

A revision of Melanesian Agromyzidae (Diptera)

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Abstract : The 49 species of Agromyzidae hitherto known in Melanesia have been revised and additional unidentified material in the Bishop Museum has been examined. Five new species described are: *Ophiomyia dumosa*, *O. phalloides* and *Phytomyza inusitata* from Vanuatu, *Phytobia bifistula* from Guadalcanal and *Pseudonapomyza ommata* from New Caledonia. Nine species known from the Oriental region are recorded as new to Melanesia. Of the 64 species now confirmed, 30 species (47 %) are endemic, 31 are present elsewhere in the Oriental and Australian regions, or in the Pacific area, and 3 are considered as introductions.

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Key words : Diptera: Agromyzidae, Melanesia, new species, new records.

Introduction

The Agromyzidae in Melanesia has hitherto been poorly known taxonomically and biologically. Bezzi (1928) made a start in studying leaf-mines in Fiji, and recorded the occurrence of eight species: *Melanagromyza leguminum* (= *albiquama*), *M. alysicarpi*, *M. phaseoli*, *Ophiomyia leucolepis* (= *cornuta*), *O. lantanae*, *Dizygomyza bellidis* (= *Calycomyza humeralis*), *Liriomyza pusilla* (= *brassicae*) and *Pseudonapomyza atra* (= *spicata*). Three Melanesian species of the genera *Melanagromyza* and *Japanagromyza* were described as new to science by Spencer (1962a). In my earlier revision of the Polynesian Agromyzidae (only in New Hebrides and Fiji) and two papers on New Caledonian and Papuan species, 30 Melanesian species were identified, of which 10 were new, in the genera *Melanagromyza*, *Ophiomyia*, *Japanagromyza*, *Phytobia*, *Calycomyza*, *Liriomyza* and *Pseudonapomyza*. After then, 12 new and 11 newly recorded species were described from the Bismarcks and New Hebrides by Spencer (1966).

Five new and nine newly recorded species described in the present paper are based upon the unidentified material in the Melanesian Diptera collection of the B. P. Bishop Museum, Honolulu. Most of the specimens have been collected by Dr. N. L. H. Krauss during the past 35 years.

Materials and Methods

About 1,200 dried specimens of the Melanesian agromyzid leaf-miners identified in this study were mostly collected by the Bishop Museum staff. Collector's names are abbreviated to the initials, excepting the data of new species: WB- W. W. Brandt, EF- E. J. Ford, Jr., JG- J. L. Gressitt, WG- W. C. Gagne, CJ- C. R. Joyce, NK- N. L. H. Krauss, GS- G. A. Samuelson, J-MS- J. & M. Sedlacek, PS- P. Shanahan, RS- R. Straatman, TM- T. C. Maa, BM- B. Malkin, GN- G. M. Nishida, CO- C. W. O'Brien, CY- C. M. Yoshimoto and EZ- E. C. Zimmerman.

The terminology, including abbreviations for certain setae or bristles and wing veins, follows Sasakawa (1963c), but pd, T3-6 and S5-7 in this paper mean the postero-dorsal bristles on tibia, third to sixth

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abdominal tergites and fifth to seventh sternites, respectively. The male genitalia were macerated with 30%KOH and transferred to distilled water for dissection. After the drawings of each essential structure the genitalia with pregenital abdominal segments were put into a polyethylene tubule with glycerol and the tubule was pinned with the specimen.

The holotypes of new species are deposited in the collection of the Bishop Museum, Honolulu, Hawaii 96817, U. S. A.

Faunistical characteristic

The Agromyzidae is relatively poorly represented in Melanesia as in New Guinea (57 species in total by Spencer, 1977). Only 13 genera of the world total of 26 are represented in Melanesia as in New Guinea and Australia. At the present time, 64 species are known from the Bismarcks, Solomons, Vanuatu, New Caledonia and Fiji. The generic distribution in Melanesia and number of species are shown in Table 1.

Table 1. Agromyzidae known on islands of Melanesia

| Genus | Bismarck Arch. | Solomon Is. | Vanuatu | New Caledonia | Fiji | Total(endemic) |
|-----------------------|-------------------|----------------|---------|------------------|------|----------------|
| <i>Melanagromyza</i> | 11 | 5 | 3 | 3 | 4 | 14 (8) |
| <i>Tropicomyia</i> | 1 | 1 | 1 | 2 | 1 | 2 |
| <i>Ophiomyia</i> | 4 | 5 | 6 | 6 | 6 | 12 (5) |
| <i>Japanagromyza</i> | 6 | 5 | 4 | 3 | 1 | 10 (5) |
| <i>Agromyza</i> | 1 | | | | | 1 |
| <i>Phytobia</i> | 4 | 1 | 1 | | | 5 (3) |
| <i>Amauromyza</i> | 1 | | | | | 1 (1) |
| <i>Cerodontha</i> | 3 | 2 | 1 | | 1 | 4 (2) |
| <i>Calycomyza</i> | | | 1 | 1 | 1 | 1 |
| <i>Liriomyza</i> | | 1 | 2 | | 1 | 2 |
| <i>Phytoliriomyza</i> | 1 | | | 1 | | 2 |
| <i>Pseudonapomyza</i> | 4 | 2 | 1 | 5 | 3 | 9 (5) |
| <i>Phytomyza</i> | | | 1 | | | 1 (1) |
| Total | 36 | 22 | 21 | 21 | 18 | 64 (30) |

The generic distributional pattern reflects primarily the fauna of the Oriental origin. *Melanagromyza* is the dominant genus in Melanesia as well as in other islands of the tropics. The relatively high number of species in *Ophiomyia*, *Japanagromyza* and *Pseudonapomyza* is also noteworthy. The specific diversities in these genera are apparently great, while *Agromyza*, *Liriomyza* and *Phytomyza*, mainly distributed in temperate areas of the northern hemisphere, are present with only one or two species, respectively. In Melanesia, a considerable reduction in species is accounted for by the striking reduction in number within these three large genera in the Oriental region (289 species in total by Sasakawa, 1977, 1996). On the other hand, in Australia, *Ophiomyia*, *Melanagromyza* and *Phytoliriomyza* are well represented with 84 species.

Thirty of the 64 species known in Melanesia must be treated as endemic at present. These endemic species are present in eight genera as follows:

Agromyzinae

- Melanagromyza bryani* Sasakawa
- M. fijiana* Sasa.
- M. lividula* Sasa.
- M. normalis* Spencer
- M. oculata* Sasa.
- M. pseudometallica* Sp.

Phytomyzinae

- Phytobia bifistula*, n. sp.
- Phytob. furcata* (Sasa.)
- Phytob. inusitata* Sp.
- Amauromyza papuensis* Sp.
- Cerodontha (Dizygomyza) laetifica* Sp.
- Cer. (Poemyza) longimentula* Sasa.

| | |
|------------------------------------|--------------------------------------|
| <i>M. surrufa</i> Sasa. | <i>Pseudonapomyza dilatata</i> Sasa. |
| <i>M. trepida</i> Sp. | <i>P. fabulosa</i> Sp. |
| <i>Ophiomyia dumosa</i> , n. sp. | <i>P. flavolunulata</i> (Sasa.) |
| <i>O. mussauensis</i> Sp. | <i>P. multimoda</i> Sp. |
| <i>O. phalloides</i> , n. sp. | <i>P. ommata</i> , n. sp. |
| <i>O. sporoboli</i> (Sasa.) | <i>Phytomyza inusitata</i> , n. sp. |
| <i>O. tremenda</i> Sp. | |
| <i>Japanagromyza clavata</i> Sasa. | |
| <i>J. displicata</i> Sasa. | |
| <i>J. scelestia</i> Sp. | |
| <i>J. sordidata</i> (Sp.) | |
| <i>J. trifida</i> Sp. | |

It was of interest to find a high degree of speciation in two new species, *Ophiomyia dumosa* and *O. phalloides*, which are distinctive in having the external bristle on the fore tibia and the peculiar male genitalia. In *dumosa*, the dorsally spinose epandrium may be an apomorphic character, because it seems to be useful for the pre-mating behavior in addition to the general function of spinose surstylus. *O. phalloides* shows the relationship with *O. conspicua* (Spencer) in the structure of phallus with the spinose lobes and the long egg-guide, and also its larva indicates the stem-miner as the mining habit of *conspicua*, although the host plant is not ascertained at present.

Phytobia bifistula n. sp. appears to be affiliated with *Phytobia seticopia* (Sasakawa, 1963) from Borneo and Philippines, if it is accepted that the presence of fore-tibial bristle, the narrow gena and the short ultimate section of M_{3+4} are symplesiomorphic. On the other hand, it may be shared with its nearest relatives in the Neotropical species, such as *Phytobia mentula* Sasakawa, 1992, and *P. pipinna* Sasakawa, 1992, with the synapomorphic character in the yellow coloration on head and mesoscutum, from the viewpoint of the structure of distiphallus with the long, membranous tubules distally. Further study will be necessary to understand whether the species with similar pale or dark coloration, or with similar structure of the distiphallus, known from the Orient and South America, are truly monophyletic.

Pseudonapomyza multimoda Spncer, 1966, from Bismarck Archipelago, and *Pseudonapomyza ommata* n. sp. are differentiated from the general species in the *spicata*-group with the angulate first flagellomere of antenna, the short second costal section and the white fringe on the calypter of the Gramineae miners. But, the male genitalia of *ommata* are generally similar to those of the *spicata*-group. The species with the round first flagellomere may be the ancestral group, and it is suggested that the species, distributed worldwide, with the angulate flagellomere evolved subsequently.

Phytomyza inusitata n. sp. is distinctive in having the enlarged first flagellomere as in *Phytomyza orientalis* Spencer, 1962, from Papua New Guinea.

Distributional patterns are analyzed from the viewpoint of the relationships with other zoogeographic areas as follows:

Widespread Oriental / Pacific species

| | |
|--|---|
| <i>Melanagromyza albiquama</i> (Malloch) | <i>Cerodontha</i> (Ict.) <i>piliseta</i> (Becker) |
| <i>M. cordiophoeta</i> Sp. | <i>Pseudonapomyza spicata</i> (Mall.) |
| <i>M. metallica</i> (Thomson) | <i>P. spinosa</i> Sp. |
| <i>M. sojae</i> (Zehntner) | |
| <i>Tropicomyia atomella</i> (Mall.) | |
| <i>Ophiomyia atralis</i> (Sp.) | |
| <i>O. conspicua</i> (Sp.) | |
| <i>O. cornuta</i> (de Meijere) | |
| <i>O. phaseoli</i> (Tryon) | |
| <i>Japanagromyza tristella</i> (Thom.) | |

Species present in Melanesia and New Guinea

Melanagromyza insignita Sp.*M. sensoriata* Sasakawa*Japanagromyza duchesneae* (Sasa.)*J. triformis* Sp.*Agromyza papuensis* Sasa.*Phytobia furcata* (Sasa.)*Phytob. maai* (Sp.)*Phytob. terminalis* (Sasa.)*Cerodontha* (Ict.) *floresensis* Sp.*Cer. (Poe.) longimentula* (Sasa.)*Amauromyza papuensis* Sp.

Species present in Melanesia and Australia

Tropicomyia polyphyta (Klein.)*Ophiomyia alysicarpi* (Bezzi)*O. placida* (Sp.)*O. mussauensis* Sp.*Japanagromyza kalshoveni* (Meij.)*Liriomyza caulophaga* (Klein.)*Phytoliriomyza australensis* Sp.*Pseudonapomyza spinosa* Sp.

Recent introductions

Ophiomyia lantanae (Frogg.)*Calycomyza humeralis* (Ros.)*Liriomyza brassicae* (Riley)

It is said that the specific diversity in the Melanesian Agromyzidae consists in the preponderance of Oriental species. Only a little number of species show a relationship with Australian species. With 26 (41%) of the described species not known outside Melanesia, but some of them will, in due course, be found to occur elsewhere, particularly on New Guinea. At present, the small overlap in about ten species between Melanesia and New Guinea or Australia. The very wide distribution of *Melanagromyza insignita*, *Ophiomyia alysicarpi*, *Japanagromyza kalshoveni* and *Cerodontha floresensis*, which are not known to mine in the leaves of commercial crops, suggests that the agromyzid flies are possible of the long distance migration by the air and has not been introduced by man.

Systematics

Subfamily Agromyzinae

Genus *Melanagromyza* Hendel

This is the dominant genus in the tropics of Africa, Asia, New Guinea, northern Australia and South America. Fourteen species are known in Melanesia: *Melanagromyza albisquama* (Malloch, 1927), from New Britain (Sasakawa, 1963c), New Caledonia (as *M. leguminum*, Bezzi, 1928) and Central Polynesia (Sasakawa, 1963b); *M. bryani* Sasakawa, 1963b, from Solomons (Sasakawa, 1963c); *M. cordiophoeta* Spencer, 1961, from New Britain (Spencer, 1962a) and New Ireland (Spencer, 1966); *M. fijiana* Sasakawa, 1963b, from Fiji; *M. insignita* Spencer, 1966, from New Ireland; *M. lividula* Sasakawa, 1963c, from New Britain; *M. metallica* (Thomson, 1869), from Bismarck Arch. (Sasakawa, 1963c), Solomons and Vanuatu (Spencer, 1962a), New Caledonia (Sasakawa, 1963a) and Fiji (Bezzi, 1928); *M. normalis* Spencer, 1962a, from New Ireland; *M. oculata* Sasakawa, 1963c, from New Britain; *M. pseudometallica* Spencer, 1966, from New Ireland; *M. sensoriata* Sasakawa, 1963c, from Guadalcanal; *M. sojiae* (Zehntner, 1900), from Melanesia (Sasakawa, 1963b,c; Spencer, 1966); *M. surrufa* Sasakawa, 1963c, from New Britain; *M. repida* Spencer, 1966, from New Ireland, of which Melanesian *albisquama*, *metallica* and *sojiae* recorded below are common in the Oriental region, Pacific area and northern Australia. Larvae of *albisquama* and *sojiae* feed on the leguminous plants, and of *metallica* on the composite ones.

