Entomologiske Meddelelser 35 (1967)

(Noona Dan Papers No. 43.)

Some Muscidae (Diptera) from the Philippine Islands and the Bismarck Archipelago. 1. The Genus Myiophaea Enderlein.

By
Adrian C. Pont, B.A.
British Museum (Natural History), London.

Introduction.

Malloch (1926: 553) erected the genus *Gordonia* for a new species from Queensland, *fulvithorax* Malloch, and placed it in the Muscinae. Séguy (1937: 387) included the genus in the Muscinae in his catalogue of the World Muscidae, but Hennig (1963: 900) suggested that it might belong to the Phaoniinae, tribe Dichaetomyiini, and pointed out that the name is preoccupied by the reptilian genus *Gordonia* Newton, 1892. The latter author (1965: 36) has more recently referred to *Gordonia,* but has been unable to clarify its systematic position through lack of material.

Enderlein (1935: 240) erected the genus *Myiophaea* for a new species from New Britain, *ralumensis* Enderlein. Séguy (op. cit.) did not include the genus in his catalogue, as his survey of the literature closed before the publication of Enderlein's paper, and the genus has subsequently been ignored.

Van Emden, in his key to genera of the Muscinae (1965: 39) erected the genus *Aubertinella* for two species, *Musca aricioides* Walker (the type-species) and *Ochromyia fasciata* Macquart (= *Bengalia spissa* Walker), placing it in the Muscinae. No full generic description was given as the species included were not known from the Oriental region, to which Van Emden's work was confined.

Present studies of the Muscidae of the Indo-Australasian region have shown that the type-species of *Myiophaea* and *Gordonia* Malloch are conspecific, and that the two species described by Walker and placed by Van Emden in *Aubertinella* should also be assigned here. Further material from New Britain has been found in the

collection of the Noona Dan Expedition (Petersen 1966) submitted for identification by Dr. Leif Lyneborg, Copenhagen, as well as in the Indo-Australasian Muscid accessions in the British Museum (Natural History), London, and in some material sent by Dr. H. Schumann, Berlin. The opportunity is taken of presenting a discussion of the genus and its relationships together with these new data.

Myiophaea Enderlein.

Myiophaea Enderlein, 1935, Sber. Ges. naturf. Freunde Berl., 1935: 240. Type-species: *M. ralumensis* Enderlein, 1935 (= *spissa* Walker, 1859, by original designation and monotypy.

= *Gordonia* Malloch, 1926, Proc. Linn. Soc. N.S.W., 51: 553; Séguy, 1937, Genera Insect., 205: 387; Hennig, 1963, Fliegen palaearkt. Reg., 63b, Muscidae: 900; Hennig, 1965, Stuttg. Beitr. Naturk., 141: 36. *Nec* Newton, 1892: Reptilia. S y n. n o v.
Type-species: *G. fulvithorax* Malloch, 1926 (= *spissa* Walker, 1859), by original designation and monotypy.

= *Aubertinella* Van Emden, 1965, Fauna of India, Muscidae: 39. S y n. n o v.
Type-species: *Musca aricioides Walker,* 1864 (= *spissa* Walker, 1859), by original designation.

D i a g n o s i s.

Non-metallic species of moderate size and bulky appearance, with the characters of the subfamily Muscinae, tribe Muscini. Among the genera of the Muscini lacking a *pv* seta on mid tibia, *Myiophaea* is unique in possessing the subcostal sclerite setulose, vein 1 with setulae on dorsal surface, and vein 4 with a rounded and not angular forward curvature before wing-margin. See figs. 4 and 5.

The following characters are also of importance but are not necessarily diagnostic:

Male head holoptic, without *ors;* female head dichoptic, with several proclinate *ors* but without crossed interfrontal setae. Arista long plumose. *Acr* 0 + 1. *Dc* 2 + 4 (—5). 1 *ia,* placed caudad of 3rd *dc. Pra* present, almost as long as 2nd *npl.* Supra-squamal ridge bare. Prosternum broad, bare (fig. 6). Propleural depression bare. Prostigmatal seta absent, the area with numerous rather dense setulae. Infra-alar bulla bare. Pteropleuron with black setulae on entire length of sub-alar ridge. *Stpl* 1 + 2. Pre-episternite III setulose. Legs without striking modifications, "*p*" setae on mid tibia variable in number and strength, and not always all in a true

posterior position. Stem-vein bare dorsally, with several conspicuous setulae ventrally as far as but not beyond humeral cross-vein (fig. 4). Vein 3 with numerous conspicuous black setulae on both surfaces that extend from the node at base to well beyond small cross-vein. Lower squama truncate (fig. 9). Sternite I densely setulose.

Affinities and Discussion.

Myiophaea is apparently most closely related to the genera *Morellia* Desvoidy and *Rypellia* Malloch which it replaces in the Australasian region: these two latter do not extend east of the Indo-Malayan region. In general facies it most closely resembles *Rypellia,* particularly in the pattern of dusting and the bulky build, whereas the species of *Morellia,* except for the metallic green species of South America, are more elongate in shape and more brassy blue in ground-colour. The absence of the *pv* seta on mid tibia might suggest a closer relationship between *Myiophaea* and *Morellia,* but this character is evidently of greater diagnostic than phylogenetic value in the Muscini and the true relationships of *Myiophaea* are with *Rypellia* and, more distantly, with *Dasyphora* Desvoidy and *Orthellia* Desvoidy.

The subcostal sclerite is very rarely setulose in the Muscidae, such setulae being found in the Indo-Australasian fauna only in some Muscini and in the Australian *Rhynchomydaea australis* Malloch, a problematic species doubtfully assigned to the Mydaeinae at present. In *Orthellia, Dasyphora, Rypellia* and *Myiophaea* it is setulose, whereas in *Musca, Morellia, Pyrellia* and most other genera it is invariably bare. *Orthellia* and *Dasyphora* contain species of metallic green colour and *Orthellia* has the infra-alar bulla setulose, as in the subgenus *Panaga* Curran of *Dichaetomyia* Malloch. In Old World *Morellia,* vein 1 is always bare, but in *Rypellia* it is often setulose on the dorsal surface, and the stem-vein, which at most has 1-2 setulae on basal part of ventral surface in *Morellia,* always has at least 1 setula at the apex on b o t h wing-surfaces in *Rypellia,* b e y o n d the humeral cross-vein.

