

**The Blow flies (Diptera, Calliphoridae) collected
in the Philippine Islands by the Noona Dan
Expedition. ¹⁾**

By

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This report is based on the collection of blow flies made in the Philippine Islands, mostly by malaise traps, on the Danish Noona Dan Expedition of 1961—62 (Petersen 1966). A few records based on material belonging to the California Academy of Sciences are added and are identified as such. Thirty-two species-level taxa are included in this study, seven of which are described as new.

The terminology used in descriptions is standard. However, I have used the term "frontal area" for the frontale or area between the parafrontals in the females, while retaining the term "frontal stripe" for the males, in which sex it is in general more descriptive. The face is the area between the facial ridges, the "clypeus" of the Townsend terminology. The number used for an abdominal segment is the apparent, not the morphological number.

Domestic or synanthropic flies, for example *Chrysomya megacephala*, *C. rufifacies*, and *Phaenicia sericata*, are poorly represented in the collection. This undoubtedly reflects the selectivity of the malaise trap and the location in which it is best operated; this is in harmony with our experience in operating a malaise trap near Pullman, Washington.

All holotypes and allotypes are in the Zoological Museum, Copenhagen, Denmark. I am indebted to the Museum and to Dr. Leif Lyneborg for making this interesting collection available to me for study. I am also indebted to my graduate students, Jon Shepard, Richard Torgerson and Mrs. Adelaida Quiniones, for

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Subfamily CALLIPHORINAE.

Lucilia papuensis Macquart.

Lucilia papuensis Macquart, 1842, p. 298.

PALAWAN: Mantalingajan Range, Tagembung, 1150 m, 16 Sept. 1961, 1 ♀; Mantalingajan Range, Pinigisan, 600 m, 1—14 Sept. 1961; Brooke's Point, Uring Uring, 25 Aug. to 14 Sept. 1961, 7 ♀, 1 ♂. — TAWI TAWI: Tarakawan, 16 Nov. 1961, 17 ♀, 6 ♂. — BALABAC: Dalawan Bay, 7—10 Oct. 1961, 10 ♀, 1 ♂. — MINDANAO: Sapamoro, Curuan District, 16—22 Dec. 1961, 8 ♀, 4 ♂.

Lucilia porphyrina (Walker).

Musca porphyrina Walker, 1857, p. 24.

PALAWAN: Mantalingajan Range, Pinigisan, 600 m, 1—5 Sept. 1961, 2 ♂, 3 ♀.

Phaenicia cuprina (Wiedemann).

Musca cuprina Wiedemann, 1830, p. 654.

This widespread domestic and myiasis-producing species, particularly noteworthy for its role in sheep strike in Australia, is represented in the collection by a single female.

PALAWAN: Brooke's Point, Uring Uring, 8 Aug. 1961, 1 ♀.

Phumosia abdominalis Robineau-Desvoidy.

Phumosia abdominalis Robineau-Desvoidy, 1830, p. 427.

There seem to be two well-marked subspecies in this apparently polytypic species. The typical form extends from Luzon and Mindoro, through Palawan into Borneo, Celebes, New Guinea, and possibly Australia.

MINDORO: San Jose, 24 Jan. 1945, E. S. Ross, 1 ♀, 5 April 1945, Ross and Skinner, 2 ♂, 1 ♀, and May, 1945, Ross, 1 ♂, California Academy of Sciences. — LUZON, Mt. Pina Tuba, 5600 ft., April, 1907, J. C. Thompson, California Academy of Sciences. — PALAWAN: Mantalingajan Range, Pinigisan, 600 m, 2 & 13 Sept. 1961, 2 ♀.

Phumosia abdominalis pallida, new subspecies.