Key to Melanesian species of *Melanagromyza* and *Tropicomyia*

1. Fringe on calypter white to yellowish..... 2
- Fringe on calypter brown to black..... 12

2. Mesoscutum black..... 3
 Mesoscutum distinctly greenish or bluish shining..... 5
3. Abdomen black, similar to mesoscutum; ocellar triangle conspicuously shiny..... *normalis* Spencer
 Abdomen distinctly greenish or reddish; ocellar triangle weakly or moderately shining..... 4
4. Abdomen conspicuously reddish-tinged; gena 1/11 height of eye; wing length 2.7 mm; halter with knob
 yellowish brown apically..... *fijiana* Sasakawa
 Abdomen shining greenish; gena 1/7 height of eye, deepest in center; wing length 1.8-2.4 mm; halter
 entirely brownish black..... *sojae* (Zehntner)
5. Eye bare..... 6
 Eye in male with a patch of hairs antero-dorsally..... 7
6. Large species, wing length 2.5 mm; mid tibia with one postero-dorsal bristle..... *cordiophoeta* Spencer
 Small species, wing length 1.6-2.2 mm; mid tibia with two postero-dorsal bristle..... *albiquama* (Malloch)
7. Fore tibia with one external bristle..... 8
 Fore tibia without external bristle..... 10
8. Large species, wing length 3.1 mm; gena 1/7 height of eye..... *trepida* Spencer
 Small species, wing length 2-2.5 mm..... 9
9. Gena 1/6 height of eye; basiphallus widely separated from distiphallus with smooth median ventral tube
 *pseudometallica* Spencer
 Gena 1/11 height of eye; basiphallus close to distiphallus with some tubercles on median tube
 *sensoriata* Sasakawa
10. Mesoscutum and abdomen shining greenish; gena 1/10 height of eye..... *metallica* (Thomson)
 Mesoscutum and abdomen shining bluish; gena 1/13-1/14 height of eye..... 11
11. Mid tibia with two postero-dorsal bristles; arista distinctly pubescent..... *lividula* Sasakawa
 Mid tibia with three pd; arista minutely pubescent..... *bryani* Sasakawa
12. Eye bare; mesoscutum shining..... 13
 Eye in male with a patch of hairs antero-dorsally; mesoscutum densely gray-dusted..... *oculata* Sasakawa
13. Large species, wing length more than 2 mm; mesoscutum brilliantly shining; mid tibia with two postero-
 dorsal bristles..... 14
 Small species, wing length 1.2-1.6 mm; mesoscutum moderately shining; mid tibia usually with one short
 pd..... *Tropicomyia*..... 15
14. Mesoscutum and abdomen entirely black; wing length 3.3 mm; fore tibia with one external bristle.....
 *insignita* Spencer
 Mesoscutum with greenish tinge, abdomen coppery greenish to reddish shining; wing length 2-2.3 mm;
 fore tibia without external bristle..... *surrufa* Sasakawa
15. Ultimate section of M_{3+4} slightly shorter than penultimate..... *T. atomella* (Malloch)
 Ultimate section of M_{3+4} distinctly shorter than penultimate..... *T. polyphyta* (Kleinschmidt)

***Melanagromyza albiquama* (Malloch)**

Agromyza (*Melanagromyza*) *albiquama* Malloch, 1927: 425.

The shiny greenish body and whitish squamal fringe are distinctive features of this species. Essential characters of the male genitalia were described by Sasakawa (1963b).

This species is widespread throughout the Pacific and from South Africa to northern Australia and central Polynesia, and is new to the fauna of the east Melanesia. The larva is known as a seed-feeder in the pods of *Desmodium* (Leguminosae) (Spencer, 1965).

Specimens examined. BOUGAINVILLE: 1 ♀, Boku, 6.vi.1956, light trap (JG); 1 ♂2 ♀, Kokure (690 m), 10.vi.1956 (EF); 1 ♂1 ♀, Guaba (720 m), 20.vi.1956 (EF); 1 ♂1 ♀, Simba Mission, 1.vii.1956 (EF). SOLOMON IS.: Guadalcanal- 1 ♂, Lambi Bay (0-100 m), 11.i.1973 (NK); 1 ♀, Mt. Austin (300 m), 25.iv.1964 (RS); 1 ♂1 ♀, Kukum (10 m), 21.vi.1956 (JG); 1 ♀, Tadhimboko (0-100 m), x.1970 (NK); 1 ♂2 ♀, Honiara (0-100 m), x.1970 & xii.1976 (NK); 1 ♂1 ♀, Kira Kira, 6.xi.1964 (RS); 1 ♂2 ♀, Kira Kira, xii.1975 & 1976 (NK). 1

♀, Sasamongga (0-100 m), Choiseul I., ii.1984 (NK); 1 ♀, Ulo Crater (10 m), Vella Lavella I., 17.xii.1963, Malaise trap (PS); 2 ♂2 ♀, Gizo (0-100 m), Kolombangara I., ii.1984., xi.1980. & xii.1976 (NK); 1 ♂, Munda (0-100 m), New Georgia I., xi.1980 (NK); 1 ♀, Grasirosa Bay (0-50 m), Santa Cruz I., i.1977 (NK); 1 ♂1 ♀, Bethlehem (0-10 m), Ndai I., xii.1972 ((NK). VANUATU: Banks Is.- 2 ♂, Sola to Chelva River (0-20 m) & 2 km W. of Sola, Vanoua Lava I., 16-17.ix.1979 (GN & GS); 1 ♂, Lakotoro (0-200 m), Malakula I., ii.1973 (NK); Maéwo I.- 3 ♂, Sounwari (0-360 m), 4-5.ix.1979 (WG & GN); 1 ♂, Kerepei (0-200 m), xii.1983 (NK); 1 ♂, Batnavni (0-100 m), Pentecost I., 3.ix.1979 (WG, GN & GS); 1 ♂, Ambrym I., xii.1984 (NK); 1 ♀, Vaemali (100-150 m), Epi I., 6-10.viii.1967 (J-MS); Éfaté I.- 4 ♂3 ♀, Vila, i.1976, ii.1959, iii.1970, viii.1950 (NK); 1 ♂, 8 km W. of Forari (175-220 m), 21-23.viii.1979 (GN); 7 ♂1 ♀, Dillon's Bay, Erromango I., i.1984. & iii.1978 (NK); Tanna I.- 4 ♂12 ♀, Lenakel (0-200 m), iii.1980 (NK); 5 ♂4 ♀, White Grass (0-120 m), 8.iii.1980 (NK); 1 ♂1 ♀, Loounapkaulangeus (300-400 m), 3.iii.1970 (NK); 1 ♂2 ♀, Anelgaohat (0-200 m), Aneytioun I., xi.1979 (NK); 1 ♀, Lamén I., ii.1976 (NK). NEW CALEDONIA: 1 ♂, Anse Vata, 9.xi.1958 (CJ); 1 ♀, Col d'Amieu (650 m), 31.iii.1968 (JG); 1 ♀, 4 km SW. of Col de Mouirange (20 m), 10.vii.1979 (WG); 1 ♂, Col des Roussettes (300-400 m), 29.i.1969 (NK); 2 ♂, Gomen, 23.i.1969 (NK); 2 ♂, Hienghene (0-100 m), i.1971 (NK); 3 ♂4 ♀, Noumea (0-100 m), 20.ii.1963 (CY, light trap) & xii.1968 (NK); 2 ♀, Poindimie, vii.1950. & i.1969 (NK); 1 ♀, Ponerihouen (0-50 m), 28.i.1969 (NK); 1 ♂4 ♀, Tao, 8-10.ii.1963 (CY. & NK, Malaise trap); 1 ♂, Thio (0-50m), 7.i.1969 (NK); 1 ♂, 7 km S. of Tchambouenne (750 m), 28.i.1964 (RS); 1 ♂, Tipindji, 10.ii.1967 (CY & NK, Malaise trap); 1 ♂, Yahoue, 22.i.1963 (CY); 1 ♂, Yate, 26.iii.1968 (JG); 2 ♂3 ♀, Yahoue, 20.ii.1963 & ii.1980 (CY & NK, Malaise trap, & NK). LOYALTY IS.: 5 ♂1 ♀, Fayaoue (0-50 m), Ouvéa I., i.1969, ii.1963 & xii.1968 (NK); 2 ♂1 ♀, We, Lifou I., 30-31.i.1962 (NK); 3 ♂3 ♀, Lifou I., 26-28.iii.1968 (JG & TM); 4 ♂4 ♀, La Roche, Maré I., iii.1959 (NK). FIJI: 1 ♂, Savusavu (0-100 m), Vanua Levu I., iii.1973 (NK); 2 ♂, Nausori Highlands, Viti Levu I., 26.iii. & x.1970 (NK); 2 ♂1 ♀, Naudi Airport, 6.xii.1958 (CJ); 1 ♂1 ♀, Loma Loma (0-100 m) & Maulevu (0-10 m), Vanua Balavu I., 14.ii.1970 (NK); 3 ♂2 ♀, Levuka (0-200 m), Ovalau I., ii.1972 & xii.1969 (NK).

Distribution. Australia; Papua New Guinea, New Britain, Palau, Solomon Is., Vanuatu, New Caledonia, Loyalty Is., Fiji, Tonga, Samoa; Formosa, Philippines, Viet Nam, Indonesia, Sumbawa, India, Ceylon; S. Africa, Cape Verde Is.

***Melanagromyza metallica* (Thomson)**

Agromyza metallica Thomson, 1869: 609.

Melanagromyza metallica: Spencer, 1959: 278.

This shiny greenish species is commonly distributed in the Old World tropics as wide as the distribution of *albiquama*, but its distinguished character is an anterodorsal patch of whitish hairs on the male eye, while male *albiquama* has no hairs on eye. It is newly recorded from Loyalty Is. The larva is known as the stem-miner of *Ageratum* and *Bidens* (Asteridae) (Spencer, 1977a).

Specimens examined. NEW IRELAND: 1 ♂, Lelet Plateau, Schleinitz Mts., x.1959 (WB). BOUGAINVILLE: 1 ♂, Kokuro (690 m), 13.vi.1956 (EF). SOLOMON IS.: 3 ♂3 ♀, Sasamongga (0-100 m), Choiseul I., ii.1984 (NK); 2 ♂, Gizo (0-140 m), Kolombangara I., xii.1980 (NK); 1 ♂, Ringgi Cove (0-50 m), Kolombangara I., xi.1976 (NK); 6 ♂4 ♀, Munda (0-200 m), New Georgia I., xi.1970 & xii.1980 (NK); 1 ♂ 1 ♀, Tadhimboko (0-100 m), Guadalcanal I., x.1970 (NK); 13 ♂10 ♀, Honiara (0-200 m), Guadalcanal I., xii.1975, xii.1976 & xii.1980 (NK); 5 ♂2 ♀, Kira Kira (0-200 m), San Cristobal I., xii.1975 & i.1976 (NK); 8 ♂, Gizo (0-150 m), Gizo, xi.1975 & xii.1976 (NK); 5 ♂2 ♀, Graciosa Bay(0-50 m), Santa Cruz I., i.1977 (NK); 1 ♀, Bethlehem (0-10 m), Ndai I., xii.1972 (NK). VANUATU: 1 ♀, Anelgaohat (0-200 m), Aneytioun I., xi.1978 (NK); Éfaté I.-1 ♂, Onesua (0-20 m), 19.i.1973 (NK); 2 ♂, Vila, ii.1959 & iii.1950 (NK); 1 ♀, Mt. Bernier (479 m), 24. viii.1979 (GN); 1 ♀, Mt. Tavani Talimasa (434 m), Emae I., 30.viii.1979 (WG, GN & GS); Epi I.- 1 ♂, Lamén Bay (0-20 m), 3.ii.1976 (NK); 4 ♂ 3 ♀, Vaemali (100-150 m), 6-10.viii.1967 (JS); 1 ♀, Dillon Bay (0-50 m), Erromango I., ii.1981 (NK); 2 ♂1 ♀, Lamén I., i.1976 (NK); 2 ♀, Sounwari (0-360 m), Maéwo I., 4-5.ix.1979 (WG, GN & GS); Malakula I.- 1 ♀, Tongariki I., Shepherd Group, 29.viii.1979 (WG); 1 ♂, Amok, 17.ix. 1958 (BM); 1 ♀, N. Lakotoro, 22.ix.1967 (JS); 4 ♂1 ♀, Lenakel (0-200 m), Tanna I., i.1973, iii.1980 & xi.

1978 (NK); 2 ♂, 2 km E. of Vetoubosor (50-100 m), Vanua Lava I., Banks Is., 13.ix.1979 (GS). NEW CALEDONIA: 4 ♀, Yahoue (60-100 m), 22.i.1963 (CY & NK); 20 ♂21 ♀, Yahoue, i.1985, ii.1976 & 1980, 2.iii.1973 (NK); 2 ♂1 ♀, 6 km N. of Paita, 25.i.1963 (NK); 1 ♂1 ♀, Col des Roussettes (300-400 m), 29.i.1969 & 4-8.ii.1971 (NK); 1 ♂, Couli, 30.i.1963 (NK); 10 ♂7 ♀, Hienghene (0-100 m), i.1971 & 6.ii.1962 (NK); 1 ♀, Tipindji, 10.ii.1963 (NK); 1 ♂2 ♀, La Crouen (150-250 m), i.1963, ii.1973 & iii.1959 (NK); 5 ♂8 ♀, Sarramea (10-150 m), ii.1971 (NK); 1 ♂3 ♀, Col d'Amieu (650 m), 130 km N. of Noumea, 13.xi.1963 & 31.iii.1968 (JG); 1 ♂3 ♀, Mt. Koghi (450-600 m), i.1969 (NK), 23-27.viii.1967 & 4-6.x.1967 (JS); 2 ♀, Yiambi (50-500 m), 14-15.x.1967 (JS); 1 ♂1 ♀, Foret di Thi, 30.x.1967 (JS); 1 ♂1 ♀, Paita (0-100 m), 10.ii.1976 (NK) & 13.xi.1958 (CJ); 1 ♀, Hienghene, 25.xi.1958 (CJ); 1 ♂, nr. Noumea (20-100 m), Robinson, 11.xii.1983 (NK); 1 ♀, Col de Amieu, 26.ii.1973 (NK). LOYALTY IS.: 2 ♂3 ♀, Fayaoue, Ouvéa I., ii.1963 & xii.1968 (NK); 4 ♂2 ♀, We, Lifou I., 30-31.i.1962 (NK). FIJI: 1 ♂, Nausori Highlands, Viti Levu I., 26.iii.1970 (NK).

