa* Latreille.*Lispa orientalis* Wiedemann.

This common oriental species is represented by 20 specimens from Fort de Kock, 1925.

*Lispa bivittata* Stein.

Locality, Fort de Kock, 1925. One female.

*Lispa sericeipalpis* Stein.

Locality, Fort de Kock, 1925. One female.

*Lispa leucospila* Wiedemann.

Locality, Fort de Kock, 1925. Thirteen specimens.

P. S. The holotypes are disposed in the Zoological Museum of Amsterdam, the other historical material is distributed among the larger Museums of Europe and North America.

## Calliphorinen-Studien II\*) (Dipt.).

Von B. Rohdendorf, Moskau.

(49. Mitteilung aus der Entom. Abt. des Zool. Museums der Universität).

(Mit 1 Abbildung)

I. *Calliphora turanica* Rohd. (1925, Rev. zool. russe, t. IV, fasc. 1.)  
 ♂. *C. erythrocephala* Mg. (non Kramer!) sehr ähnlich. Stirn wie bei *C. vomitoria* L. Färbung des Körpers wie bei *erythrocephala* Mg. Genitalien deutlich kleiner. Forcipes superiores gerade, dünn. Forcipes inferiores breit, verlängert, sehr schwach gebogen, am Ende abgerundet. Penis mit stark gebogenem dicken Hypophallus und leicht (doch etwas stärker als bei *erythrocephala*) gebogenen Paraphallus. Lobi ventrales mit starken Vorsprüngen, schiefer als bei *vomitoria*.

♀. Gleich in allen Merkmalen dem ♀ von *erythrocephala*, nur die Bestäubung des Thorax ist etwas heller. Zahlreiche ♂♂ und ♀♀ aus Turkestan (Tashkent, Samarkand), Transcaspien und Östlich Persien (Zarudnyj leg.).

Diese Art wird mit *C. erythrocephala* Mg. (= *pseudocerythrocephala* Kram.) verwechselt. So waren z. B. die persischen Exemplare von *C. turanica* aus der Koll. Zarudnyj von P. Stein als *erythrocephala* determiniert worden. Scheint eine vikariierende Art zu sein.

\*) Calliphorinen-Studien I — Entomol. Mitteilungen, Bd. XIII, Nr. 6, 1924.