This subspecies deviates from the typical one in several respects, most notably in that the costal infuscation, which is paler than that of the typical form, begins at the apex of R_1 and does not extend back to the costa, as in the typical form. In this respect, *pallida* corresponds with *costata* Malloch, from Luzon, but in that species the genal hairs are yellow whereas they are black in *abdominalis*, including *pallida*. There is but 1 postacrostichal pair compared with two in the specimens of *abdominalis* which I have seen from the Philippine Islands and New Guinea. Most females, at least, have 2 strong and 1 weak humerals, in comparison with 3 strong and 1 weak in *abdominalis*; other differences in chaetotaxy seem to be statistical rather than absolute. Typical *abdominalis* is darker in color, particularly that of the abdomen. This subspecies shows the pattern of a geographical isolate extending from Mindanao toward, but not to Borneo; the typical form extends from Luzon to Borneo over a different island chain, involving Palawan.

T y p e s. Holotype, male, TAWI TAWI: Tarawakan, malaise trap, 24 Oct. 1961. Allotype, female, same data. Paratypes, 49 ♂, 42 ♀, same data but various dates, 22 Oct. to 19 Nov.; MINDANAO: Sapamoro, Curuan District, malaise trap, 17 to 22 Dec., 1961, 12 ♀, 4 ♂.

This species is obviously not only ovoviviparous, but the larvae are born at an advanced stage. Two females of the type series have what look to be half-grown larvae, at least second and probably even third instars, extruding from them.

Phumosia promittens (Walker).

Musca promittens Walker, 1860, p. 134.

PALAWAN: Mantalingajan Range, Pinigisan, 5—15 Sept., 1961, 1 ♂, 5 ♀.

Polleniopsis toxopei (Senior-White).

Paratricyclea toxopei Senior-White, 1926, p. 135.

BALABAC: Dalawan Bay, 12 Oct, 1961, 1 ♀.

Tainanina pilisquama (Senior-White).

Pollenia pilisquama Senior-White, 1925, p. 84.

Only two species of *Tainanina* are known, namely, *pilisquama*, the type of the genus (designated as the synonym *grisella* Ville-

neuve) and *sarcophagoides* (Malloch). The genus shows a number of unusual characters such as the very long third antennal segment, the very broad frons of the male, and the possession of proclinate frontorbitals in the male of *pilisquama*. A character that has not been mentioned in the literature is the flange-like projection on each side of each femur, particularly the middle and hind ones, to receive the respective tibia; these flanges can best be seen from the ventral view when the tibia is extended.

The male genitalia of *pilisquama*, which have not been described or figured, are shown in figs. 1 and 2. The complex of inner and outer forceps is especially broad; the inner forceps are separated from each other and leave a considerable space between them; the outer forceps, viewed either dorsally or laterally, are unusually short and broad; laterally, they conceal the inner forceps. The aedeagus is slender; its apical part has a prominent membranous flap on each side and a row of spines posteriorly.

T. pilisquama is separable from *sarcophagoides* by the presence of proclinate frontorbitals in males of the former species and their absence in the latter. The color of the squamal pile, which Senior-White, Aubertin and Smart use as an additional character, is too variable to be of diagnostic value. So far as known, females can be separated only by association with the males.

PALAWAN: Mantalingajan Range, Pinigisan, 600 m, 4—22 Sept., 1961, 9 ♂, 7 ♀; Brooke's Point, Uring Uring, 13 & 22 Aug. 1961, 2 ♀ (probably this species).

Tainanina sarcophagoides (Malloch).

Calliphora sarcophagoides Malloch, 1931, p. 192.

PALAWAN: Mantalingajan, Pinigisan, 600 m, 10 Sept. 1961, 1 ♂.

Subfamily BENGALIINAE.

Bengalia lateralis Macquart.

Bengalia lateralis Macquart, 1842, p. 277.

Bengalia jejuna (Fabricius), Senior White, Aubertin and Smart, 1940, p. 88; nec Surcouf, 1914; nec Malloch, 1927.