Distribution. Australia; Papua New Guinea, New Ireland, New Britain, Mussau Is., Manus I., Solomon Is., Vanuatu, New Caledonia, Loyalty Is., Fiji, Bonin Is., Mariana Is., Caroline Is., Saipan, Yap, Philippines, Formosa, Ryukyu Is., Flores, Thailand, Viet Nam, India, Nepal; Seychelles, Africa.

***Melanagromyza sojæ* (Zehntner)**

Agromyza sojæ Zehntner, 1900: 113.

Melanagromyza sojæ (Zehntner): de Meijere, 1922: 18.

This is one of the leguminous pests. It is characterized by the coloration: shiny black mesoscutum, shining greenish abdomen, and white squamal fringe, and is widely distributed in the Old World tropics from Micronesia and Melanesia to Africa. It has, however, not previously been recorded from Loyalty Is.

Specimens examined. BOUGAINVILLE: 4 ♂, Kokure, 10.vi.1956 (EF). SOLOMON IS.: 1 ♂, Shortland Is., iii.1985 (NK); Kolombangara I.- 1 ♂, Gizo, ii.1984 (NK); 2 ♂, Ringgi Cove (0-50 m), xi.1976 (NK); Guadalcanal- 2 ♂, Kukum, 21.vi.1956 (JG); 1 ♂, Gold Ridge (500 m), 24.vi.1956 (JG); 1 ♀, Tadhimboko, x.1970 (NK); 1 ♂1 ♀, Kira Kira, xii.1975 & 1976 (NK); 1 ♂3 ♀, Auki (0-100 m), Malaita I., xii.1975 (NK); 3 ♂11 ♀, Graciosa Bay, Santa Cruz Is., i.1977 (NK); 9 ♂2 ♀, Bethlehem, Ndai I., xii.1972 (NK); 4 ♂, Peku (0-10 m), Ontong Java, 17.xii.1972 (NK). VANUATU: Vanua Lava I.- 1 ♂, 2 km SE. of Vetoubosor (50-100 m), 1 ♂, Sola to Chelva River (0-20 m), Banks Is., 16.ix.1979 (GN & GS); 4 ♀, Batnavni (0-100 m), Pentacost I., 3.ix.1979 (JG, GN & GS); 2 ♀, Vaemali (100-150 m), Epi I., 6-10.viii.1967 (JS); 2 ♂1 ♀, Vila Efate (0-100 m), Éfaté I., i.1976, iii.1970 & viii.1950 (NK); 1 ♀, Dillon's Bay, Erromango I., iii.1978 (NK); Tanna I.- 1 ♂2 ♀, White Grass (0-120 m), 8.iii.1980 (NK); 4 ♀, Lenakel, iii.1980 & xi.1978 (NK); 1 ♀, Tongariki I., Shepherd Group, 29. iii.1979 (GN); 1 ♀, Luganville (0-100 m), Espiritu Santo I., xii.1984 (NK). LOYALTY IS.: 3 ♂3 ♀, Fayaoue (0-50 m), Ouvéa I., xii.1968 (NK). FIJI: Vanua Levu I.- 2 ♀, Lambasa (0-100 m), i.1972 (NK); 5 ♂2 ♀, Savusavu (0-100 m), iii.1973 & 1978 (NK); 3 ♂6 ♀, Waiyevo (0-100 m), Taveuni I., i.1972 (NK); Viti Levu I.- 1 ♀, Tavua (50-150 m), ii.1971 (NK); 1 ♂1 ♀, Korolevu (0-100 m), iii.1973 (NK); 1 ♂1 ♀, Suva, xi.1957 (NK); 2 ♀, Nandi (0-60 m), xii.1976 (NK); 4 ♂2 ♀, Loma Loma (0-100 m), Vanua Balavu I., 14.ii.1970 (NK); Lau Group- 6 ♂3 ♀, Nakeleyaga (0-100 m), Kambara, 22.ii.1971 (NK); 1 ♂, Vatoa (0-20 m), 23.ii.1971 (NK); 1 ♀, Nukuni (0-50 m), Onoi Lau, 24.ii.1971 (NK); Ovalau I.- 5 ♂1 ♀, Levuka (0-200 m), ii.1972, xi.1975 & xii.1969 (NK); 4 ♂, Vatukalo (0-20 m), 30.xii.1969 (NK); 3 ♂4 ♀, Cape Horn (0-20 m), 30.xii.1969 (NK).

Distribution. Australia; Caroline Is., New Ireland, New Britain, Solomon Is., Vanuatu, Loyalty Is., Fiji, Samoa; Japan; Formosa, Malaya, Java, Flores, Sumbawa, India; Saudi Arabia, Egypt, S. Africa.

Genus *Tropicomyia* Spencer

This genus was erected for the group of minute black, epidermal leaf-mining flies of the genus *Melanagromyza* by Spencer (1973), occurring from Africa to northern Australia and Japan. Only one polyphagous species, *Tropicomyia atomella* (Malloch, 1914), has been known to occur in New Britain (Sasakawa, 1963c; Spencer, 1966), Bougainville (Sasakawa, 1963c) and Vanuatu (Sasakawa, 1963b). *Tropicomyia polyphyta* (Kleinschmidt, 1960) is newly recorded below from New Caledonia.

***Tropicomyia atomella* (Malloch)**

Agromyza atomella Malloch, 1914: 331.

Tropicomyia atomella (Malloch): Spencer, 1973: 181.

This minute leaf-miner is polyphagous, and is known to occur in the Oriental region and Micronesia (Spencer, 1961, 1963b). New to the fauna of eastern Melanesia subdivision, Polynesian subregion, except for Solomons and Vanuatu (Sasakawa, 1963c).

Specimens examined. SOLOMON IS.: Santa Isabel I.- 1 ♂, Sukapisu (900 m), 18.vi.1960 (CO); 3 ♀, Tamatahi (450 m), 2.vii.1960 (CO); Malaita I.- 2 ♂, Auki (0-200 m), ii.1985 (NK); 2 ♀, Graciosa Bay, i.1977 (NK); 1 ♀ Dala, 19.vi.1964 (RS); 2 ♀, Honiara, xi. & xii.1976 (NK); 1 ♀, Peku, 17.xii.1972 (NK); San Cristobal I.- 2 ♀, Kira Kira, i.1976 & xii.1975 (NK); 1 ♀, Kira Kira, 10.xi.1964 (RS); Guadalcanal- 1 ♂, Lambi Bay, 11.i.1973 (NK); 1 ♂ 1 ♀, Munda, xi.1970 & xii.1980 (NK). VANUATU: 1 ♀, 2 km W. of Sola (0-30 m), Vanoua Lava I., Banks Is., 17.ix.1979 (WG, GN & GS); 1 ♀, Sounwari (0-360 m), Maéwo I., 4-5.ix.1979 (WG, GN & GS); 1 ♂, N. Lakatoro, Malakula I., 22-30.ix.1967 (J-MS); 1 ♂, Lakatoro, ii.1973 (NK); 3 ♂, Vaemali (100-150 m), Epi I., 12-20.viii.1967 (J-MS); Éfaté I.- 1 ♀, Havannah Harbor (0-50 m), 19.i.1973 (NK); 2 ♂, Sivivi (50-150 m), 27.ii.1970 (NK); 2 ♂ 2 ♀, Vila (0-100 m), ii.1970 (NK); 2 ♀, Ipota (0-100 m), Erromango I., iii.1970 (NK); 2 ♂ 1 ♀, Lanakel (0-150 m), Tanna I., iii.1970 (NK); 1 ♂, Lamén I. (0-10 m), i.1976 (NK). NEW CALEDONIA: 1 ♂, Yate, 26-27.iii.1968 (TM); 1 ♂ 4 ♀, Hienghene (0-100 m), i.1969 & 1971 (NK). LOYALTY IS.: 1 ♀, Fayaoué (0-50 m), Ouvéa I., xii.1968 (NK). FIJI: Vanua Levu I.- 1 ♂ 1 ♀, Lambasa (0-100 m), i.1972 (NK); 1 ♂, Savusavu (0-100 m), iii.1973 (NK); Viti Levu I.- 13 ♂ 5 ♀, Nandi (0-50 m), iii.1976, 1980 & 1981 (NK), 2.iv.1969, 5.iv.1983, xi.1978 (NK); 1 ♂ 1 ♀, Lautoka (0-50 m), iii.1976 (NK); 1 ♂, Korotongo (0-100 m), iii.1981 (NK); 1 ♂, Nukuruna Forest (60-130 m), 15.x.1979 (M.K. Kamath & S.L. Samuelson); 1 ♀, Raki Raki (0-50 m), 2.iv.1973 (NK); 2 ♀, Loma Loma (0-100 m), Vanua Balavu, 14.ii.1970 (NK); 1 ♀, Levuka (0-200 m), Ovalau I., xii.1969 (NK).

Distribution. Papua New Guinea, New Britain, Solomon Is., Vanuatu, New Caledonia, Royalty Is., Fiji, Mariana Is., Formosa, Philippines, Indonesia, India, Ceylon.

***Tropicomyia polyphyta* (Kleinschmidt)**

Melanagromyza polyphyta Kleinschmidt, 1961(1960): 326.

Tropicomyia polyphyta (Kleinschmidt), Spencer, 1973: 191.

This minute (1.2-1.5 mm in wing length) epidermal leaf-miner, only known from Australia, is also polyphagous. The male genitalia confirm the close relationship of this species with *atomella* (Spencer, 1973, figs 266, 267 for *atomella*, figs 286, 287 for *polyphyta*). This species is now known in New Caledonia.

Specimen examined. 1 ♂, Mt. Koghi (500 m), New Caledonia, 26-30.i.1963 (CY & NK, light trap).

Distribution. Australia, New Caledonia.

Genus *Ophiomyia* Braschnikov

Among twelve Melanesian species, only two species: *Ophiomyia cornuta* de Meijere, 1910, and *O. lantanae* (Froggatt, 1919), are provided with the conspicuous facial carina dividing the bases of antennae and a strong vibrissal fasciculus in the male as one of the generic characters. Other species lack these generic characters, but are clearly confirmed by their male genitalia with the asymmetric basiphallus or the presence of spinulose lobes on the distiphallus as belonging to *Ophiomyia*.

Nine species have hitherto been known in Melanesia: *Ophiomyia alysicarpi* (Bezzi, 1928) from Fiji; *O. atralis* (Spencer, 1961) from New Caledonia (Sasakawa, 1963b); *O. conspicua* (Spencer, 1961) from New Caledonia (as *O. joycei* Sasakawa, 1963b); *O. cornuta* de Meijere, 1910, from Fiji (as *O. leucolepis* Bezzi, 1928), Phoenix (as *O. scaevolae* Frick, 1953) and from Polynesia (Sasakawa, 1963c); *O. lantanae* (Froggatt, 1919) from Fiji (Bezzi, 1928) and Central Polynesia (Sasakawa, 1963c); *O. mussauensis* Spencer, 1966, from Bismarck Archipelago and Australia; *O. phaseoli* (Tryon, 1895) from Bismarck Arch. (Spencer, 1966) and

Vanuatu (Sasakawa, 1963c); *O. sporobori* (Sasakawa, 1963c) from Fiji and Samoa; *O. tremenda* Spencer, 1966, from New Ireland.

Eight species are recorded below, of which two, *O. dumosa* and *O. phalloides*, are described as new, and *O. placida* (Spencer, 1963a) are recorded from Melanesia for the first time. In the former two new species, it may be noticeably made mention of the presence of an external bristle on the fore tibia as seen sometimes in the species of the genera *Japanagromyza*, *Melanagromyza* and *Phytobia*.

Key to Melanesian species of *Ophiomyia*

1. Fringe on calypter brown to black..... 2
Fringe on calypter white to ochrous..... 10
2. Vibrissal fasciculus in male present; face with carina distinct, conspicuously raised below base of antenna..... *lantanae* (Froggatt)
Vibrissal fasciculus in male lacking..... 3
3. Ocellar triangle brilliantly shining, conspicuously elongated, extending almost to level of upper ori.....
..... *phaseoli* (Tryon)
Ocellar triangle weakly shining, shorter..... 4
4. Fore tibia with one external bristle..... 5
Fore tibia without external bristle..... 7
5. Epandrium with spinose bush on dorsal side..... *dumosa* n. sp.
Epandrium without spinose bush, only normally setose..... 6
6. Gena 1/13 height of eye; acrostichals in 8 rows; ultimate section of M_{3+4} 1/2 of penultimate; hypandrial apodeme short..... *tremenda* Spencer
Gena 1/20-1/22 height of eye; acr in 10-12 rows; ultimate section of M_{3+4} 2/3 of penultimate; hypandrial apodeme extremely long..... *phalloides* n. sp.
7. First flagellomere of antenna distinctly pilose..... *conspicua* (Spencer)
First flagellomere with normal pile..... 8
8. Ultimate section of M_{3+4} almost as long as penultimate..... *alysicarpus* (Bezzi)
Ultimate section of M_{3+4} distinctly shorter than penultimate..... 9
9. Arista finely pubescent; gena narrow, only a little more than linear..... *mussauensis* Spencer
Arista appearing bare; gena 1/9 height of eye..... *placida* Spencer
10. Male vibrissal angle acute, with fasciculus; face with narrow carina separating antennal bases.....
..... *cornuta* de Meijere
Male with normal vibrissa; face without carina..... 11
11. Frons including ocellar triangle black; mesoscutum and abdomen without metallic tinge; mid tibia with one postero-dorsal bristle..... *atralis* (Spencer)
Frons including ocellar triangle brown; mesoscutum and abdomen strongly coppery shining; mid tibia with two pd..... *sporoboli* (Sasakawa)

Ophiomyia atralis (Spencer)

Melanagromyza atralis Spencer, 1961: 69.