The broad bare prosternum of *Myiophaea* (fig. 6) resembles that of *Rypellia,* and this is an important character in the Muscini that speaks for the affinity of these genera. *Morellia* also possesses a broad prosternum, but it may be either bare or setulose; it is broad and setulose in *Orthellia* and in the group *Dasyphoromima* Zimin

of *Pyrellia*. In *Pyrellia* s.str. and *Dasyphora* it is very slender and bare (cf. Hennig, 1963: fig. 373 on page 927).

A further notable character of *Myiophaea* is the shape of the lower squama (fig. 9). In his description of *Gordonia,* Malloch (l.c.) noted that it was "rounded and narrower" in comparison with *Morellia* and *Pyrellia*. It is undoubtedly of the *Musca*-type rather than of the *Phaonia*-type, but is at the same time very distinctly reduced so that its configuration is not in total conformity with that of, for example, *Musca* or *Orthellia*.

Dissections of the male genitalia of *Morellia hortorum* Fallén (type-species of *Morellia*), *Rypellia flavipes* Malloch (type-species of *Rypellia*), and *Myiophaea* shew that these three genera are very closely related. The aedeagi are extremely similar in basic structure (figs. 1 to 3). In *Morellia,* the epiphallus bears a strongly sclerotised strip, and also has a curious eversible membraneous structure at the distal end, whilst in *Rypellia* the structure is simple but the shape is quite different, and in *Myiophaea* the distal end is only weakly sclerotised. The shape of the post-gonite and the degree of heavy sclerotisation of the phallapodeme are very characteristic in the three genera. Furthermore, the distiphallus in *Rypellia* is very distinctive. The eversible juxta has short teeth towards the apex, and around the distal margin the membrane is puckered, producing a scale-like effect. In *Morellia* the juxta is a simple membraneous sac, and in *Myiophaea* it is apparently the same: I have dissected several males of *Myiophaea,* but in only one specimen was the juxta partially everted (fig. 3b) and under high magnification it agreed with *Morellia* in taking the form of an unmodified sac.

Much work still remains to be done on the relationships among the genera of the Muscini, but for the present I am retaining *Myiophaea* as a distinct genus, as the Australasian representative of the Indo-Malayan *Rypellia,* and am basing this conclusion primarily upon external characters, particularly those of the wings. Further discussion of its status and phylogenetic position must be deferred to a more comprehensive treatment of the Muscine genera.

Distribution.

Papuan subregion, within the triangle formed by Misoöl, New Guinea and Queensland. Not known from the Solomon Islands.

Biology.

Adults have been taken on vegetation, habits otherwise unknown. Life-history unknown; the ovipositor is adapted for ovipary.

Type-species, and only known species:

Myiophaea spissa (Walker), stat. rev.

spissa Walker, 1859, J. Proc. Linn. Soc., 3: 107 (*Bengalia*); Walker, 1866, J. Proc. Linn. Soc., 9: 22 (*Bengalia*); Van der Wulp, 1896, Cat. descr. Dipt. S. Asia: 152 (*Ochromyia*); Stein, 1901, Z. syst. Hymenopt. Dipterol., 4: 210 (*Spilogaster*); Sack, 1914, Abh. senckenb. naturforsch. Ges., 35: 62 (*Ochromyia*); Stein, 1918, Annls hist.-nat. Mus. natn. hung., 16: 165 (*Morellia*); Stein, 1919, Arch. Naturgesch., 83 A 1: 109 (*Morellia*); Séguy, 1935 Encycl. ent., B II, Dipt. 8: 110 (*Morellia*); Séguy, 1937, Genera Insect., 205: 393 (*Morellia*); Van Emden, 1965, Fauna of India, Muscidae: 39 (*Aubertinella*); Pont, 1966, Ann. Mag. nat. Hist. (13), 9: 97 *(Myiophaea)*.
Lectotype ♂, ARU IS. In the British Museum (Natural History), London. Designated by Pont (l.c.).

= *aricioides* Walker, 1864, J. Proc. Linn. Soc., 7: 216 (*Musca*); Walker 1866, J. Proc. Linn. Soc., 9: 22 (*Musca*); Van der Wulp, 1896, Cat. descr. Dipt. S. Asia: 155 (*Musca*); Stein, 1919, Arch. Naturgesch., 83 A 1: 116 (?*Mydaea*); Séguy, 1937, Genera Insect., 205: 284 (*Mydaea); Van Emden, 1965, Fauna of India, Muscidae: 39 (Aubertinella); Pont, 1966, Ann. Mag. nat. Hist. (13), 9: 89 (Myiophaea).* Syn. nov.
Holotype ♂, MYSOL (= MISOÖL). In the British Museum (Natural History), London. Revid. Pont (l.c.).

= *fulvithorax* Malloch, 1926, Proc. Linn. Soc. N.S.W., 51: 554 (*Gordonia*); Séguy, 1937, Genera Insect., 205: 387 (*Gordonia*); Lee, Crust and Sabrosky, 1955, Proc. Linn. Soc. N.S.W., 80: 318 *(Gordonia); Hennig, 1965, Stuttg. Beitr. Naturk., 141: 36 (Gordonia).* Syn. nov.
Holotype ♂, QUEENSLAND. In the School of Public Health and Tropical Medicine, Sydney. Revid. Lee, Crust and Sabrosky (l.c.).

= *ralumensis* Enderlein, 1935, Sber. Ges. naturf. Freunde Berl., 1935: 241 *(Myiophaea)*. Syn. nov.
Lectotype ♂, NEW BRITAIN. In the Zoologisches Museum der Humboldt-Universität, Berlin.

[= *fasciata* Macquart, 1843, Mém. Soc. Sci. Lille, 1842: 290, and Pl. 17, fig. 1 (*Ochromyia*), and Dipt. exot., II (3): 133, and Pl. 17, fig. 1 (*Ochromyia*), of authors not of Macquart (misidentifications): Stein, 1918, Annls hist.-nat. Mus. natn. hung., 16: 165 (*Morellia*); Stein, 1919, Arch. Naturgesch., 83 A 1: 108 (*Morellia*); Séguy, 1935, Encycl. ent., B II, Dipt. 8: 110 (*Morellia*); Séguy, 1937, Genera Insect., 205: 393 (*Morellia*); Van Emden, 1965, Fauna of India, Muscidae: 39 *(Aubertinella)*.]