There have been two interpretations of the identity of *Bengalia lateralis* Macquart and *Musca jejuna* Fabricius: that of Surcouf (1914) and accepted by Malloch (1927) and Townsend (1937), and that of Bezzi (1913) and accepted by Senior-White (1923) and Senior-White, Aubertin and Smart (1940). Both the Fabricius

and Macquart types are females, but Senior-White's statement that for this reason the matter of their identity can never be satisfactorily settled is invalid, at least so far as the differentiation of these two species from each other is concerned, since there are as good characters for distinguishing the females as there are for the males. I am accepting Surcouf's disposition of the two since he examined the types (as Townsend did later), and his illustration of the head of the type of *lateralis* is most certainly that species as here accepted and not the *lateralis* of Senior-White. Macquart's illustration of *lateralis* is somewhat puzzling since, in spite of the agreement of the overall insect with the Surcouf interpretation, his illustration of the side of the head shows the vibrissae set low, as in *jejuna*. In view of Surcouf's much more detailed drawing of the same insect, this can only be interpreted as an inaccuracy on the part of Macquart.

The pale margin of the mesonotum and scutellum (resulting from its pollinosity) is quite noticeable in ungreased females. Macquart does not state explicitly, though his two-line Latin diagnosis certainly implies, that this is the basis for the specific name, and Malloch is probably right in his assumption that this is so. Malloch's characters for separating this species from *jejuna* — the broad genae and parafacials, the latter with about four rows of setulae, the closely approximated vibrissae, the group of 2 + 3 spine-like bristles on the ventral surface of the fore tibia of the male (actually variable in number) and separated by a hollow — are more useful than those used by Senior-White.

PALAWAN: Brooke's Point, Uring Uring, 17—25 Aug. 1961, 7 ♀, 5 ♂; Mantalingajan Range, Tagembung, 1150 m, 17 Sept. 1961, 1 ♂. — BALABAC: Dalawan Bay, 5 Oct. 1961, 1 ♂.

***Bengalia recurva* Malloch.**

Bengalia recurva Malloch, 1927, p. 404.

PALAWAN: Brooke's Point, Uring Uring, 18 & 19 Aug. 1961, 1 ♀, 2 ♂; Mantalingajan Range, Pinigisan, 600 m., 7 Sept. 1961, 1 ♀; Mantalingajan Range, Tagembung, 1150 m., 18 Sept. 1961, 1 ♂. — TAWI TAWI: Tarakawan, 25 Oct. 1961, 1 ♀.

***Bengalia lyneborgi*, new species.**

Male. Head largely yellow in ground color; parafrontals blackish, thickly brown pollinose but with the black clearly showing through opposite the antennal bases, where the parafrontals and

parafacials meet, to form a black spot; upper frontal area more brownish, with the brownish pollen denser above; occiput black except central part (sometimes almost all) of the cerebrale, but under dense pollen which is more brownish above, more whitish below; face whitish pollinose. Frontal bristles usually 5 or 6; one strong reclinate frontoorbital in line with the frontals; inner and outer verticals strong; ocellars and postocellars weak, sometimes not much stronger than setulae. Frontal area set with black setulae, regularly below, more sparsely above. Parafacials narrow, with two rows of black setulae which may form, at least in part, a single irregular row; vibrissae low above oral margin and separated from each other by much more than the distance of each from the eye margin. Genae with black bristles, their setulae black anteriorly, yellowish white posteriorly and on lower occiput. Prelabrum but slightly projecting. Head measurements, in micrometer units ($60 = 1$ mm): head width, 204; width of front, 65; of parafacials at narrowest, 6; distance between vibrissae, 40; distance, vibrissa to eye, 25; vibrissa to prelabrum, 10. First and second and extreme base of third antennal segment reddish yellow; antenna otherwise brownish. Palpi and proboscis reddish yellow.

Thorax black in ground color, densely pollinose, pollen of pleura whitish, that of mesonotum more brownish; from posterior view five poorly defined black vittae: a median one, a narrow pair inside each dorsocentral row, and a broader one outside the dorsocentral row, this last one tending to be geminate before the suture; lateral pollen of mesonotum and of scutellum paler but still with a brownish tinge. Pile of mesonotum and scutellum black, that of lower half of humerus and most pleural pile whitish, but upper mesopleural pile and a tuft on the pteropleuron coarser than the others and blackish. Dorsocentrals 1-2:4; an accessory propleural and often an accessory stigmal present, both much weaker than the principal propleural and stigmal. Greater ampulla oval. Legs yellow, femora more reddish yellow, sometimes almost brownish black, tarsi becoming darker apically; hairs and bristles black; front tibiae with a group of three or four short, stout, sharp bristles ventrally on a barely discernible prominence just before the middle of its length; middle femur apically with a row of 7 to 9 posteroventral spine-like bristles. Wing light grayish; squamae whitish to light yellowish; epaulet, basicostal scale, and subcostal sclerite yellow.