Ophiomyia atralis (Spencer): Spencer, 1963a: 322.

This small, black species lacks the bulbous facial carina and vibrissal fasciculus in male. The gena is exceptionally narrow as in *O. phalloides* n. sp., but the male genitalia of both species are quite different from each other (hypandrium of *atralis*, Spencer, 1963a, fig. 8c and phallus, Spencer, 1977, figs 81,82). The larva is known as a stem-miner of *Vernonia cinerea* (Vernonieae).

Specimen examined. 1 ♂, Sasamongga (0-100 m), Choiseul I., Solomon Is., ii.1984 (NK).

Distribution. Australia; Micronesia, Solomon Is., New Caledonia, Philippines, Indonesia, Thailand, India; South Africa. New to Solomon Is.

***Ophiomyia conspicua* (Spencer)**

Melanagromyza conspicua Spencer, 1961: 71.

Ophiomyia conspicua (Spencer): Spencer, 1977a: 349.

Melanagromyza joycei Sasakawa, 1963b: 417.

This species lacks the vibrissal fasciculus in the male as in *atralis*, but its squamal fringe is black (white in *atralis*) and gena is broader (about 1/5 of eye height). Also, the spinulose, large membranous lobes on the distiphallus are especially distinctive. It seems to be the stem-miners of many genera of Asteraceae (Spencer, 1977b).

Specimens examined. SOLOMON IS.: 1 ♀, Sasamongga, Choiseul I., ii.1984 (NK); 1 ♂, Gizo, Kolombangara I., xii.1976 (NK); 1 ♂ 2 ♀, Munda, New Georgia I., ii.1984 (NK); 1 ♂, Tadhimboko, Guadalcanal, xi.1970 (NK); 1 ♂, Te-Uhungango (0-100 m), Rennell I., 28.xii.1972 (NK); 3 ♂, Graciosa Bay, Santa Cruz I., i.1977 (NK). VANUATU: 1 ♀, 2 km W. of Sola, Vanua Lava I., Banks Is., 17.ix.1979 (GN & GS); 1 ♂, Lakatoro, Malakula I., 29.ix.1967 (JS); 2 ♂ 1 ♀, Vaemali (100-150 m), Epi I., 6-10.viii.1967 (JS); 2 ♀, Port Vila, Éfaté I., xii.1984 (NK); 1 ♀, Dillon's Bay, Erromango I., i.1984 (NK). FIJI: Viti Levu- 1 ♂, Raki Raki (0-100 m), ii.1971 (NK); 1 ♂ 1 ♀, Nandarivatu (800-850 m), 7.ii.1971 (NK); 1 ♀, Savusavu (0-100 m), iii.1973 (NK); 1 ♀, Raki Raki, 2.iv.1973 (NK); 5 ♂, Kambara, Naikeleyaga (0-100m), Lau Group, 22.ii.1971 (NK).

Distribution. Australia; Papua New Guinea, Bismarck Arch., Solomon Is., Vanuatu, New Caledonia, Fiji, Formosa, Ryukyus, Philippines, Malaya, India, Ceylon. New to Solomon Is. and Fiji.

***Ophiomyia cornuta* de Meijere**

Ophiomyia cornuta de Meijer, 1910: 161.

Ophiomyia leucolepsis Bezzi, 1928: 164.

This leaf-mining species on *Scaevola* and *Goodenia* spp. (Goodeniaceae) has an acute vibrissal angle with fasciculus in the male, narrow but distinct facial carina and white squamal fringe. The phallus was illustrated by Spencer (1977b, figs 91-92). This species is widespread throughout Polynesia (Sasakawa, 1963c).

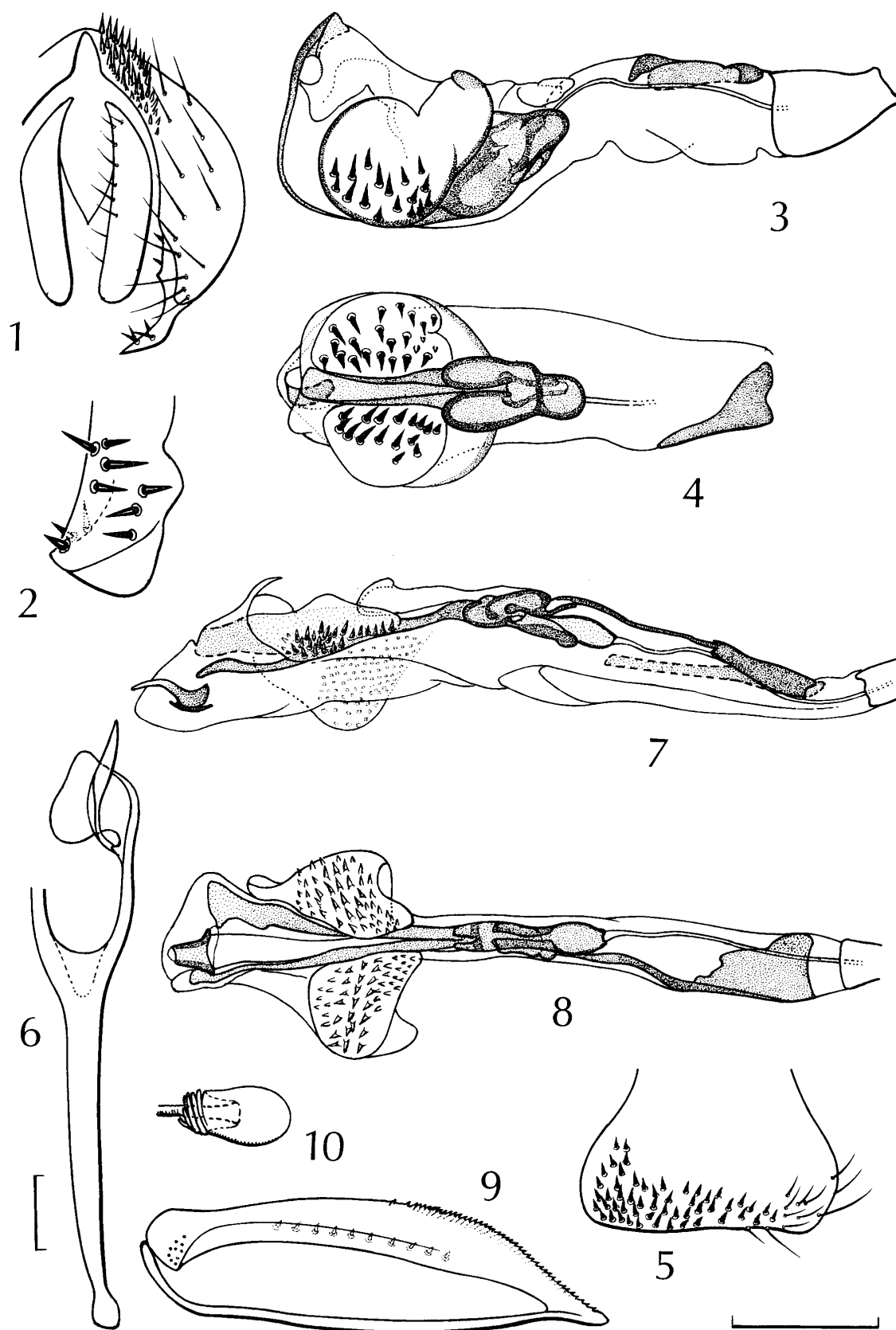
Specimens examined. SOLOMON IS.: 1 ♂, Auki (0-200 m), Malaita I., xii.1975 (NK); 1 ♂, Te-Uhungango, Rennell I., 28.xii.1972 (NK); 2 ♀, Peku (0-10 m), Ontong Java I., 17.xii.1972 (NK). VANUATU: 1 ♀, Anelgaohat (0-200 m), Aneytioum I., xi.1978 (NK); Éfaté I.- 8 ♀, Vila, iii.1970 (NK); 1 ♀, Pango Pt (0-50 m), 19.iii.1970 (NK, Malaise trap); 4 ♂ 5 ♀, Lamenu I. (0-10 m), i.1976 (NK); 1 ♀ Dillon's Bay, Erromango I., iii.1978 (NK); 2 ♀, Lenakel, Tanna I., xi.1978 (NK). NEW CALEDONIA: 1 ♀, Ponerihouen (0-50 m), 28.i.1969 (NK); 1 ♂ 2 ♀, Plum (0-100 m), 13.ii.1976 & iii.1959 (NK); 1 ♀, Tao, 8.ii.1963 (NK); 1 ♀, Pondimie, 26.xi.1958 ((CJ)); 1 ♀, Auki (0-200 m), Malaita I., xii.1975(NK). LOYALTY IS.: 1 ♂ 7 ♀, We, Lifou I., 30-31.i.1962 (NK); 2 ♀, Fayaoué, Ouvéa I., i.1969 & xii.1968 (NK). FIJI: 1 ♂, Mabula (0-10 m), Cicia, 13.ii.1970 (NK); 2 ♀, Cape Horn, Ovalau, 30.xii.1969 (NK); 2 ♂ 3 ♀, Waiyevo (0-100 m), Taveuni I., i.1972 (NK).

POLYNESIA: Ellice Is.- 4 ♂ 1 ♀, Funafuti (0-5 m), Funafuti I., ii.1970 (NK). Tokelau I.- 8 ♂ 5 ♀, Palea (2 m), Fakaofu, 26-27.ii.1965 (GS); 1 ♀, Nukunonu Village, Nukunonu, 2.iii.1965 (GS). Austral Is.- 13 ♂ 9 ♀, Mahu (0-50 m), Tubuai I., iii.1977 (NK). Tuamotu Is.- 2 ♂, Boring Bay, Hao I., 18.v.1934 (EZ); 1 ♂, S. Marutea, NW Islet, 22.v.1934 (EZ).

Distribution. Australia; Micronesia, Solomon Is., Vanuatu, New Caledonia, Loyalty Is., Fiji, Polynesia, Canton I., Krakatau, Chagos Is., Indonesia, Japan (Ryukyus). New to Solomon Is., Vanuatu, New Caledonia, Loyalty Is.

***Ophiomyia dumosa* n. sp. (Figs 1-4)**

Male. Head black; ocellar triangle and parafrofrontalia weakly shining; antenna brownish black, arista brown; palpus black. Thorax and abdomen shiny black, but mesoscutum except for lateral sides and scutellum pollinose, only a little weakly shining. Wing hyaline, calypter gray, with margin black, fringe dark brown; halter entirely brown. Legs black.



Figs 1-10. Male genitalia of *Ophiomyia dumosa* n. sp. (1-4) and *Ophiomyia phalloides* n. sp. (5-8); egg-guide (9) and spermatheca (10) of *O. phalloides*. 1, epandrium and cerci, posterior view; 2 & 5, apex of surstylus, inner view; 3 & 7, phallus, lateral view; 4 & 8, phallus, ventral view; 6, hypandrium, ventral view. Scale 0.1 mm.

Frons almost as long as wide, only a little wider than eye, almost parallel-sided; parafrontalia not projecting above eye margin in profile, bearing two ors and two ori (missing but detectable by pits), and a row of oh; ocellar triangle with ventral apex almost extending to level of second ors; lunule slightly lower than semicircle; eye 1.5 times as high as broad; face without median carina; gena 1/10 of eye height, without vibrissal fasciculus; vi longer than 6-8 pm; first flagellomere of antenna shorter than broad, narrowed apically; arista 6/7 as long as eye height, microscopically pubescent.

Mesoscutum with 0+2 dc, ten rows of acr (most of bristles missing). Wing: Costa extending to M_{1+2} , with second to fourth sections in proportion of 4 : 1 : 0.9; r-m beyond middle of discal cell (1.2 : 1); ultimate section of M_{1+2} 3.2 times as long as the penultimate; ultimate section of M_{3+4} nearly 2/3 of penultimate. Legs: Fore tibia with an external bristle; mid tibia with two pd.

S6 1.3 times as wide as long, with median incision on posterior quarter. Epandrium with a pair of dorsal bushes which are composed of short or long spines; surstylus narrower than epandrium, almost rectangular in inner view, bearing 10-11 strong spines. Hypandrium slightly longer than half of phallopodeme, with basal apodeme broader than side piece and about 1/2 length of side piece; pregonite with about fifteen sensillae. Phallus about 1/2 length of phallopodeme, basiphallus small, distiphallus with ventral tube rather long but weakly sclerotized distally, and lateral membranous lobes spinose sparsely. Ejaculatory apodeme oval in outline, 300 μ m long, 220 μ m in greatest width.

Body length 2.4 mm, wing length 2.1 mm.

Female. Unknown.

Holotype male (BPBM 16538), Anelgaohat (0-200 m), Aneytioum I., Vanuatu (New Hebrides), xi.1978, N.L.H. Krauss leg.

Distribution. Vanuatu.

Remarks. This species is unique in the structures of male genitalia: epandrium with a pair of spinose bushes on dorsal side, spatulate surstylus with strong spines, and distiphallus with sparsely spinose lobes. In general appearances of genitalia this species is similar to *O. phalloides* n. sp., but is distinct in having the mat mesoscutum, broad gena, sparsely spinose surstylus and short hypandrium.

Etymology. The specific name refers to the dorsally bushy epandrium.

***Ophiomyia lantanae* (Froggatt)**

Agromyza lantanae Froggatt, 1919: 665.

Ophiomyia lantanae (Froggatt): de Meijere, 1925: 253.

For the biological control of *Lantana* this species was deliberately introduced to New Caledonia and Fiji from Hawaii in 1908-1911. It is habitable in all areas in the Pacific where *Lantana* occurs. The first confirmed records of this species in Solomon Is., Vanuatu and Loyalty Is. are given below.