[= *contraria* Walker, 1860, J. Proc. Linn. Soc., 4: 140 (*Aricia*), of Walker, 1864, J. Proc. Linn. Soc., 7: 217 (*Aricia*) not of Walker, 1860 (misidentification).]

Lectotype Designation for *Myiophaea ralumensis.*

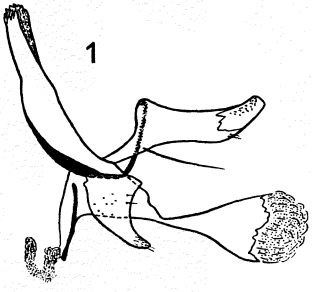
Enderlein described *Myiophaea ralumensis* from 1 ♂ and 6 ♀♀ without selecting a holotype. Through the courtesy of Dr. H. Schumann, I have examined all seven syntypes. Enderlein labelled the male and one female "Typus" and the other females "Cotypus". I have labelled and here designate the male as lectotype: it lacks the abdomen, and there is apparently no genital preparation, but otherwise it is in good condition. The remaining six female syntypes have been labelled and are here designated as paralectotypes. 4 of the females are conspecific with the male and with the species under consideration here; one female is a species of *Lasiopelta* Malloch (= *Xenosina* Malloch *nec* Warren), with vein 1 setulose, whilst the other belongs to the group of *Lasiopelta* with vein 1 bare and is probably the same as *Lasiopelta squalens* (Walker).

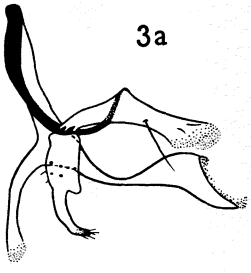
Notes on Nomenclature.

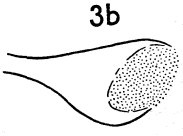
(1) This species has generally been known as *fasciata* Macquart, with *spissa* Walker placed as a synonym: the references to *spissa* of Stein (1918 and 1919), Séguy (1935 and 1937), and Van Emden (1965) are citations in synonymy. At my request, Dr. L. Tsacas kindly examined the holotype of *Ochromyia fasciata* Macquart, which is preserved in the Museum National d'Histoire Naturelle, Paris, and reported that it possesses a row of hypopleural setae and is evidently a Calliphorid (personal communication, 4.x.1965). Stein (1918) first suggested this synonymy, which he subsequently (1919) followed without question, and I believe that he may have been misled by Wulp's (1896) association of *fasciata* and *spissa* together in *Ochromyia* Macquart and by his own (Stein's) subsequent conclusion, based upon an examination of Walker's

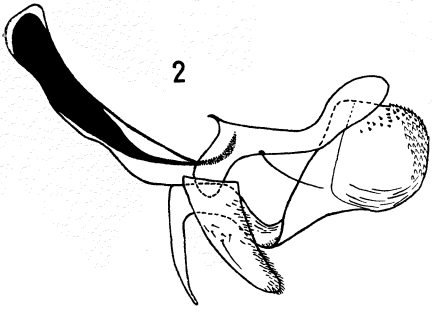
---

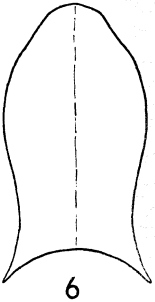
Fig. 1. *Morellia hortorum,* ♂ aedeagus (United Kingdom). Fig. 2. *Rypellia flavipes,* ♂ aedeagus (Assam). Figs. 3-7. *Myiophaea spissa.* (3) ♂ aedeagus; a, from Yalom, distiphallus with juxta not everted; b, from Musgrave River, T.P.N.G., apex of distiphallus with juxta partially everted. (4) Wing-base, ventral surface (♂ from Misoöl). (5) Wing, dorsal surface (♂ from Misoöl). (6) Prosternum (lectotype of *spissa*). (7) Head of ♂, lateral view (lectotype of *spissa*); the dusted occipital band is indicated by stippling.