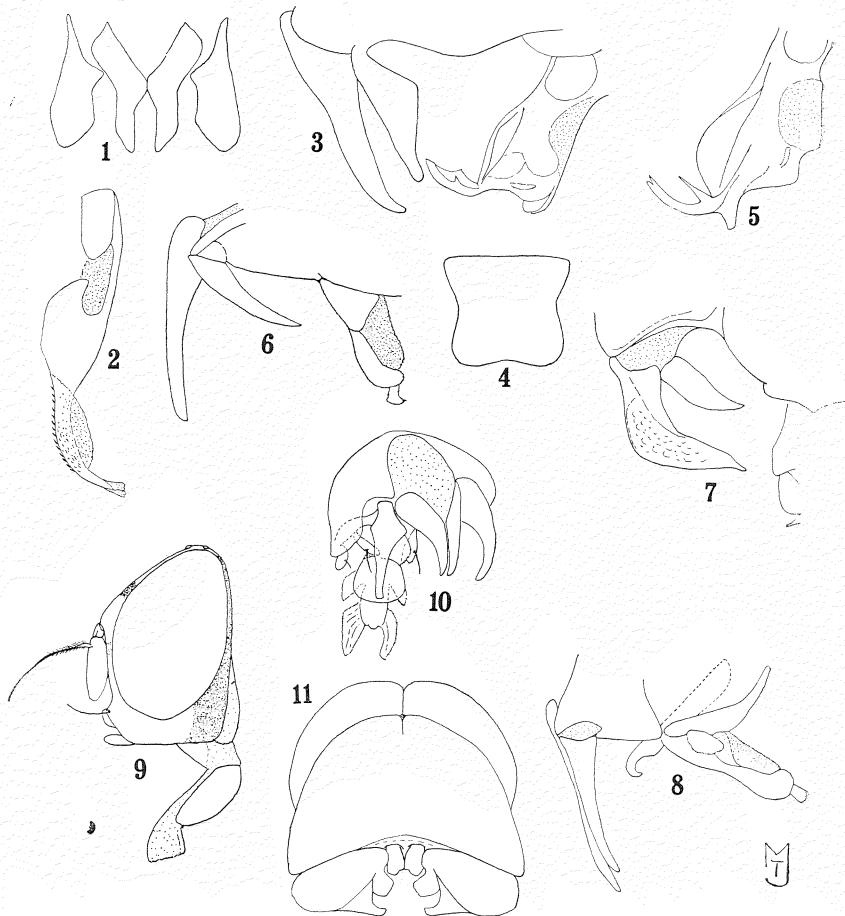


Fig. 1. *Tainanina pilisquama* (Senior-White). Forceps in outline, dorsal view. Fig. 2. *Tainanina pilisquama* (Senior-White). Aedeagus. Fig. 3. *Bengalia lyneborghi*, new species. Forceps and aedeagus, lateral view, pile and bristles omitted. Fig. 4. *Bengalia lyneborghi*, new species. Outline of apical plate of fifth sternum. Fig. 5. *Bengalia bezzii* Senior-White. Aedeagus of male from Coimbatore, South India, collector P. S. Nathan. Fig. 6. *Isomyia pictifacies palawanensis*, new subspecies. Forceps and aedeagus, lateral view, pile and bristles omitted. Fig. 7. *Isomyia scabra*, new species. Forceps and aedeagus, side view; pile and bristles omitted. Fig. 8. *Isomyia flavicornis*, new species. Male genitalia, side view, pile and bristles omitted. Figs. 9-11. *Sumatria brevis*, new species. (9) Head, lateral view; setae and bristles omitted, pollinose areas indicated by denser stippling. (10) Forceps and aedeagus, from laterodorsal angle; pile and bristles omitted except the characteristic bristles on the anterior and posterior claspers. (11) Fifth sternite in outline.