Specimens examined. SOLOMON IS.: 1 ♀, Tamatahi (450 m), Santa Isabel I., 2.vii.1960 (CO). VANUATU: 2 ♂1 ♀, Anelgaohat (0-200 m), Aneytioum I., xi.1978 (NK); Éfaté I.- 3 ♂7 ♀, Vila (0-150 m), i. & ii.1977, ii.1970 & 1981, viii.1950, xii.1978 & 1983 (NK); 1 ♂, Onesua (0-20 m), 19.i.1973 (NK); 1 ♂9 ♀, Dillon's Bay, Erromango I., iii. 1978 & 1984; 15 ♂22 ♀, Lenakel, Tanna I., i.1973 & 1977, ii.1981, iii.1970, xi.1978 (NK); 1 ♂, Segond Channal, Santo, viii.1950 (NK). NEW CALEDONIA: 3 ♀, Thio (0-50 m), 7.i.1969 (NK); 1 ♂, 6 km N. of Paita, 25.i.1963 (NK); 2 ♂3 ♀, Hienghene (0-50 m), i.1967 (NK); 2 ♀, Mts. des Koghis (400-600 m), i.1969 (NK); 1 ♂1 ♀, Vao (0-100 m), Isle of Pines, i.1985 (NK); 1 ♂3 ♀, Sarramea, i.1969 & ii.1973 (NK); 2 ♂4 ♀, Mt. Koghi (100-200 m), i.1985 & xii.1984 (NK); 1 ♂1 ♀, La Crauen, ii.1973 & iii.1959 (NK); 1 ♀, Plum (0-100 m), 13.ii.1976 (NK); 2 ♂4 ♀, Noumea, ii.1959 & vii.1950 (NK) & 22-23.xi.1963 (RS); 1 ♂2 ♀, Yahoue, 20.ii.1963 (CY & NK). LOYALTY IS: Lifou I.- 8 ♂11 ♀, We, 30-31.i.1962 (NK) & ii.1962 (NK); 2 ♀, La Roche, Maré I., iii.1959 (NK); 4 ♂2 ♀, Fayaoué (0-50 m), Ouvéa I., ii.1963 & xii.1968 (NK). FIJI: 3 ♀, Savusavu, Vanua Levu I., iii.1978 (NK); Viti Levu I.- 1 ♂3 ♀, Lami, i.1955 & iii.1978 (NK); 2 ♀, Suva, i.1951 (NK); 1 ♂, Nandarivatu (800-850 m), ii.1971 (NK); 1 ♂, Rakiraki, ii.1971 (NK); 1 ♂1 ♀, Korotongo (0-100 m), iii.1981 (NK); 1 ♀, Lautoka (0-50 m), iii.1976 (NK); 1 ♀, Nandi (0-60 m), xii.1976 (NK); Ovalau I.- 1 ♂1 ♀, Ndraimba (0-200 m), 30.iii.1969 (NK); 2 ♂8 ♀, Levuka, iii. & xii.1969 & xi.1975 (NK); 3 ♂3 ♀, Cape Horn,

30.xii.1969 (NK); 1 ♀, Tovo, Totoya I., ii.1971 (NK). TONGA: 1 ♂, Neiafu, Vavau I., ii.1956 (NK); 1 ♀, Nukualofa (0-100 m), Tongatapu I., xi.1969 (NK).

***Ophiomyia phalloides* n. sp.** (Figs 5-10)

Male. Head including antenna and palpus black; parafrontalia and ocellar triangle weakly shining; arista brown. Thorax and abdomen shiny black, but mesoscutum sparsely pollinose excepting lateral sides and weakly shining, scutellum densely brownish gray-dusted. Wing hyaline; calypter gray, with margin black and fringe dark brown. Legs black, rarely tinged with brown.

Frons narrower than long, almost as wide as eye, almost parallel-sided; parafrontalia not projecting above eye margin in profile, bearing two reclinate ors and two incurved ori; oh arranged in a row; ocellar triangle with ventral apex almost extending midway between levels of first and second ors; lunule slightly lower than semicircle, with median furrow; face without median carina; eye 1.5 times as high as broad; gena very narrow, less than 1/2 of eye height, without vibrissal fasciculus; vi longer than seven or eight pm; antenna with first flagellomere small, as long as wide; arista almost as long as eye height, microscopically pubescent.

Mesoscutum with 0+2 dc, ten to twelve rows of acr; katepisternum with four or five short setae before stpl. Wing: Costa extending to M_{1+2} , with second to fourth sections in proportion of 4 : 1 : 0.8, r-m distinctly beyond middle of discal cell (1.7-1.8 : 1), ultimate section of M_{1+2} 4.3-4.5 times as long as the penultimate, ultimate section of M_{3+4} 2/3 length of penultimate. Legs: Fore tibia with an external bristle, mid tibia with two pd.

S6 1.3 times as wide as long, with shallow emargination posteriorly; S5 slightly narrower than S6, 1/2 length of S6. Epandrium broadened ventrally; surstylus projecting inwards and with three to five rows of 50-54 spines; cercus 1/2 height of epandrium, broadened ventrally. Hypandrium slightly shorter than phallapodeme (8 : 10), with basal apodeme longer than side piece. Phallus nearly 1/2 length of phallapodeme; basiphallus broadened at base, distiphallus consists of two narrow sclerites and a short tube distally, with a pair of spinulose membranous lobes laterally. Ejaculatory apodeme oval in outline, 250 µm long, 150 µm in greatest width.

Body length 2.4 (holotype)-2.6 mm, wing length 1.7-2.6 (holotype) mm.

Female. Similar to male, but acr sometimes arranged in twelve rows anteriorly; body length 2.6-2.9 mm, wing length 2.1-2.6 mm. Ovipositor sheath shiny black, with antero-dorsal apodeme as long as sheath; egg-guide long (315 µm in length), with serration of about 37 minute teeth; T9 narrow rod-like, 350 µm long; S9 inverted U-shaped, as long as T9, with four nsm; cercus about 1/4 length of T9, with four apical setae. Spermathecae two, oval in shape, with partite proximal end, 70x45 µm.

Holotype male (BPBM 16539), Lone (0-130 m, 15.22S 167.45E), Aoba I., Vanuatu, 6.ix.1979, W.C. Gagne, G.M. Nishida & G.A. Samuelson leg. Paratypes: 1 male, same data as in holotype; 1 male, Malafao Plateau (100-200 m), Éfaté I., Vanuatu (New Hebrides), 19.iii.1970, N.L.H. Krauss; 1 male & 6 females, Lenakel (0-200 m), Tanna I., New Hebrides, i.1973 & iii.1970, Krauss; 2 females, Lamén I., New Hebrides, i.1976, Krauss; 2 females, Dillon's Bay (0-100 m), Erromango I., New Hebrides, i.1984 & iii.1978, Krauss; 1 male & 3 females, Anelgaohat, Aneytioum I., New Hebrides, ix.1978, Krauss; 1 female, E. Jordan River (0-30 m), Big Bay, Santo I., New Hebrides, 17.ix.1979, Gagne.

Distribution. Vanuatu.

Remarks. Among the species without vibrissal fasciculus in the male and facial carina in both sexes, *O. phalloides* n. sp. is immediately recognizable by the narrow gena, the long hypandrium and the spinulose membranous lobes on lateral sides of the distiphallus. Unfortunately the larval host plant and larva are not known, but its mining habit is clarified as a stem-borer by the long egg-guide in the female.

Variation. Cross vein r-m is situated slightly beyond middle of the discal cell (1.3 : 1), and the ultimate section of M_{1+2} is only 2.5-3.2 times as long as the penultimate; the ultimate section of M_{3+4} is rarely one-half length of penultimate section.

Etymology. The specific name refers to the characteristic structure of phallus.

***Ophiomyia phaseoli* (Tryon)**

Oscinis phaseoli Tryon, 1895: 4.

Ophiomyia phaseoli (Tryon): Spencer, 1973: 61.

This bean fly is a serious pest on the cultivated leguminous crops, occurring throughout the Old World tropics from northern Australia, Micronesia, Polynesia, and across Asia to Africa. It is not, however, previously recorded from the Solomons.

Specimens examined. BOUGAINVILLE: 1 ♂, Boku (50 m), 4.vi.1956 (JG). SOLOMON IS.: 1 ♂, Honiara, Guadalcanal, i.1973 (NK); 1 ♀, Bethlehem, Ndai I., xii.1972 (NK); 1 ♀, Wairahu River, San Cristobal I., 9.v.1964 (JS). NEW CALEDONIA: 1 ♂, Hienghene (0-100 m), i.1971 (NK). FIJI: 1 ♀, Savusavu, Vanua Levu I., iii.1978 (NK). TONGA: 1 ♀, Mangia, Vavau I., ii.1956 (NK).

***Ophiomyia placida* (Spencer)**

Melanagromyza placida Spencer, 1963a: 319.

Ophiomyia placida (Spencer): Spencer, 1977b: 99.

This species has previously only known from Australia. With new record from New Caledonia it suggests that this species may be widespread in the Pacific area.

Spencer (1977b) noted that the male lacks a facial keel, but one male specimen examined was provided with the very narrow but distinct keel raised below the antennal bases, and was smaller (1.7 mm in wing length) than the Australian males (2.2-2.4 mm).

Structures of male genitalia are described in detail: surstylus narrower than epandrium, slightly projected inward, rounded marginally, with about five irregular rows of 31-34 spines; hypandrium 580 µm long, with basal apodeme long (230 µm in length); pregonite with five sensory setulae; phallus about one-half length of phallapodeme (640 µm long), basiphallus ring-like basally but distinctly broadened on ventro-lateral side, distiphallus with a pair of large membranous lobes constricted mesally before end and covered densely with strong or minute spinules all over the surface, a distal tube of mesophallus situated ventrally at middle between both lobes and slightly projected beyond apices of lobes; ejaculatory apodeme with stem very broad and distal blade slightly expanded, 300 µm long, 180 µm in greatest width.

Specimen examined. 1 ♂, Yahoue, New Caledonia, 20.ii.1963 (CY & NK, Malaise trap).

Distribution. Australia; New Caledonia.

Genus *Japanagromyza* Sasakawa

Seven species of the genus are known from Melanesia: *Japanagromyza clavata* Sasakawa, 1963c, from New Britain (Spencer, 1966); *J. displicata* Sasakawa, 1963c, from Guadalcanal; *J. duchesneae* (Sasakawa, 1954) from Vanuatu (Sasakawa, 1963c); *J. kalshoveni* (de Meijere, 1934) from Dyaul and *J. scelestia* Spencer, 1966, from Mussau, Bismarck Arch.; *J. sordidata* (Spencer, 1962a) from New Britain (Sasakawa, 1963d); *J. trifida* Spencer, 1962a, from Vanuatu (Sasakawa, 1963c); *J. tristella* (Thomson, 1869) from New Ireland (as *trispina* by Spencer, 1966). Two species, *Japanagromyza setigera* (Malloch, 1914), known from Formosa, and *J. triformis* Spencer, 1962a, known from West Irian (New Guinea), are recorded from Melanesia for the first time.

Key to Melanesian species of *Japanagromyza*

1. Halter entirely yellow..... *trifida* Spencer
- Halter entirely or partially brown..... 2
2. Halter entirely brown..... 3
- Halter with knob entirely or partially paler on tip..... 4
3. Fore tibia with one external bristle; mid tibia with two postero-dorsal bristles..... *setigera* (Malloch)
- Fore tibia without external bristle; mid tibia with one pd..... *sordidata* Spencer

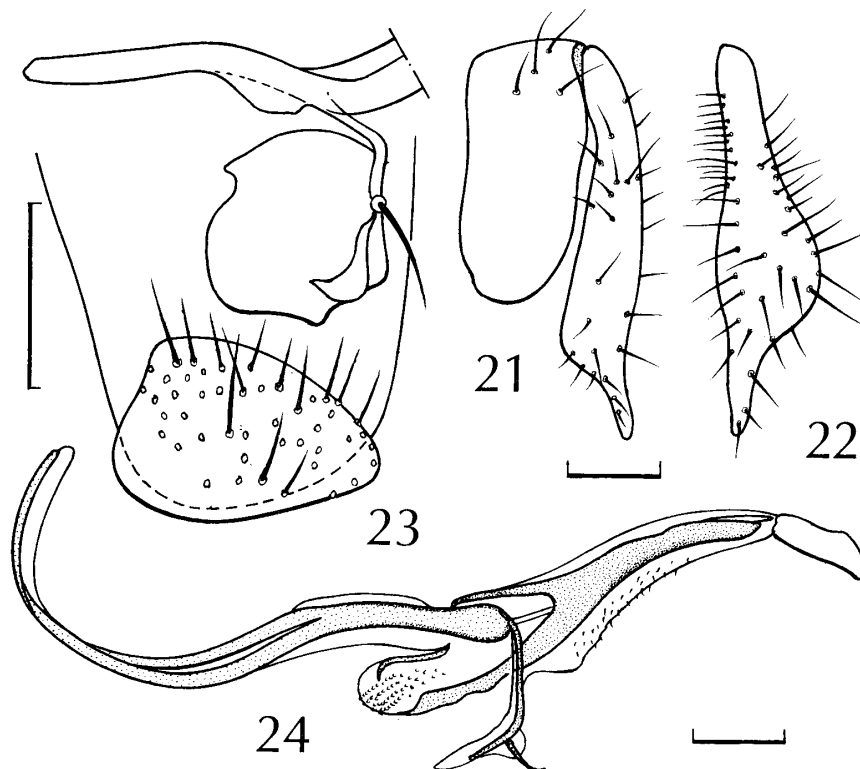
4. Halter with knob largely brown..... 5
 Halter with knob entirely yellow..... *displicata* Sasakawa
5. Halter with knob somewhat paler on inner dorsal apex..... 6
 Halter with knob yellow on apical part..... 8
6. Fore tibia with one or two external bristles; cercus in male not greatly elongated..... 7
 Fore tibia without external bristle; cercus greatly elongated..... *scelesta* Spencer
7. Fore tibia with one external bristle; arista distinctly pubescent..... *clavata* Sasakawa
 Fore tibia with two external bristles; arista appearing bare..... *kalshoveni* (de Meijere)
8. Wing length 2.1-2.4 mm; knob of halter brown on basal 2/3; cross vein r-m only slightly before middle of discal cell..... *triformis* Spencer
 Wing length 2.6-3 mm; knob of halter entirely yellow; r-m far before middle of discal cell..... 9
9. Cross vein r-m at basal 1/3 of discal cell..... *tristella* (Thomson)
 Cross vein r-m at basal 2/5 of discal cell..... *duchesneae* (Sasakawa)

***Japanagromyza scelesta* Spencer**

Japanagromyza scelesta Spencer, 1966: 494.