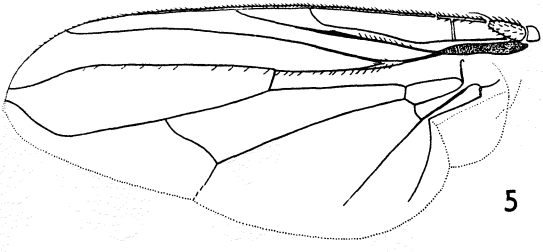

1

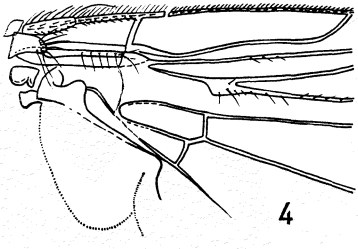

3a

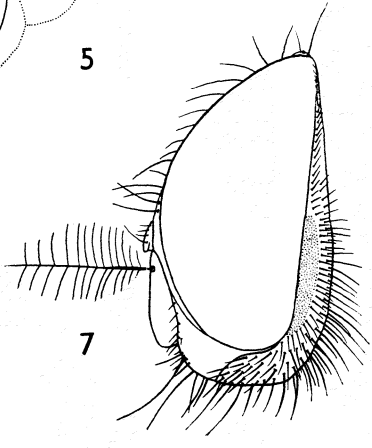

3b

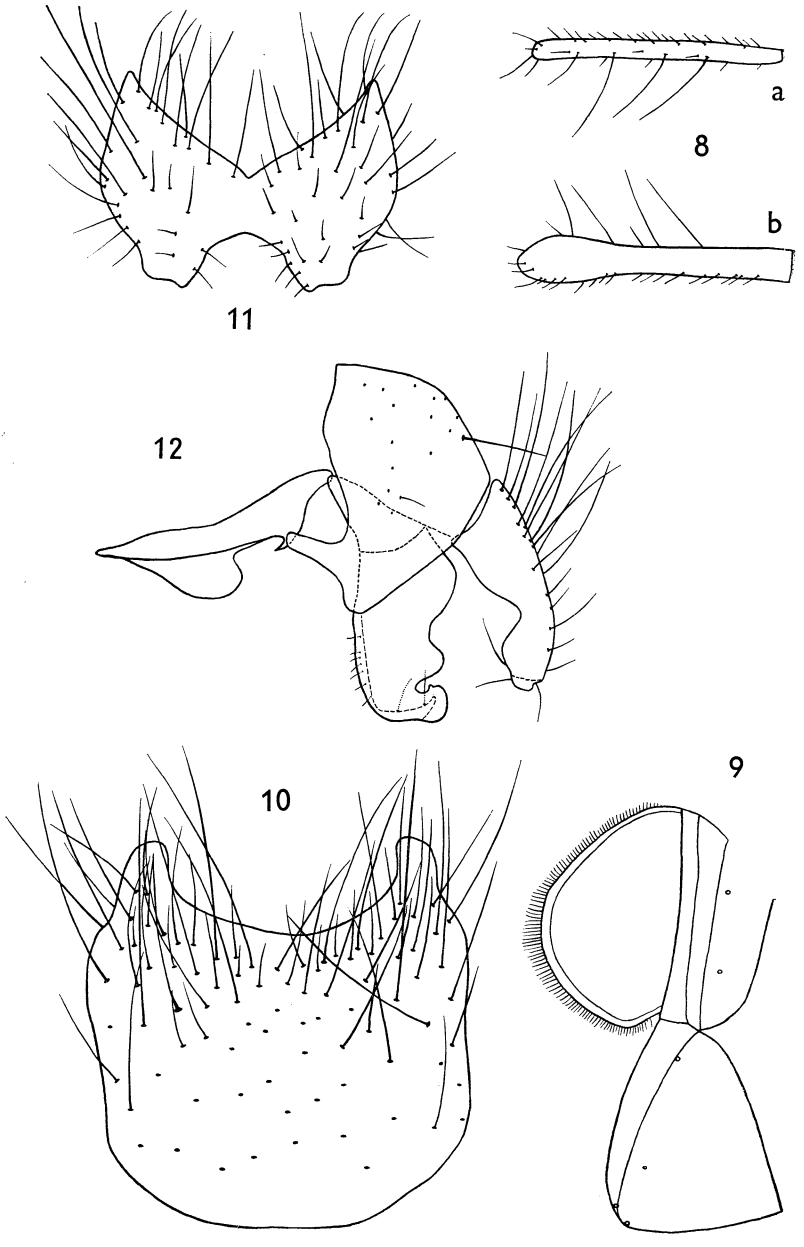

2


6

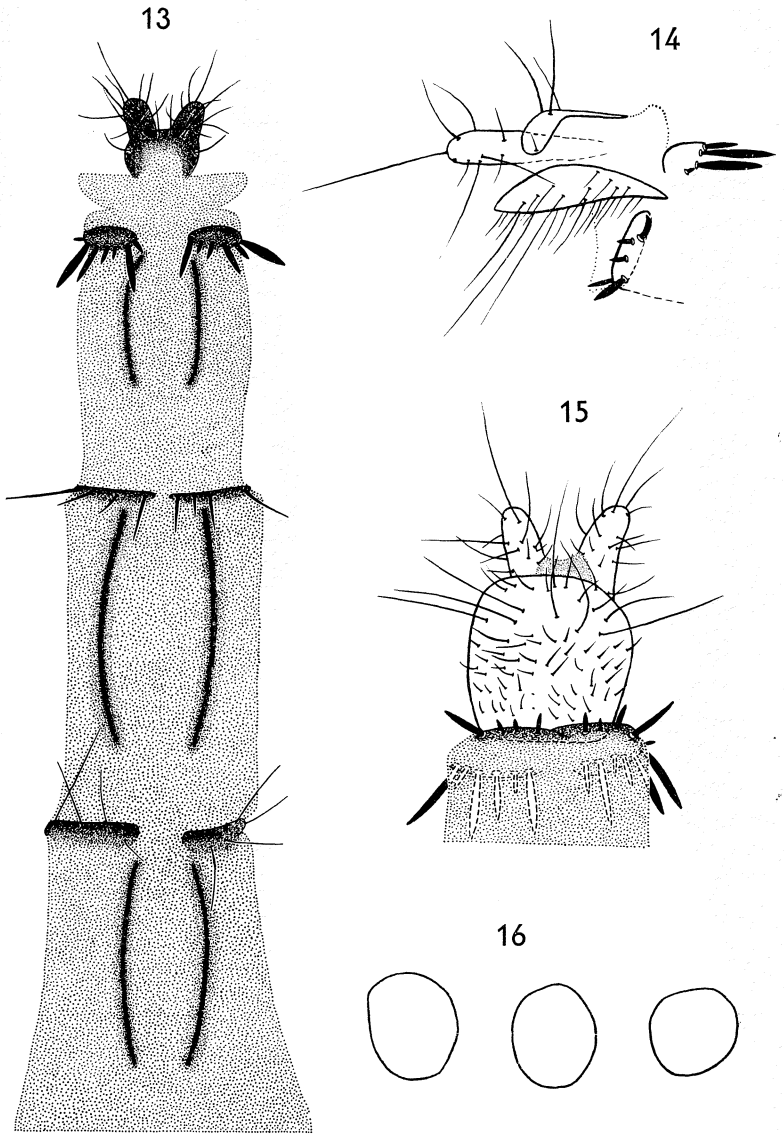

5


4


7



Figs. 8-12, *Myiophaea spissa*. (8) Palpi (♀ from Queensland); a, lateral; b, ventral. (9). Lower squama (♂ from Misoöl). (10) ♂ 5th sternite (paralectotype of *spissa*). (11) ♂ cercal plate, caudal view (paralectotype of *spissa*). (12) ♂ hypopygium, lateral view, aedeagal complex omitted (paralectotype of *spissa*).



Figs. 13-16, *Myiophaea spissa,* ovipositor of a female from Yalom. (13) Dorsal view. (14) Apex, lateral view. (15) Apex, ventral view. (16) Spermathecae.

syntypes (1901), that *spissa* belonged to *Morellia:* he did not examine Macquart's holotype, but Macquart's original description and figure (l.c.) fit *spissa* perfectly. Séguy (1935 and 1937) and Van Emden (1965) followed Stein's synonymy and apparently also omitted to examine the holotype of *fasciata.*

(2) Walker (1864) recorded *Aricia contraria* Walker from Mysol (= Misoöl), but I have examined this specimen, a male, and identify it as *spissa:* it is identical in every detail with the holotype of *Musca aricioides* which Walker described on the previous page (l.c.), and is certainly not conspecific with *contraria* Walker which belongs to the genus *Dichaetomyia* (Van Emden, 1965: 492; Pont, 1966: 90).