Abdominal coloration variable; ground color of terga may be wholly black, or blackish only apically; in the latter case the large part of each tergum may be reddish yellow, brownish yellow, or brownish black; terga heavily white-pollinose, forming a tessellated pattern; sterna clear yellow, first four terga and ventral aspect of first tergum with soft whitish hairs except the sterna laterally where there are some stiffer black ones; black hairs predominate on the fifth sternum, but the paler ones may also extend onto this sclerite; setulae of abdomen otherwise and all bristles black. The strongest apicolateral bristle of first and second terga almost as strong as the laterals of the third and fourth. Third tergum with a pair of strong erect apicals; fourth tergum with a pair of strong discals, set as far or a little farther apart than the apicals of the third. Genitalia as in figs. 3 & 4.

Length, 7—10 mm.

F e m a l e. Much like the male; two proclinate fronto-orbitals, but one or both may be wanting on one side or both; outer verticals stronger than in the male. Front tibia and middle femur without the unusual bristles described for the male. Otherwise, except sexually, corresponding with the description of the male.

T y p e s. Holotype, male, PALAWAN: Brooke's Point, Uring Uring, 22 Aug. 1961; allotype, female, same data; paratypes, 17 ♂, 24 ♀, same data but 17 to 25 Aug., 9, 17 Sept. 1961; Mantalingajan Range, Pinigisan, 600 m, 8 Sept. 1961, 1 ♂, 2 ♀; BALABAC: Dalawan Bay, 4 & 12 Oct. 1961, 2 ♂, 1 ♀; TAWI TAWI: Tarakawan, 7 Nov. 1961, 1 ♂. Holotype, allotype, and most paratypes from malaise traps.

A small female, Palawan, Brooke's Point, Uring Uring, 18 Aug. 1961, seems to be this species, but it lacks the discals on the fourth tergum.

This species is very close to *bezzii* Senior-White and to the species considered by Malloch to be *latro* DeMeijere. The male genitalia are similar to those of *bezzii* but differ chiefly as follows: (1) the inner forceps are much more nearly straight in lateral profile than those of *bezzii*; (2) the shape of the aedeagus is different, its dorsal apical angle, in particular, being almost rectangular from side view in *lyneborgi* and distinctly obtuse in *bezzii*; (3) the end lamella of the aedeagus is more digitate in *bezzii*, broader and more plate-like in *lyneborgi*; and (4) the apical plate of the fifth sternum is slightly convex and usually notched apically in *bezzii*,

slightly but distinctly concave and unnotched in *lyneborgi*.

In Senior-White, Aubertin and Smart's (1940) key this species traces to *bezzii* if one considers that in couplet 13 "apical plate of fifth sternite" was intended instead of "apical forceps". This modification would make this part of the key workable, but as it stands it conveys no meaning to me. I am unable to find other than genitalic characters for the separation of the two species, though, statistically, *lyneborgi* is a much darker species. In Malloch's (1927) key both sexes trace to *latro* DeMeijere which, according to Senior-White, Aubertin and Smart Malloch misinterpreted. Malloch's interpretation of *latro*, however, seems also to be *bezzii*. The apical plate of the fifth sternum of *lyneborgi* is similar, but not identical, with that illustrated by Malloch for his *inermis*, which Senior-White, Aubertin and Smart have synonymized with *bezzii*. According to Malloch's description, however, *inermis* (as the specific name implies) lack the short, spinose bristles on the ventral side of the front tibia, which characterize *bezzii* and some other species of this genus.

Séguy (1946) has described three species of *Bengalia*, all belonging to the group with discal bristles on the fourth tergum, subsequent to the publications of Malloch and of Senior-White, Aubertin and Smart. Two of these, *chromatella* and *pallidicoxa*, from India, were described from females only. The third, *unicolor*, was described from a male from Karachi, Pakistan. Its apical plate of the fifth sternum is slightly concave apically, but is in general shape more squarish than that of *lyneborgi*; no other genital structures are figured by Séguy. In view of this difference, plus the difference in pilosity and coloration as indicated by Séguy's description and the distant locality, it is practically certain that the two species are distinct.