The specimens examined are agreeable to the original description and illustration of the male genitalia, but the halter is entirely brown (stalk not yellow as in original description), and all tarsi are brown (not black), the orbital hairs are arranged in a row of two or three setulae (not lacking), and the mid-tibial posterodorsal bristles are two (not one).

Male pregenital sternites and genitalia are described in detail: S6 deeply excavated posteriorly, somewhat V-shaped; S7 separated into a pair of triangular sclerites and attached to inner both apical margins of S6; epandrium small, cercus (Figs 21,22) broadened ventrally but contracted on ventral quarter; surstylus



Figs 21-24. Male genitalia of *Japanagromyza scelesta* Spencer (21-22) and *Phytobia bifistula* n. sp. (23-24). 21, epandrium and cercus, lateral view; 22, cercus, posterior view; 23, surstylus and proctiger, inner view; 24, phallus, lateral view.

knob-like, incurved only, without spines; hypandrium one-half length of phallapodeme, side piece narrow, with basal apodeme only 1/7 length of side piece; phallus slightly longer than hypandrium; basiphallus long, weakly sclerotized, with a pair of ventral membranous processes covered with short spinulae on apices; mesophallus short, well-sclerotized, attached to distal ends of basiphallus; distiphallus spinulose on distal lobes; ejaculatory apodeme 400 μm long, blade well-expanded from base, with very short sensory process at base (not absent as in original description), 260-300 μm in greatest width. The taper of cercus is inadequately illustrated by Spencer (1966, fig. 6).

The female is recorded for the first time, and is similar to the male, but the mesoscutum is more distinctly shining than in male, the wing is 2.4 mm in length, r-m is situated at middle of the discal cell (before middle in male), ultimate section of M_{1+2} is twice as long as the penultimate, and ultimate section of M_{3+4} is 2/5 length of penultimate (1/3 in male).

Specimens examined. 1 ♂, Lenakel, Tanna I., New Hebrides, i.1973 (NK); 1 ♂, S. Ambrim I., New Hebrides, 22.viii.-4.ix.1967 (J-MS); 1 ♂ 1 ♀, Lowekeuou (0-100 m), Epi I., New Hebrides, 31.viii.1979 (WG, CN & GS).

Distribution. Mussau (Bismarck Arch.), Vanuatu. New to Vanuatu.

Remarks. This species shows similarity to *J. fortis* Spencer, 1977, known from Australia, and *J. involuta* Spencer, 1977, from Papua New Guinea, in the absence of fore-tibial external bristle and in the wing venation, but its male has the peculiar cercus.

***Japanagromyza setigera* (Malloch)**

Agromyza setigera Malloch, 1914: 328.

Japanagromyza setigera (Malloch): Spencer, 1962a: 667.

This species is recognizable by the entirely dark halter, presence of fore-tibial external bristle and absence of prescutellar bristle. It has previously been recorded from Formosa and Borneo (Sabah), and was recorded newly from Solomon Is. and New Caledonia.

Specimens examined. SOLOMON IS.: 1 ♂, New Maura (0-50 m), Giso, xi.1975 (NK); 1 ♂, Honiara (0-200 m), Guadalcanal, xi.1976 (NK). NEW CALEDONIA: 3 ♂, Poindime (0-50 m), i.1969 (NK); 1 ♀, Mt. Koghi (400-600 m), ii.1973 (NK).

***Japanagromyza trifida* Spencer**

Japanagromyza trifida Spencer, 1962a: 653.

This species is distinctive in the uniformly yellowish halter, the basal position of r-m, and the long membranous tubule of distiphallus. The following new records from Bougainville, Solomon Is., Loyalty Is. and Fiji Is. are interesting further evidence of the wide distribution of the species in the Polynesian subregion (Melanesia and Polynesia).

Specimens examined. BOUGAINVILLE: 1 ♀, Guaba (720 m), 19.vi.1956 (EF). GUADALCANAL: 1 ♀, Honiara, x.1970 (NK). VANUATU: Éfaté I.- 5 ♂ 3 ♀, Vila, i.1973, ii.1970 & 1973 (NK); 1 ♂, Malafao Plateau (100-200 m), 19.iii.1970 (NK); 1 ♂, (Vaemali) aemali (80-150 m), Epi I., 11.viii.1967 (J-MS); 1 ♂, Ipota (0-100 m), Erromango I., iii.1970 (NK); 1 ♂ 1 ♀, Sounwari (0-360 m, 15.23S 168.07E), Maéwo I., 4-5.ix.1979 (WG, GN & GS); 1 ♂, Lakatoro, Malakula I., 29.ix.1967 (J-MS); 1 ♀, Sola to Chelva River (0-20 m), Vanoua Lava I., Banks Is., 16.ix.1979 (GN & GS). LOYALTY IS.: 1 ♀, Lifu I., 26.iii.1968 (JG); 1 ♀, Fayaoué, Ouvéa, ii.1963 (NK). FIJI: 1 ♂, Levuka (0-200 m), Ovalau, ii.1972 (NK); 1 ♂, Nausori Highlands (500-700 m), Viti Levu, xi.1976 (NK).

***Japanagromyza triformis* Spencer**

Japanagromyza triformis Spencer, 1962a: 653.

This species was described by only a single male, differing from *J. trifida* in the phallic structures.

Following characters should be added to the original description: mesoscutum only weakly shining, usually with ten rows of acr; wing 2.3 (2.1-2.4) mm in length, r-m usually at basal 2/5 of discal cell, halter with knob brown on basal 2/3-3/4 as well as stalk but yellow apically (not entirely whitish yellow stated by Spencer); S6 1.2 times as wide as long, deeply (nearly 3/5 of whole sternal length) excavated at middle of posterior margin; cercus extremely broadened distally, slightly narrower than epandrial width at middle; surstylus 3/4 as high as epandrium, tubular, narrowing distally, with two or three spines and several setae on tip; hypandrium a little longer than 1/3 of phallopodeme, with basal apodeme 1.6 times as long as side piece; ejaculatory apodeme rod-like, only a little expanded apically, 320-340 µm long, 60-90 µm in greatest width, with large sclerite of basal bulb.

Specimens examined. SOLOMON IS.: 1 ♂, Graciosa Bay (0-50 m), Santa Cruz I., i.1977 (NK). VANUATU: 2 ♂, Ipota (0-100 m), Erromango I., iii.1970 (NK); 1 ♂, Yerou (200-300 m), Tanna I., 8.iii.1970 (NK); 1 ♀, Narango (90 m), Espiritu Santa I., v.1960 (WB); 3 ♂, Vila, Éfaté I., viii.1950 & i.1985 (NK); 1 ♂, N. Lakatoro, Malakula I., 22.ix.1967 (J-MS); 1 ♂, Ambrym I., xii.1984 (NK); 1 ♀, Airstripe, Erromango I., 28.xii.1985 (NK). NEW CALEDONIA: 1 ♀, Col des Roussettes (300-400 m), 29.i.1969 (NK).

Distribution. Papua New Guinea, Solomon Is., Vanuatu, New Caledonia. New to Solomon Is., Vanuatu, and New Caledonia.

***Japanagromyza tristella* (Thomson)**

Agromyza tristella Thomson, 1869, p. 609.

Japanagromyza trispina (Thomson): Spencer, 1965, Bull. Br. Mus. nat. Hist. (Ent.) 16: 25 (in error for *tristella*).

This is a leaf-miner of the leguminous plants and widely distributed in the Oriental Region, Bismarck Archipelago (New Ireland) and Japan, and is recorded newly from Solomon Is.

Specimen examined. 1 ♂, Graciosa Bay (0-50 m), Santa Cruz I., Solomon Is., i.1977 (NK).

Genus *Agromyza* Fallén

The leaf-miners of this genus are well represented in the Holarctic region. Only a single species, *Agromyza papuensis* Sasakawa, 1963d, known from Papua New Guinea, has hitherto been recorded from New Ireland (Spencer, 1966).

***Agromyza papuensis* Sasakawa**

Agromyza papuensis Sasakawa, 1963d: 797.

This species is characterized by the ochreous fringe on the calypter, yellow knee of the fore leg, brownish yellow basal tarsomeres of legs, presence of three postero-dorsal bristles on the mid tibia and about twenty spines on the surstylus. Judging from the phallic structures of genitalia, a kind of grass will prove to be the larval host-plant, probably *Setaria palmifolia* (Koen.) by Spencer (1977a).

Distribution. Papua New Guinea, New Ireland.

Subfamily Phytomyzinae

Genus *Phytobia* Liroy

This genus is restricted primarily to the large tree-feeding species occurring well in the Oriental and Australian regions. In Melanesia, four species from Bismarck Archipelago: *Phytobia furcata* (Sasakawa, 1963d) in New Britain, *P. inusitata* Spencer, 1966, in Mussau, *P. maai* (Spencer, 1962) in Manus (Sasakawa, 1963d) and *P. terminalis* (Sasakawa, 1963d) in New Britain, have hitherto been known. One new species, *P. bifistula* n. sp., from Guadalcanal I., is described, and one new synonymy is established below.

Key to Melanesian species of *Phytobia*

1. Fore tibia with one external bristle..... *bifistula* n. sp.
Fore tibia without external bristle..... 2
2. Prescutellar bristle present; mid tibia with two postero-dorsal bristles..... 3
Prescutellar bristle lacking; mid tibia with one pd..... 4
3. Distiphallus weakly sclerotized..... *maai* (Spencer)
Distiphallus black, strongly sclerotized..... *terminalis* (Sasakawa)
4. Wing length 1.9-2.2 mm; acrostichals in 4-6 rows..... *inusitata* Spencer
Wing length 2.8 mm; acr in 8-10 rows..... *furcata* (Sasakawa)

Phytobia bifistula n. sp. (Figs 23-24)

Male. Head brown, frontalia darkened ventrally, parafrontalia dark brown; ocellar triangle brownish black but pale before anterior ocellus; occiput and postgena brownish black; antenna pale brown, palpus black. Thorax and abdomen brown, but mesoscutum blackish, mat; T4-5 each with yellow posterior margin; epandrium pale brown. Wing hyaline, veins pale brown; calypter brownish gray, with margin and fringe black; halter with stalk pale brown, knob entirely yellow. Legs brownish black.

Frons 1.3 times as wide as eye, converging ventrally; parafrontalia not projecting above eye margin in profile; ors two (3 on one side), reclinate; ori two, directed up- and inward; oh in a row but in two irregular rows between ors and first ori; oc as long as first ors; lunule narrow, crescent-shaped; eye 1.4 times as high as broad; gena narrow, 1/15 of eye height; pm 5-6, one seta just above vi distinct; antenna with first flagellomere slightly shorter than broad, round apically, distinctly pilose; arista shorter than eye height, microscopically pubescent.

Mesoscutum with 1+3 dc, about ten rows of acr, long prsc; anepisternum with three long posterior bristles in addition to mspl; katepisternum with five short setae before stpl. Wing: Costa ending slightly beyond tip of R₄₊₅, with second to fourth sections in proportion of 3.8 : 1 : 0.8, r-m situated at distal 1/3 of discal cell, ultimate section of M₁₊₂ about five times as long as penultimate, ultimate section of M₃₊₄ 2/3 length of penultimate. Legs: Fore tibia with one external bristle, mid tibia with two pd.

S6 about 1.3 times as wide as long, with median emargination on caudal 1/5; S5 almost thrice as wide as long and about 1/3 length of S6. Genitalia: Surstylus separated from epandrium by narrow membranous part, incurved, densely setose; cercus 1/2 height of epandrium, distinctly narrowing ventrally, with a ventro-apical seta which is 1/2 length of cercus; proctiger with a pair of setae at lateral ends; hypandrium with side piece narrow, about 1/2 length of phallapodeme which is long, reaching anteriorly at anterior margin of T3; pregonite with five setae, postgonite as long as hypandrium and with a seta before apex; phallus nearly 5/6 length of phallapodeme; basiphallus sparsely hairy on basal membrane, minutely tuberculate on distal membranous process, with ventral process narrow; distiphallus consists of two tubules. Ejaculatory apodeme 200 µm long, blade well-expanded, 170 µm in greatest width.

Body length 3.5 mm, wing length 3.1 mm.

Female. Unknown.

Holotype male (BPBM 16548), Honiara (0-100 m), Guadalcanal I., Solomon Is., x.1970, N. L. H. Krauss leg.

Distribution. Solomon Is.

Remarks. This is the distinctive species with *P. seticopia* (Sasakawa, 1963a), known from North Borneo and Philippines, which has an external bristle on the fore tibia (Sasakawa, 1996). The new species, however, differs distinctly from *seticopia* in its short length of the ultimate section of M₃₊₄ and presence of long tubules on the distiphallus (wing and phallus of *seticopia*, Sasakawa, 1963, fig. 11).

Etymology. The specific name refers to a pair of tubules of distiphallus.

***Phytobia terminalis* (Sasakawa)**

Shizukoa terminalis Sasakawa, 1963d: 820.

Phytobia yalomensis Spencer, 1966: 507. **syn. n.**

This species is characterized by the presence of strong prsc, ultimate and penultimate sections of M_{3+4} with almost equal length, and long distiphallus.

Spencer (1966) made an attempt to distinguish *Phytobia yalomensis* from *P. terminalis* on the phallic character of no specific significance; his illustration (figs 21,22) is quite identical with that of *terminalis* (fig. 13e).

Specimen examined. 1 ♂, Sounwari, Maéwo I., Vanuatu, 4-5.ix.1979 (WG, GN & GS).

Distribution. Papua New Guinea, New Britain, Vanuatu. New to Vanuatu.