Description.

Myiophaea spissa is extremely variable in coloration (cf. the discussion under "Variation" below), but there is such uniformity of structure within the series that I have examined that I regard them all as belonging to a single species. My material at this time has, however, been rather limited. In this description, I am indicating the range of the colour variation, and in the notes below am discussing in more detail the precise colour forms of the material I have examined. Characters mentioned in the generic diagnosis and description are not repeated here.

♂. Head. Frons at narrowest point not as broad as diameter of anterior ocellus. Eyes practically bare, with only the usual sparse microscopic hairs; the upper inner eye-facets conspicuously enlarged. Ocellar setae rudimentary, hair-like. Vertical setae relatively strong and twice as long as the upper post-ocular setulae. Post-ocular setulae, in frontal view, hardly projecting above the eye-margin. Parafacialia and lower parafrontalia silvery-white pruinose, often conspicuously tinged with yellowish, especially in darker specimens; upper parafrontalia subshining, very thinly brown-pruinose. Parafrontalia extremely slender, broadening out at lunula to twice diameter of anterior ocellus. Interfrontalia almost completely obsolete, though a seam divides the parafrontalia for most of their length; reduced to two small triangles at lunula and before ocellar tubercle. 13-15 pairs of *ori* (fig. 7): those on lowest third of parafrontalia inclinate and relatively strong, those on median third short, fine and proclinate, and those on upper third longer, fine and proclinate. *Ors* absent, 1st and 2nd antennal segments yellow to brown, arista brown to black. 3rd antennal

segment very pale yellow to dull yellow; rather slender, just over 4 times as long as broad, in frontal view falling short of epistoma by one-third of its length. Arista with long regular plumosity (fig. 7), the longest of which measures ¾, or is subequal to, length of 3rd antennal segment. Parafacialia bare, slender, opposite insertion of arista equal to almost twice diameter of anterior ocellus (in the lectotype of *spissa*) or to just over diameter of anterior ocellus (in all other material). Vibrissal area rather translucent reddish from some angles, yellowish-grey or grey dusted. The depth below lowest eye-margin greater than width of 3rd antennal segment. In lateral view, parafacialia and part of parafrontalia visible though slender. Conspicuous dark setulae ascending a short distance up facial ridges. Occiput with a conspicuous silvery-white pruinose band along lower half of eye-margin, which was devoid of setulae in all specimens examined except for the paralectotype of *spissa* (fig. 7). Occipital dilation grey-dusted, well delineated, and extending to a short distance before vibrissal angle (fig. 7), densely black setulose. Palpi yellow to black, rather compressed dorso-ventrally and weakly clavate (fig. 8).

Thorax. Ground-colour of mesonotum varying from almost wholly black, with obscure brown translucence laterally, to wholly dull yellow without dark markings or vittae; the basic pattern is yellow with a broad dark median vitta from neck to scutellum that broadens out caudad to include all the space between the *dc* rows and that frequently encroaches upon disc of scutellum. Scutellum varying from wholly black to wholly yellow. The area around *h, ph,* propleuron and mesopleuron always yellow to pale brown beneath the dusting. Pleura varying from yellow to dark brown. Dusting forming a very conspicuous and characteristic pattern: viewed from behind, the black median vitta (or, when absent, the equivalent area) densely whitish dusted before suture, but often tinged more greyish-white, greyish, yellowish-grey or even brownish-white; behind suture, dusting more diffuse and thin, and more brownish tinged than that before suture; in dorso-lateral view, the area between *h,* outer *ph* and suture densely whitish to yellowish or even golden dusted, this dusting extending as a broad band over posterior part of mesopleuron and median third of sternopleuron, to ventral extremity of pleura. The flap-like covering over the opercula of both spiracles yellow to dark brown. All setae and ground-setulae black. *Acr* 0 + 1, though a few *prst* ground-setulae

may be rather stronger; the single (*prsc*) pair strong, placed well in front of, on, or behind the transverse level of *prsc dc* and placed closer to each other than to the *dc*. *Dc* 2 + 4 (—5), only the two posterior pairs really strong, the 2nd (or 3rd) *post* pair half as long as these, the 1st (or first 2) *post* and both *prst* pairs very short but distinct among the ground-setulae. 3 *h*, the outer one strongest; one small male with only 2. 2 *ph*, the posterior one about 1½ times as long as anterior one. 2 *sa*, the posterior one quite well developed. Post-alar callus with 2 setae; with a few setulae extending beyond inner seta, but not actually placed between inner seta and scutellum. Post-alar declivity bare, with a few of the usual soft pale hairs just below the outer seta. 1 propleural seta, with a weaker setula below, and surrounded by several setulae. 1st *npl* slightly longer and stronger than 2nd; disc of notopleuron with several setulae around base of both setae; the Australian ♂♂ are bare around base of anterior seta, some New Guinea ♂♂ have the disc bare of setulae. Mesopleuron with 6 strong setae in caudal row, and one conspicuous black setula in upper anterior corner. Infra-alar bulla yellow to dark brown. Pteropleuron with the setulae extending some way down to upper margin of sternopleuron. *Stpl* 1 + 2, the lower posterior one weakest and very close to upper posterior one. Hypopleuron with a few setulae on lower part of beret and below spiracle, one or both of these groups of setulae sometimes absent; always with more numerous setulae above hind coxa (= pre-episternite III). Metathoracic spiracle large, with several black setulae on posterior margin. Squamopleuron and metanotum bare. Scutellum with a strong apical and sub-basal lateral pair of setae and several strong setulae on lateral part of disc (not true laterals). Disc with dense black setulae that descend at all points on to lateral margins of scutellum but do not invade ventral surface.