I take pleasure in dedicating this species to Dr. Leif Lyneborg, who has kindly made this interesting collection available to me for study.

***Bengalia jejuna* (Fabricius).**

Musca jejuna Fabricius, 1794, p. 312.

Bengalia lateralis Macquart, Senior-White, Aubertin and Smart, 1940, p. 91; nec Surcouf, 1914; nec Malloch, 1927.

A male and a female, PALAWAN: Brooke's Point, Uring Uring, 8 Aug. 1961, and a headless female, PALAWAN: Mantalingajan Range, Pinigisan, 12 Sept. 1961 seem to be a melanic form of this

species; they may deserve subspecific recognition, but the scarcity of material would not permit a positive conclusion. The abdominal tergites are largely black; the first has a partial transverse yellow band, the second in the male and the second and third in the female have each a pair of yellow spots, elongated in the transverse axis. The male genitalia are not significantly different from those of specimens from South India which I have used for comparison.

Bengalia hobbyi Senior-White, Aubertin and Smart.

Bengalia hobbyi Senior-White, Aubertin and Smart, 1940, p. 88.

A female, BALABAC: Dalawan Bay, 13 Oct. 1961 seems to be this species. The mesonotum, except laterally, is black and heavily light brown dusted, but this variation from the original description may have little significance in view of the color variations that occur in this genus.

Subfamily **CHRYSOMYINAE**.

Chrysomya megacephala (Fabricius)

Musca megacephala Fabricius, 1794, p. 317.

This species and the following are common, widespread domestic species that are but scantily represented in the Noona Dan material.

PALAWAN: Brooke's Point, Uring Uring, 17 Aug. to 1 Sept., 3 ♀, 1 ♂.

Chrysomya rufifacies (Macquart).

Lucilia rufifacies Macquart, 1842, p. 302.

TAWI TAWI: Tarakawan, 31 Oct. to 14 Nov. 1961, 4 ♀, 1 ♂.

Chrysomya pinguis (Walker).

Lucilia pinguis Walker, 1858, p. 213.

PALAWAN: Mantalingajan Range, Pinigisan, 600 m, 1—8 Sept. 1961, 6 ♀. — TAWI TAWI: Tarakawan, 31 Oct. to 14 Nov. 1961, 9 ♀, 3 ♂.

Chrysoma (? *defixa* (Walker)).

Musca defixa Walker, 1857, p. 24.

This may be *defixa* (Walker) but without males it is impossible for me to come to a decision. *Defixa* was described from a male only from Singapore. The females of the present series are very similar to *pinguis* but the parafacials are wholly black, or at most

with some indication of reddish brown on the parafacial depression; the face is blackish, becoming reddish brown toward the epistoma; the head is mostly cinereous pollinose. The third antennal segment is blackish, somewhat reddish inwardly. The hindmost preintraalar is present, though small (absent in *pinguis*) and there are some other differences between the two species.

PALAWAN: Mantalingajan Range, Pinigisan, 3—14 Sept. 1961, 5 ♀.

Subfamily RHINIINAE.

Isomyia viridaurea (Wiedemann).

Musca viridaurea Wiedemann, 1819, p. 22.

MINDORO: San Jose, Oct. 1945, E. S. Ross, California Academy of Sciences, 1 ♀. — PALAWAN: Brooke's Point, Uring Uring, 16—25 Aug. 1961, 9 ♀, 1 ♂; Mantalingajan Range, Pinigisan, 600 m, 1—21 Sept. 1961, 36 ♀, 5 ♂. BALABAC, Dalawan Bay, 4—9 Oct. 1961, 4 ♂. — TAWI TAWI: Tarakawan, 26 Oct. to 7 Nov., 1961, 4 ♀. — MINDANAO: Sapamoro, Curuan Dist., 17 Dec. 1961, 1 ♀.

Isomyia dotata (Walker).

Lucilia dotata Walker, 1857, p. 25.