Genus *Amauromyza* Hendel

A single record of *Amauromyza papuensis* Spencer, 1966, has hitherto been known from New Ireland. I have not seen it yet.

Genus *Cerodontha* Rondani

The species of three subgenera, *Icteromyza*, *Poemyza* and *Dizygomyza*, are represented in Melanesia. Three species, *C. (Ict.) floresensis* (Spencer, 1961) and *piliseta* (Becker, 1903) in New Britain, and *C. (Diz.) laetifica* Spencer, 1966, in New Ireland, have previously been recorded. New distributional records for *C. piliseta* and *C. (Poe.) longimentula* (Sasakawa, 1966d), known from Papua New Guinea, are given below.

***Cerodontha (Icteromyza) piliseta* (Becker) (Fig. 19)**

Agromyza piliseta Becker, 1903: 190.

This species with largely yellow femora is widespread in the Old World tropics from Cape Verde Is. to Papua New Guinea and Micronesia. The specimens from Melanesia and Polynesia represent newly an extension of the known distributional range of this species. Spencer (1990) noted that *Fimbristylis* (Cyperaceae) is probably the larval host-plant in Papua New Guinea.

The character of distiphallus was described by Spencer (1977, fig. 213), but it was clarified that the distal quarter of distiphallus is consisted of a pair of slender tubules (not illustrated by Spencer). The shapes of cercus, surstylus and processus longus are also distinctive as follows: cercus long, 3/4 as high as epandrial height, angulated ventrally and slightly curved forward; surstylus with two spines near inner ventral apex and a row of setae dorsally; processus longus minutely serrated ventrally; ejaculatory apodeme 145 µm long, 140 µm in greatest width.

Specimens examined. SOLOMON IS.: 23 ♂12 ♀, Auki (0-100 m), Malaita I., xii.1976 (NK); 1 ♂2 ♀, Honiara, Guadalcanal, i.1985 (NK); 1 ♂1 ♀, Gizo, Gizo I., xi.1975 (NK). VANUATU: 1 ♀, Lamen I. (0-10 m), i.1976 (NK); 1 ♀, Wall Bay (0-100 m), Pentecost I., xii.1984 (NK); 1 ♀, Port-Villa (0-100 m), Éfaté I., ii.11981 (NK). FIJI: 6 ♂ 1 ♀, Savusavu, Vanua Levu, iii.1973 & 1978 (NK); Viti Levu- 1 ♂, Raki Raki, ii.1971 (NK); 1 ♂, Lautoka (0-50 m), iii.1970 (NK); 2 ♀, Lami (20-200 m), iii.1976 & xii.1978 (NK); 1 ♂, Nandi (50-150 m), ix.1970 (NK); 3 ♂3 ♀, Levuka, Ovalau, iii.1969 & xi.1975 (NK); 1 ♀, Waiyevo (0-100 m), Taveuni, i.1972 (NK). SAMOA: Upolu I.- 1 ♂, Togitogiga (20-100 m), 8.ii.1979 (NK); 3 ♂, Apia (0-100 m), ii.1971 (NK); 1 ♀, Vailima, ix.1971 (NK); Tutuila I.- 1 ♂, Pago Pago(0-100 m), iii.1971 (NK); 1 ♀, Mt. Alava (450-480 m), 3.iv.1979 (NK); 1 ♀, Taputimu, 13.x.1964 (NR. Spencer). TONGA: 1 ♀, Nukualofa (0-50 m), Tongatapu Group, ii.1972 (NK); 2 ♂4 ♀, Pangai (0-100 m), Eua, ii.1972 (NK).

***Cerodontha (Poemyza) longimentula* Sasakawa**

Phytobia (Poemyza) longimentula Sasakawa, 1966d: 824.

This species was recorded from Papua New Guinea. The main specific characters are the entirely yellow parafrontalia, gena, antenna and palpus, the yellow knees on distal 1/4-1/5 of femoral length, and the long and distally twisted distiphallus.

Specimen examined. 1 ♀, Tokoinou (20 m), Bougainville I., 2.vi.1956 (JG).

Distribution. Papua New Guinea, Bougainville. New to Bougainville I.

Genus *Calycomyza* Hendel

Although this genus is well represented in the New World, only a single species, *C. humeralis* (Roser) is known in Melanesia.

***Calycomyza humeralis* (von Roser)**

Agromyza humeralis von Roser, 1840: 63.

This almost cosmopolitan species is easily recognizable by the dorso-apically angulate first flagellomere of antenna, about eight finger-like bulbs of the larval posterior spiracle and the blotch mine on the leaves of Astereae.

Specimens examined. VANUATU: 1 ♂, Port-Vila (0-100 m), Éfaté I., ii.1981 (NK). NEW CALEDONIA: 1 ♂, Yahoue, ii.1976 (NK); 1 ♂, Noumea, iii.1973 (NK); 1 ♂, Paita, 10.xi.1976 (NK).

Distribution. Australia; Papua New Guinea, Vanuatu, New Caledonia, Fiji, Indonesia, India; Africa; Holarctic. New to Vanuatu and New Caledonia.

Genus *Liriomyza* Mik

Only a single specie, *L. brassicae* (Riley, 1884), has hitherto been known from Fiji (as *pusilla* Meigen, by Bezzi, 1928). One more species, *L. caulophaga* (Kleinschmidt, 1960), known from Australia, is also distributed in Melanesia.

***Liriomyza brassicae* (Riley)**

Agromyza brassicae Riley, 1884: 322.

Liriomyza brassicae (Riley), Frick, 1952, Univ. Calif. Publs Ent. 8: 402.

This is one of the cosmopolitan species and is widely distributed in the Oriental region and the Pacific, but has not been recorded from Melanesia. It is not a serious pest on the cultivated *Brassica* sp. New to Solomons and Vanuatu.

Specimens examined. SOLOMON IS.: 1 ♀, Munda (0-100 m), New Georgia I., ii.1984 (NK). VANUATU: 2 ♂, Vila, Éfaté I., xii.1978 & 1984 (NK).

***Liriomyza caulophaga* (Kleinschmidt)**

Haplomyza caulophaga Kleinschmidt, 1961: 334.

Liriomyza caulophaga (Kleinschmidt): Spencer, 1963a: 332.

Among the species without outer cross-vein, the whitish gray-dusted mesoscutum, strongly projecting parafrontalia and broad gena serve as the distinguishing characters of this species. Following characters should be added to the original description: gena about 1/2 height of eye; orbital hairs minute, two or three between levels of second ors and second ori; acr in two rows of four pairs almost between levels of anterior two dc; postsutural ia-setulae one or two just behind transverse suture.

Specimen examined. 1 ♀, Lenakel, Tanna I., Vanuatu, iii.1990 (NK).

Distribution. Australia, Vanuatu. New to Vanuatu.

Genus *Phytoliriomyza* Hendel

Only the single species, *P. arctica* (Lundbeck, 1900), has hitherto been known in New Britain and New Ireland (Spencer, 1966). This is known as the stem-miner of *Sonchus* and *Solidago* (Asteraceae), and widespread from Nearctic and Neotropical regions to Europe. It is also known from Sri Lanka and Formosa. *P. australensis* Spencer, 1963, occurring in New Caledonia, is newly recorded hereinafter.

Phytoliriomyza australensis Spencer

Phytoliriomyza australensis Spencer, 1963a: 335.

This minute yellow species is distinctive in having the long pile on the first flagellomere of antenna and the gray-dusted yellowish mesoscutum and scutellum.

Spencer (1965) synonymized *P. tahitiensis* Sasakawa, 1963c, with this species. He believed, without the examination of the holotype, that the absence of distal coiled section of the distiphallic tubules was caused by an oversight. It seems to be done his judgment based on the figure of the phallus drawn by Sasakawa (1963c, fig. 5b). I had a chance to examine again the genitalia of two males of *tahitiensis* collected by Malaise trap on Raoul I., Kermadec Is., New Zealand, by G.A. Samuelson, and ascertained that the phallic tubules of *tahitiensis* were short and not coiled distally. The paired short tubules of the distiphallus are found in other species of the genus, such as *P. collessi* Spencer (1977) in Australia and *P. convoluta* Spencer (1976) in New Zealand. *P. tahitiensis* Sasakawa, therefore, should be resurrected as a valid species.

Specimens examined. NEW CALEDONIA: 1 ♀, Mt. Koghi, 4-6.x.1967 (JS); 1 ex. (abdomen missing), Yato, vi.1950 (NK).

Distribution. Australia; New Caledonia, Nepal, Ceylon. New to New Caledonia.

Genus *Pseudonapomyza* Hendel

Six species of the genus have hitherto been known in Melanesia: *P. dilatata* Sasakawa, 1963c, from Fiji (Spencer, 1973) and Samoa; *P. fabulosa* Spencer, 1966, from New Britain; *P. flavolunulata* (Sasakawa, 1963b), from New Caledonia; *P. multimoda* Spencer, 1966, from Bismarck Archipelago; *P. philippinensis* Spencer, 1961, from New Ireland (Spencer, 1966); *P. spicata* (Malloch, 1914), from Dyaul, Bismarck Arch. (Spencer, 1966) and Fiji (as *atra* Meigen by Bezzi, 1928).

P. dilatata, *spicata* and *philippinensis* have the angulate first flagellomere of antenna, and are known as the leaf-miners of the Gramineae, while *flavolunulata*, *fabulosa* and *multimoda* have the normal round flagellomere, and are known as the leaf-miners of the Acanthaceae. One new species, *P. ommata*, and *P. multimoda* Spencer, 1966, with the round first flagellomere are described and redescribed below. *P. spinosa* Spencer, 1973, known from Australia and Africa, and *spicata*, are added newly to the faunae of some islands in Melanesia.

Key to Melanesian species of *Pseudonapomyza*

1. First flagellomere of antenna round..... 2
First flagellomere with distinct angle at antero-dorsal corner..... 5
2. Lunule yellow; fringe on calypter ochrous..... *flavolunulata* (Sasakawa) n. comb.
Lunule and fringe on calypter black..... 3
3. Wing length 2.7 mm, ultimate section of M_{3+4} 8 times as long as penultimate..... *fabulosa* Spencer
Wing length 1.6-2 mm, ultimate section of M_{3+4} 2-6 times penultimate..... 4
4. Ultimate section of M_{3+4} 5-6 times penultimate; all knees black..... *multimoda* Spencer
Ultimate section of M_{3+4} nearly twice penultimate; fore knee yellow..... *ommata* n. sp.

5. First flagellomere bluntly projected antero-dorsally; mesoscutum matt black..... 6
 First flagellomere with fine point at dorso-apical corner; mesoscutum shining..... 7
6. Second costal section 1.3 times as long as fourth..... *philippinensis* Spencer
 Second costal section 1.5 times length of fourth..... *dilatata* Sasakawa
7. Second costal section little longer than fourth..... *spinosa* Spencer
 Second costal section 1.3-1.5 times length of fourth..... *spicata* (Malloch)

***Pseudonapomyza ommata* n. sp.** (Figs 11-14)

Male. Head black; frontalia brown-tinged before ocellar triangle and above lunule; parafrontalia shiny around bases of or; lunule and face brown; scape and pedicel dark brown, first flagellomere and arista black; palpus black. Thorax and abdomen shiny black, the former sparsely grayish pollinose; epandrium brownish black. Wing hyaline, with veins yellowish at bases; calypter yellowish gray, with margin dark brown and fringe black; halter yellow but stalk brownish basally. Legs blackish brown, knee of fore leg narrowly yellow, those of mid and hind legs scarcely brownish yellow.

Frons 1.5 times as wide as eye, converging ventrally; parafrontalia not projecting above eye margin in profile; ors two, reclinate, the first slightly longer than second; ori two, first directed up- and inward, second inward; oh minute, reclinate, in a sparse row; oc slightly shorter than first ors; gena very narrow, 1/18 of eye height; pm three; first flagellomere of antenna slightly shorter than broad, round apically, with pile short; arista pubescent; palpus broadened, about 2/5 as wide as width of first flagellomere.

Mesoscutum with 0+3 dc, first dc slightly less than 2/3 length of the third, six rows of acr, short prsc which is about twice as long as acr. Wing: Wing tip slightly beyond tip of R₄₊₅, second to fourth costal sections in proportion of 3 : 1 : 0.8, r-m situated beyond level of R₁-apex, m-cu in continuation of r-m and perpendicular to penultimate section of M₁₊₂, ultimate section of M₃₊₄ about twice as long as the penultimate. Leg: Mid tibia with two slender pd.

S6 shorter than S5 but slightly wider than that, deeply excavated semicircularly; S5 twice as wide as long. Surstylus ovoid in outline, separated from epandrium by suture, densely setigerous. Proctiger with a pair of knob-like processes posteriorly and eight ridges on median membranous part. Hypandrium V-shaped, shorter than phallus; pregonite with two setae and a row of five sensillae. Phallapodeme 590 µm long; phallus slightly longer than one-half length of phallapodeme, basiphallus short but broad, distiphallus with a pair of membranous lobes on latero-proximal sides and spinulose on distal lobes. Ejaculatory apodeme 160 µm long, 90 µm in greatest width.

Body length 1.7 mm, wing length 1.8 mm.

Female. Unknown.

Holotype male (BPBM 16549), 4 km NNE of Col de Kuenthio (Col de Nassirah), Route 4 at Koua Rd. (150-200 m), New Caledonia, 22.ix.1979, W.C. Gagne, G.M. Nishida & G.A. Samuelson leg.; abdomen and genitalia in a polyethylene tubule with glycerol and pinned with the specimen.

Distribution. New Caledonia.