Legs. Extremely variable in colour: coxae and trochanters brown to yellow; femora most variable, from black to yellow; knees usually pale; tibiae and tarsi always brown to black. Fore femur without *av* setae, with a complete row of *pv* setae. Fore tibia without submedian setae, the ventral pubescence rather dense and semi-erect in apical half. Mid femur without *av* setae but with the ground-setulae fairly dense and erect in basal part; with several short *pv* setae in basal half, and with 5 short semi-decumbent *p* setae in apical third; 0 *a* and 4—5 *p* to *d* preapical setae, the upper

1—2 *d* weak. Mid tibia with 3—5 *p* setae. Hind femur with 5—7 rather fine *pv* setae in slightly more than basal half; 4—6 similar *av* setae in apical half, basal half of *av* surface with short erect setulae; *ad* row complete; (1—)2—3 *d* and 1 *pd* preapical setae. Hind tibia usually rather noticeably curved, especially in New Britain and Queensland specimens; with a weak *pd* seta at apical two-thirds (= ?calcar), and 4—5 *av* setae; with a complete or almost complete row of short *ad* setae of which 2—3 are much longer and stronger; *d* and *ad* preapical setae both longer than tibial diameter, the former longer than the latter; *pv* apical seta absent.

Wings. Varying from weakly yellowish tinged to conspicuously yellow tinged, especially costally; pale yellow to deep yellow at base; the veins pale to dark. Epaulet brown to black, basicosta yellow to dark brown. Costa setulose ventrally almost to apex of vein 2, the spine inconspicuous. Small cross-vein placed basad of point where vein 1 enters costa. Hind cross-vein sinuate. Vein 1 with several conspicuous black setulae on basal third dorsally, usually bare ventrally but rarely with 1-2 setulae. Squamae and halteres varying from pale yellow, with the lower squama rather dirty on disc, to deep yellow.

Abdomen. Variable in ground-colour: from yellow, with limited dark hind-marginal fasciae on the intermediate tergites, to reddish-brown with very extensive dark brown to black markings; often discoloured by the effect of post-mortal rot. In caudal view without dusting, except for tergite 5 which is conspicuously white dusted on whole surface but for a narrow undusted median vitta. Macrochaetae very poorly developed: tergites 3 and 4 with very weak marginal rows, rather stronger laterally; tergite 5 with 6 erect but weak marginals; without any discal setae.

Hypopygium. Figs. 3 and 10-12.

♀. This sex agrees with the male in all structural characters except for those noted below. The range of colour variation falls within that given for the male.

Head. Frons at middle slightly less than one-third of head-width at this point. Upper inner eye-facets not enlarged. Ocellar setae present and quite well developed, but not long. *Vti* long and strong, reclinate; *vte* very weak, hardly stronger than the post-ocular setulae, directed outwards. *Pvt* well developed, inclinate.

Parafacial and parafrontal dusting tinged with yellowish. Parafrontalia dusted as in male, but upper third undusted, shining black; quite slender, broadening towards lunula where a parafrontale is almost as broad as width of 3rd antennal segment. Interfrontalia rather matt black, reddish above lunula; frontal triangle visible as a weakly shining triangle extending one-third to one-half distance to lunula. 9—12 pairs of quite well developed inclinate *ori,* extending from lunula almost to ocellar tubercle; 2 rather weak reclinate *ors,* the lower one very short, the upper one closer to the lower one than to *vti;* 2—3 proclinate *ors* outside the *ori* on upper half of parafrontalia, and a few other proclinate setulae. Parafacialia broader, opposite insertion of arista equal to twice diameter of anterior ocellus.

Legs. Hind tibia with 2—4 *av* setae; the *pd* weak; *ad* row scarcely developed, with only the two setae.

Ovipositor. Figs. 13—15. Spermathecae (fig. 16) with duct bases not at all developed.

Length. Body: 5.5—7.0 mm. Wing: 5.0—6.5 mm.

Material Examined.

Sack (1914: 62) recorded two specimens of *spissa* from Aru Island, but according to Dr. R. zur Strassen (personal communication, 11.v.1966) these specimens are no longer in the collection of the Senckenbergische Naturforschende Gesellschaft and have probably been destroyed.

The following abbreviations are used:

Brit. Mus. — British Museum (Natural History), London.

D.E.I. — Deutsches Entomologisches Institut, Eberswalde.

Z.M.Berl. — Zoologisches Museum der Humboldt-Universität, Berlin.

Z.M.Cop. — Universitetets Zoologiske Museum, Copenhagen.

QUEENSLAND: 2 ♂, 3 ♀. Kuranda, x.1910 (ex coll. E. Brunetti), 1 ♂, 1 ♀, Brit. Mus.; —, — (ex coll. E. Brunetti), 1 ♀, Brit. Mus.; Kuranda, — (F. P. Dodd), 1 ♀, Brit. Mus.; Kuranda, — (coll. Lichtwardt), 1 ♂, D.E.I.

ARU IS.: 2 ♂. Lectotype ♂ and paralectotype ♂ of *spissa* Walker: ARU IS., —, — (A. R. Wallace), Brit. Mus.

MISOÖL IS.: 3 ♂. Holotype ♂ of *aricioides* Walker: MYSOL (= MISOÖL), —, — (A. R. Wallace), Brit. Mus. MYSOL (= MISOÖL), —, — (A. R. Wallace), 2 ♂, Brit. Mus.; one of these specimens was identified by Walker as *Aricia contraria,* the other

is labelled "Named at sight by P. Stein, W.F.K." and (on reverse) "*Bonellia* [sic] *spissa* Wlk."

WEST IRIAN: 1 ♂, 1 ♀. Humboldt Bay, 200-300 ft., iv.1936 (L. E. Cheesman), 1 ♂, Brit. Mus.; Humboldt Bay, sea level to 300 ft., iv.1936 (L. E. Cheesman), 1 ♀, Brit. Mus.

T.P.N.G.: 3 ♂. Northern District, Kokoda, 1200 ft., on river bank, v.1933 (L. E. Cheesman), 1 ♂, Brit. Mus.; Central District, Musgrave River, 6.v.1965 (R. W. Crosskey), 2 ♂, Brit. Mus.