This species is not represented in the Noona Dan material; however, I have the following record from California Academy of Sciences material. — MINDORO: San José, 17 March 1945, Ross and Skinner, 1 ♂. 2 ♀.

Isomyia achaeta, new species.

Male. Head, except cerebrale and usual upper part of the occiput, densely pollinose, to a large extent obscuring the ground color; ground color of the parafrontals, parafacials except near the vibrissae, and occiput black, that of the genae usually showing some metallic green; area around vibrissae reddish brown. Frontal area blackish brown; lunule reddish yellow; face a sordid yellow. Pollen dull golden to bronze on parafrontals, parafacials, and upper occipital orbits, becoming pale yellowish elsewhere on head. Usual bare area of upper occiput shining black. Hairs of middle of occiput white, abundant below; occipital fringe, pile of genae, parafacials, parafrontals and ocellar triangle, and all bristles of head, black; parafacial pile in about 2 irregular rows above, becoming a single row below. Lunule bare. Frons at narrowest about 0.04 head width; carina separating antennae narrow but sharp,

not grooved. Ocellar and inner vertical bristles long and strong, outer verticals barely distinguishable from occipital fringe; 5 or 6 strong frontals and an equal number of weak ones, the uppermost hair-like. Vibrissae set above oral margin by approximately half length of third antennal segment. Antennae reddish yellow, the third segment largely brownish to brownish black; arista brownish at base, otherwise yellow. Palpi yellow. Head measurements in micrometer units (60 = 1 mm): head width 175; minimum width of frons 7; minimum width of parafacial 12; vibrissa above oral margin 18; length third antennal segment 34 (based on holotype).

Thorax bright green with cupreous reflections varying with the light incidence and variable from specimen to specimen, but with a narrow vitta between each acrostichal and dorsocentral row and a broader one just outside the posterior dorsocentral row and bending toward the intraalar row in front of the suture; whitish pollen, visible under proper light incidence, covering thorax but sparsest on mesopleura and upper sternopleura; all hairs and bristles of thorax black. Acrostichals 2:2, the anterior presutural moderately weak; marginal scutellars 3; discal scutellars not well differentiated; an accessory propleural and an accessory stigmalal usually present. Upper and lower squamae brown, the latter not lobulated. Halteres slender, yellow. Basicostal scale black. Wing yellowish brown on basal half, brown apically, most intensely so in cells R_1 and R_3 ; setulae of stem vein, above and below, black; about 3 setulae below. Legs black, front and to a limited extent middle femora green posteriorly, the tibiae dark brownish black; middle tibia without a median ventral bristle.

Abdominal terga largely black with purplish reflections; sides of second, third and fourth terga each with an extensive bright green triangle, one angle of which is prolonged toward the middle of the respective tergum basally; first hypopygial segment green. First and second sterna with fine whitish hairs, those of second abundant; second sternum also with 8 to 10 black bristles; hairs and bristles of abdomen otherwise wholly black. First four terga each with a well developed row of marginal bristles; fourth tergum also with a strong discal row. Pollen of abdomen whitish, densest ventrally on anterior terga. Genitalia essentially as illustrated for *Strongyloneura ditissima* (Walker) by Senior-White, Aubertin and Smart (1940, p. 157); the inner and outer forceps

a little more slender, the aedeagus also a little more slender but essentially the same structurally.

Length, 9—10 mm.

F e m a l e. Frons gradually widening from vertex downward; at vertex 0.22 head width, at base of antenna 0.33 head width. Frontal area parallelsided or somewhat bowed outward medially. Pollen of head paler than in the male, tending to yellowish gray or gray. Two strong proclinate and one strong reclinate fronto-orbitals; outer verticals well developed, much stronger than occipital fringe but much weaker than inner verticals. Third antennal segment more extensively yellow than in male. Thorax variably blue to green, the bronze vittae not as marked as in the male; the broader lateral vittae sometimes virtually absent. Acrostichals as in the male but first presutural pair generally weaker, sometimes almost absent. Middle tibia with a strong ventral bristle. Squamae white with a yellowish tinge. Abdomen variably blue to green or bronze, the black areas with purplish reflections being less extensive, confined to the posterior half of the abdomen, extended forward by a broad median vitta on terga 2 to 4; sides of terga broadly green; white hairs on first sternum shorter and somewhat less abundant than in the male. Otherwise except sexually as described for the male.