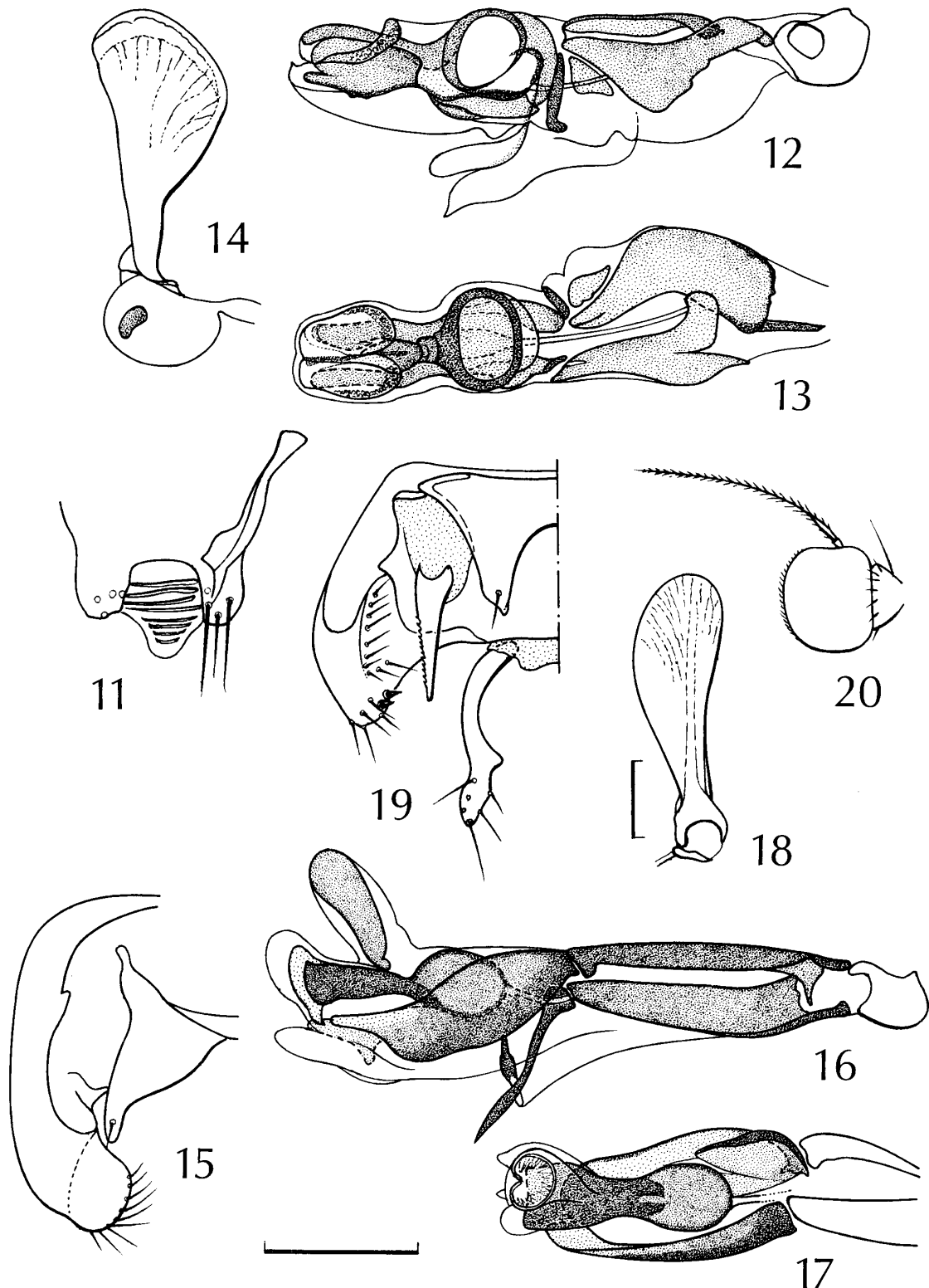
Remarks. This new species closely resembles *P. multimoda* Spencer in having the shiny mesoscutum and black fringe on the calypter, but is readily recognizable by its broad palpus, longer second costal section, shorter ultimate section of M₃₊₄, and shorter basiphallus and ventral processes (aedeagus of *multimoda*: Spencer, 1966, figs 30, 31).

Etymology. The specific name refers to the membranous eyed distiphallus.

***Pseudonapomyza multimoda* Spencer** (Figs 15-18)

Pseudonapomyza multimoda Spencer, 1966: 512.

The specimens agree exactly with the original description of *multimoda*, from the Bismarck Archipelago, and particularly with the illustration of phallus, excepting the following variation: abdomen strongly shining black but mesoscutum except for lateral side weakly shining, sparsely grayish pollinose; legs



Figs 11-20. Male genitalia of *Pseudonapomyza ommata* n. sp. (11-14) and *Pseudonapomyza multimoda* Spencer (15-18); epandrium, cercus and processus longus of *Cerodontha (Icteromyza) piliseta* (Becker), inner view (19); first flagellomere and arista of *Phytomyza inusitata* n. sp. (20). 11, proctiger, inner view; 12 & 16, phallus, lateral view; 13 & 17, phallus, ventral view; 14 & 18, ejaculatory apodeme; 15, epandrium and proctiger, inner view.

with first to third tarsomeres brownish yellow; gena 1/10-1/12 of eye height; second to fourth costal sections in proportion of 2.5 : 1.4-1.5 : 0.6-0.8; male S6 2.5 times as long as S5 but with deep emargination at middle.

The male genitalia are described in detail: surstylus united entirely with epandrium, knob-like, slightly narrower than epandrium, setose distally; processus longus with a pair of short setae; hypandrium V-shaped, with side piece narrow; phallus almost as long as hypandrium (1 : 1.1), 1/2 length of phallopodeme (1 : 1.7), basiphallus with sclerites narrow, mesophallus asymmetric and almost extending to apex of distiphallus which is provided with a distinct ventral process (not illustrated in Spencer's Fig. 30); ejaculatory apodeme 320 µm long, weakly expanded distally, 150 µm in greatest width.

Female. Similar to male, but pile on the first flagellomere of antenna longer than that of male, second costal section twice as long as the third; ovipositor sheath shiny black but brownish distally; body length 2.2 mm, wing length 1.7 mm.

Specimens examined. 2 ♂ 1 ♀, Honiara (0-100 m), Guadalcanal, Solomon Is., i.1986, xii.1975 & 1976 (NK); 1 ♂, Munda (0-100 m), New Georgia I., Solomon Is., ii.1984 (NK).

Distribution. Bismarck Arch., Solomon Is. New to Solomons

***Pseudonapomyza spicata* (Malloch)**

Phytomyza spicata Malloch, 1914: 334.

Pseudonapomyza spicata (Malloch): Hennig, 1941: 173.

This leaf-miner is known as a pest of corn, maize and sugarcane, and occurs widely throughout the Old World tropics and the Pacific including the first records for Solomon Is., Vanuatu and Loyalty Is.

This species differs from *P. spinosa* Spencer in the long second costal section (1.3-1.5 times as long as fourth section, while in *spinosa* only a little longer than the fourth) and the structures of distiphallus (Spencer, 1973, figs 424 & 425 for *spicata*, figs 428 & 429 for *spinosa*).

Specimens examined. SOLOMON IS.: 1 ♀, Ringgi Cove, Kolombangara I., xi.1976 (NK); 1 ♂, Gizo, Kolombangara I., xii.1980 (NK); 4 ♂ 9 ♀, Honiara, Guadalcanal, x.1970, xi.1975 & 1976 (NK); 1 ♂, Auki, Malaita I., xii.1975 (NK); 1 ♂, Kirakira, San Cristobal I., i.1976 (NK); 2 ♂, Te-Uhungango, Rennell I., 28.xii.1972 (NK); 2 ♂ 9 ♀, Peku (0-10 m), Ontong Java, 17.xii.1972 (NK); 1 ♂, Smali Nggela, nr. Dende, Tanatau Cove, Florida Group, 17.ix.1960 (CB); 1 ♂, Munda, New Georgia I., ii.1984 (NK). VANUATU: 1 ♀, Kerepei (0-200 m), Maéwo I., xii.1983 (NK); 2 ♂, Lakotoro (0-200 m), Malakuia I., ii.1973 (NK); 1 ♂, Ambrym I. (0-100 m), xii.1984 (NK); 1 ♀, Vaemali (150 m), Epi I., 9.viii.1967 (JS); Éfaté I.- 1 ♂ 1 ♀, Havannah Harber (0-50 m), 19.i.1973 (NK); 5 ♂ 8 ♀, Vila, ii.1970 & 1977, xi.1984 & xii.1983 (NK); Erromango I.- 4 ♂ 4 ♀, Dillon Bay, i.1984, ii.1981 & iii.1978 (NK); 1 ♀, Ipota, iii.1970 (NK); 2 ♀, Noumea, iii.1973 (NK); Tanna I.- 11 ♂ 11 ♀, Lenakel, i.1973 & 1981, iii.1980 & xi.1978 (NK); 8 ♂ 6 ♀, White Grass, 8.iii.1980 (NK); 1 ♀, Lamén I., ii.1976 (NK). NEW CALEDONIA: 1 ♂, Ponerihouen (0-50 m), 28.i.1969 (NK); 2 ♀, Gomen, 23.i.1969 (NK); 1 ♀, Vao, Isle of Pines, i.1985 (NK); 4 ♂ 3 ♀, Noumea, 28.i.1969, ii.1976 & 1980, iii.1973, iv.1958, xii.1968 (NK & J. Rageau); 1 ♀, Mt. des Koghis (100-400 m), ii.1980 (NK); 3 ♀, Yahoue (60-100 m), ii. & iii.1980 (NK); 1 ♂, nr. Noumea (20-100 m), 11.xii.1983 (NK); 1 ♂, Point SW. of Kuto (0-5 m), Ile des Pins, 17.viii.1979 (WG). LOYALTY IS.: 1 ♀, We, Lifou I., 30.i.1962 (NK). FIJI: 1 ♂, Raki Raki (0-100 m), Viti Levu I., ii.1971 (NK); 1 ♂, Tuvuca (0-10 m), Tuvuca I., 13.ii.1969 (NK); 1 ♀, Naikelayaga (0-10 m), Kambara, Lau Group, 22.ii.1971 (NK); 2 ♂ 1 ♀, Nandi (0-50 m), Viti Levu I., 15.ii.1980 (NK). POLYNESIA: 1 ♂, Funafuti (0-5 m), Funafuti, Ellice Is., ii.1970 (NK).

***Pseudonapomyza spinosa* Spencer**

Pseudonapomyza spinosa Spencer, 1973: 275.

This species is widely distributed from the Pacific and Australia to Africa. It has, however, not previously been recorded from New Caledonia, Loyalty Is. and Fiji.

Specimens examined. NEW CALEDONIA: 1 ♂ 1 ♀, Noumea, ii.1959 (NK). LOYALTY IS.: 1 ♂ 1 ♀, Fayaoué (0-50 m), Ouvéa I., xii.1968 (NK). FIJI: 1 ♀, Savusavu, Vanua Levu, iii.1973 (NK); Viti Levu I.- 3 ♂ 6 ♀,

Nandi, 1.ii.1978, 11.xi.1980 & 25.xi.1983 (NK); 1 ♀, Lautoka, iii.1976 (NK); 1 ♀, Korotongo (0-100 m), iii.1981 (NK); Ovalau I.- 4 ♂3 ♀, Levuka, iii.1969, xi.1975 & xii.1969 (NK); 1 ♂, Apia (0-150 m), Upolu I., iv.1971 (NK); 1 ♂, Neiafu (0-100 m), Vavau I., i.1980 (NK); 1 ♂2 ♀, Tuvuca (0-10 m), Tuvuca I., 13.ii.1969 (NK); 1 ♀, Tubou (0-10 m), Lakemba I., 11.ii.1970 (NK); 1 ♀, Waiyevo (0-100 m), Taveuni I., i.1972 (NK); 1 ♀, Vatoa (0-20 m), Vatoa I., Lau Group, 23.ii.1971 (NK).

Remarks. All the specimens from Fiji have the black frons (rarely frontalia tinged with brown), sparsely gray-dusted and weakly shining mesoscutum, and shiny black abdomen, but they have the distinctly large, black distiphallus as described and illustrated by Spencer (1973).

Genus *Phytomyza* Fallén

This genus is primarily commonest in the temperate zone, but is virtually rare in the tropics except at high altitudes. A new species described below is the first record from Melanesia.

Phytomyza inusitata n. sp. (Fig. 20)

Female. Head orange yellow; occiput and postgena brown excepting ventral part; vertex pale brown, both vt and pvt growing on pale brown area; ocellar triangle brownish black; antenna and palpus yellow, but first flagellomere (third segment) black, arista dark brown. Thorax orange yellow; mesoscutum weakly shining, slightly brown-tinged on anterior half between rows of dc and distinctly pale brown before level of first dc; scutellum very slightly brown-tinged excepting narrowly yellow median line. Abdomen orange yellow, tinged with brown on anterior parts of T3-6; ovipositor sheath shiny, brown basally and black distally. Wing hyaline, veins yellow at bases; calypter yellowish gray, with margin and fringe brown. Legs entirely yellow.

Frons about 1.7 times as wide as eye, converging ventrally; parafrontalia not projecting above eye in profile; ors one or two, first ors 1/3 length of the second or absent; ori one or two, second ori shorter than first ors or absent; oh in a sparse row; oc almost as long as first ori; gena nearly 1/5 of eye height; pm four; lunule lower than semicircle; antenna with first flagellomere extremely large, about 1/2 as high as eye, with pile short; arista slightly longer than height of eye, pubescent.

Mesoscutum with 1+3 dc, two sparse rows of acr before level of third dc and two rows of five postsutural ia-setulae. Wing with second to fourth costal sections in proportion of 4 : 1 : 1.3.

Body length 2.2 mm, wing length 2.4 mm.

Male. Unknown.

Holotype female (BPBM 16540), Limestone Plateau, N. of Maat (100 m), Éfaté I., New Hebrides (Vanuatu), 17.viii.1957, J.L. Gressitt.

Distribution. Vanuatu.

Remarks. This species closely resembles *Phytomyza orientalis* Spencer, 1962, known from Papua New Guinea, in having the large first flagellomere of antenna, but it is easily distinguishable by its pale coloration (dark in *orientalis*: antennal pedicel black, mesoscutum gray-dusted black, abdominal tergites blackish brown and only yellow on lateral side, and legs largely black).

Etymology. The specific name refers to the 'unusual' coloration and size of the first antennal flagellomere.

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