NEW BRITAIN: 8 ♀, 7 ♀. Lectotype ♂ of *ralumensis* Enderlein: Ralum, 1896-97 (F. Dahl), Z. M. Berl. Paralectotypes, 4 ♀: Ralum, 1896-97 (F. Dahl), 2 ♀, Z. M. Berl.; Ralum, Alovon, auf Pflanzen, 12.x.1896 (F. Dahl), 1 ♀, Z. M. Berl.; Ralum, Alovon, 11.vi.1896 (F. Dahl), 1 ♀, Z. M. Berl. Ralum, Hochwald von Habakaul nach Lamellana*), Ende viii.1896 (F. Dahl), 1 ♂, Z. M. Berl.; Yalom, 1000 m., 8.v.1962 (2 ♂), 15.v.1962 (1 ♂), 17.v.1962 (1 ♂, 3 ♀), and 19.v.1962 (1 ♂) (Noona Dan Exped.), 1 ♂, 1 ♀ in Brit. Mus., others in Z. M. Cop.; Keravat, 19.xi.1957 (J. Smart), 1 ♂, Brit. Mus.

Variation.

As stated at the head of the description, there is considerable colour variation in this species. This variation is probably due to the influence of climate, to the relative humidity of the islands which the species inhabits, and it is possible that the geographical isolation of the different populations will eventually lead to a genetic isolation manifesting itself in morphological differences of a kind not evident at the present time. It would be both premature and impractical to distinguish and name the different populations on colour characters alone, especially as these characters appear to be rather labile within populations and as their evaluation is made difficult by the effect of post-mortal rot on thoracic and abdominal coloration.

The lightest forms occur in Australia: here thorax and abdomen are yellow and almost immaculate, at most with vestigial or rather feeble fasciae and vittae. "Intermediates" occur on Aru and Misoöl Islands, with slightly darker forms in New Guinea: thorax and abdomen yellow to dark yellow, with strong and well-marked dark thoracic vitta and abdominal fasciae. The darkest form is found in New Britain: thorax and abdomen are almost entirely dark brown to black, with only the lateral parts of thorax and the

*) Dr. H. Schumann kindly deciphered this obscure hand-written label.

lateral parts of the anterior abdominal tergites translucent reddish-brown. Antennae, palpi and legs follow the same pattern from yellow to brown or black, and wings and squamae from pale yellow to deep yellow.

I have observed this pattern of variation in colour in several species or species-groups of Australasian Muscidae, particularly in the genus *Dichaetomyia:* Queensland forms tend to be the lightest of all and New Britain ones the darkest, with New Guinea forms falling between the two.

QUEENSLAND. (t.t. of *fulvithorax*). 1st and 2nd antennal segments dark yellow; 3rd segment yellow. Palpi yellow (♂) or dull yellow (♀). Thorax wholly dull yellow to pale brown, without dark markings or vittae. Dusting yellowish-grey before suture, virtually absent behind suture. Covering of opercula yellow. Infra-alar bulla dark yellow. Coxae, trochanters, and femora yellow; tibiae brown; tarsi blackish-brown. Wings weakly yellowish tinged, pale yellow at base, veins pale. Epaulet brown; basicosta yellow. Squamae and halteres yellow (♂) or deep yellow (♀). Abdomen missing in the only male examined; in female dull brownish in ground-colour; tergite 1 + 2 usually immaculate, tergites 3 and 4 with hind-marginal fasciae varying from very slender to rather broad, that on tergite 4 the broadest, tergite 5 immaculate.

ARU IS. (t.t. of *spissa*). 1st and 2nd antennal segments yellow; 3rd segment very pale yellow. Palpi brown, slightly paler at apex. Thorax yellow to dark yellow in ground-colour; mesonotum with a rather broad brown to black median vitta from neck to scutellum that broadens out caudad to include all the space between the *dc* rows. This vitta is densely whitish dusted before suture, very thinly so behind suture where the dusting is more diffuse and tinged with brownish caudad. Covering of opercula dark brown. Infra-alar bulla pale-brown to yellow. Legs mainly dark brown; mid and hind coxae, trochanters, base of femora and knees yellow. Wings weakly yellowish tinged, pale yellow at base, veins pale. Basicosta brown. Squamae and halteres pale yellow, the lower squama rather dirty on disc. Abdomen yellow to dark yellow in ground-colour, with deep brown markings restricted to a narrow hind-marginal fascia on tergite 3 and a broader one on tergite 4.

MISOÖL IS. (t.t. of *aricioides*). 1st and 2nd antennal segments yellow to dark yellow; 3rd segment yellow to very pale yellow.

Palpi wholly brown, or brown and slightly paler towards apex. Mesonotum almost wholly black, slightly paler laterally, or mainly brown with the black vitta very conspicuous and extensive, occupying all the space between the *dc* postsuturally and extending on to scutellum where it occupies most of disc. Humeri, post-humeri and anterior pleural area dark yellow to pale brown, pleura otherwise brown, very much darker ventrad, hypopleuron especially mainly dark brown. Covering of opercula dark brown. Median vitta densely whitish or greyish dusted before suture, more thinly so behind suture where the dusting is more diffuse and is distinctly tinged with brownish. Infra-alar bulla pale-brown to yellow. Legs mainly dark brown; mid and hind coxae, trochanters and base of femora yellow, knees yellow to brown, and fore coxa with a yellow streak on dorsal surface. Wings weakly yellowish tinged, pale yellow at base, veins pale. Basicosta brown. Squamae and halteres pale yellow, the lower squama often rather dirty on disc. Abdomen dull yellow to pale brown in ground-colour, with dark markings as follows: tergite 1 + 2 with or without a narrow hind-marginal fascia; tergite 3 with a broad hind-marginal fascia not occupying half length of tergite; tergite 4 with a very broad hind-marginal fascia that occupies almost the whole of tergite; tergite 5 with or without a median vitta.

NEW GUINEA (West Irian and T.P.N.G.). 1st and 2nd antennal segments pale brown; 3rd segment yellow. Palpi pale to dark brown. Central part of mesonotum (between *dc*) black, brown to dark yellow laterally; humeral and post-humeral area dark yellow; pleura yellow to brown; scutellum deep brown on disc, becoming pale brown laterally, or wholly black. Dusting on mesonotum diffuse and brownish behind suture, more greyish-white or yellowish-grey before suture. Covering of opercula dark brown. Infra-alar bulla yellow (♂) or brown (♀). Legs mainly dark brown; extreme bases or more than basal half of femora, trochanters, sometimes knees, and mid and hind coxae yellowish. Wing-base, squamae and halteres pale to deep yellow. Basicosta dark brown (♂) or brown (♀). Abdomen dirty yellow to pale brown in ground-colour, with extensive black markings: tergite 1 + 2 with a slender hind-marginal fascia; tergite 3 with a broad hind-marginal fascia, occupying about or over half length of tergite; tergite 4 wholly black, except for the lateral anterior corners or for a reddish fascia along anterior margin; tergite 5 mainly to almost wholly black.

NEW BRITAIN. (t.t. of *ralumensis*). 1st and 2nd antennal segments pale brown to brown; 3rd segment dull yellow, usually with some rather diffuse infuscation. Palpi wholly black, sometimes more brownish towards apex. Mesonotum almost wholly black, moderately to very obscurely brown translucent laterally; scutellum mainly or wholly black, some females with the margins paler, brownish; pleura brown to dark brown. The median dusted area of mesonotum conspicuous to comparatively inconspicuous; the dusting brownish-white to rather brownish before suture and brownish behind the suture, and rather diffuse, especially behind suture, better marked and defined in female. Covering of opercula dark brown. Infra-alar bulla brown to dark brown. Legs wholly black; only fore knees, mid and hind coxae, and trochanters brown to dark yellow. Wings rather more conspicuously yellowish tinged costally and deep yellow at base, except in one small male which is pale yellow. Basicosta dark brown. Squamae and halteres deep yellow, except in the small male where they are pale yellow. Abdomen dull yellow to dull reddish-brown in ground-colour, with extensive but rather variable darker markings: tergite 1 + 2 wholly or almost wholly reddish-brown; tergites 3 and 4 with more or less broad black hind-marginal fasciae which vary in width but which sometimes occupy almost all the tergite; tergite 5 wholly reddish-brown to wholly black.

Acknowledgments.

I am particularly indebted to Dr. Leif Lyneborg for the privilege of studying the large and beautiful preserved collection of Muscidae made by the Noona Dan Expedition. I am also grateful to Dr. H. Schumann, who sent me Enderlein's syntypes and further material for study; to Prof. Dr. W. Hennig and Dr. G. Morge for material; to Dr. R. zur Strassen for information on Sack's specimens; and to Dr. L. Tsacas, who examined several Macquart types of *Ochromyia* for me.

Summary.

The genus *Myiophaea* is redefined and its systematic position discussed. The type-species, *spissa Walker,* is fully redescribed and illustrated and its variability discussed. Two new generic and three new specific synonymies are established.

References.

Emden, F. I. van, 1965: *in* The Fauna of India and the adjacent countries. Diptera, vol. 7, Muscidae, part 1: xiv + 647 pp. Delhi.

Enderlein, G., 1935: Dipterologica, III. — Sber. Ges. naturf. Freunde Berl., 1935: 235-246.

Hennig, W., 1955-1964: *in* Lindner, E., Fliegen palaearkt. Reg., 63b, Muscidae: 1110 pp. Stuttgart.

—, 1965: Vorarbeiten zu einem phylogenetischen System der Muscidae (Diptera: Cyclorrhapha). — Stuttg. Beitr. Naturk., Nr. 141: 100 pp.

Lee, D. J., Crust, M., and Sabrosky, C. W., 1955: The Australasian Diptera of J. R. Malloch. — Proc. Linn. Soc. N.S.W., 80: 289-342.

Macquart, J., 1843a: Diptères Exotiques ou peu connus, II (3). — Mém. Soc. Sci. Agric. Lille, 1842: 162-460.

—, 1843b. Ibid, reprinted with pagination 5-304.

Malloch, J. R., 1926: Notes on Australian Diptera, IX. — Proc. Linn. Soc. N.S.W., 51: 545-554.

Petersen, Børge, 1966: The Noona Dan Expedition 1961-62. Insects and other land arthropods. — Ent. Meddr., 34: 283-304.

Pont, A. C., 1966: Notes on the Muscidae of New Guinea (Diptera). I. The types of Francis Walker. — Ann. Mag. nat. Hist. (13), 9: 87-99.

Sack, P., 1914: Diptera von den Aru- und Kei-Inseln. *In* Ergebnisse einer Zoologischen Forschungsreise in den südöstlichen Molukken (Aru- und Kei-Inseln) im Auftrag der Senckenbergischen Naturforschenden Gesellschaft ausgeführt von Dr. Hugo Merton. Band III, Heft 1. — Abh. senckenb. naturforsch. Ges., 35: 59-62.

Séguy, E., 1935: Etudes sur les Anthomyiides, 10e note: Etude sur le genre Morellia R.-D. — Encycl. ent., B II, Dipt. 8: 103-115.

—, 1937: *In* Wytsman, P., Genera Insect., 205, Diptera, Muscidae: 604 pp. Bruxelles.

Stein, P., 1901: Die Walker'schen aussereuropäischen Anthomyiden in der Sammlung des British Museum zu London (Dipt.). — Z. syst. Hymenopt. Dipterol., 1: 185-221.

—, 1918: Zur weitern Kenntnis aussereuropäischer Anthomyiden. — Annls hist.-nat. Mus. natn. hung., 16: 147-244.

—, 1919: Die Anthomyidengattungen der Welt, analytisch bearbeitet, nebst einem kritisch-systematischen Verzeichnis aller aussereuropäischen Arten. — Arch. Naturgesch., 83 A I [1917]: 85-178.

Walker, F., 1859: Catalogue of the Dipterous Insects collected in the Aru Islands by Mr. A. R. Wallace, with Descriptions of New Species. — J. Proc. Linn. Soc., 3: 77-131.

—, 1860: Catalogue of the Dipterous Insects collected at Makessar in Celebes by Mr. A. R. Wallace, with Descriptions of New Species. — J. Proc. Linn. Soc., 4: 90-172.

—, 1864: Catalogue of the Dipterous Insects collected in Waigiou, Mysol, and North Ceram, by Mr. A. R. Wallace, with Descriptions of New Species. — J. Proc. Linn. Soc., 7: 202-238.

—, 1866: Synopsis of the Diptera of the Eastern Archipelago discovered by Mr. Wallace, and noticed in the "Journal of the Linnean Society". — J. Proc. Linn. Soc., 9: 1-30.

W u l p, F. M. v a n d e r, 1896: Catalogue of the described Diptera from South Asia: 220 pp. The Hague.