T y p e s. Holotype, male, BALABAC: Dalawan Bay, malaise trap, 10 Oct. 1961. Allotype, female, same data but 12 Oct. Paratypes, 3 ♂, 1 ♀; same data but 7, 10, and 12 Oct.; 2 ♂, 10 ♀, PALAWAN: Mantalingajan Range, Pinigisan, 600 m, mostly from malaise traps, 13 Aug. to 20 Sept.

This species belongs to the (*Thelychaeta*) *dotata* group of Peris (1952) and traces easily in the abbreviated English key to *dotata*; in the more extended Spanish key it fails to conform in respect to two supplementary characters, namely, the presence in male *dotata* of a ventral bristle on the middle tibia and in that the narrowest width of the frons is subequal to the width of the anterior ocellus. Though very narrow in both species, the frons is a little broader in male *achaeta* than in *dotata*. In Malloch's (1928) key this species traces to *micans* (Bigot), but Peris, after having examined Bigot's and Walker's types, has pointed out that *micans* is a synonym of *dotata* and that Malloch has misinterpreted Bigot's species. *I. achaeta* is apparently the *micans* of Malloch, not Bigot.

Several other differences occur between *achaeta* and *dotata*; the squamae of *dotata* are white in both sexes, the pollen of the head, at least in material of *dotata* which I have for comparison, is more grayish; there is usually but one pair of preacrostichals; the shaded apical portion of the wing is more distinctive in *dotata* since there the dark infumation contrasts with a more nearly hyaline base. The male genitalia are similar but the inner and outer forceps of *dotata*, like those of *ditissima*, are more robust.

One male and 2 females in the series, not designated as types, deviate from the description in having the wings hyaline. The male and one female are obviously teneral, the other female less obviously so; the hyalinity of the wing is probably due to this condition. Another male, also not a type, is more of a problem; the pollen of the head is gray and the squamae white. This intermediate condition between *dotata* and *achaeta* suggests that the latter may be but a subspecies of the former, but until further evidence is at hand it is best to leave the disposition of this taxon as here indicated.

Peris' key separates the *dotata* group on the basis of the subcosta next to the humeral cross-vein being setulose below. Malloch separates the same group (called by him "Group A") on the same basis but expresses it as "first wing-vein setulose below at base, the setulae in the hollow". This is a more accurate designation since the setulae arise in the hollow on the ventral side of the stem vein and consequently probably from the base of the radius rather than from the subcosta.

***Isomyia pictifacies palawanensis*, new subspecies.**

M a l e. Head mostly black in ground color; cerebrale and upper part of occiput shining; parafrontals, parafacials and genae with brownish, occipital orbits and lower occiput with cinereous pollen. Lunule, epistoma and peristomal regions reddish yellow, facials and face also so as a rule but blackish in the holotype. Pile and bristles of head black except that middle of occiput is pale haired. Parafacial pile in 2 or 3 irregular rows. Eyes subcontiguous, the frontal stripe completely eliminated except just in front of the ocellar triangle and above antennal bases; carina separating antennal bases low, with a distinct longitudinal furrow that extends below apex of second antennal segment. Ocellars and inner verticals about as long and strong as the intermediate frontals; no

outer verticals; occipital fringe becoming weak above; postocellars almost hair-like; 7 or 8 strong frontals and several weak ones. Lunule bare. Vibrissae set high above oral margin. Antennae reddish yellow, third segment paler basally; arista brownish at base, otherwise reddish yellow. Palpi yellow. Head measurements: head width, 210; vibrissa above oral margin, 25; length third antennal segment, 32; minimum width of frons, 3; minimum width of parafacial, 12 (measurements, based on holotype, in micrometer units, 60 = 1 mm).

Thorax mostly brilliant blue with green and purple reflections; humeri, presutural area (but not notopleura), postsutural area to third postdorsocentral and first postacrostichal, except for very broad sides and supraalar area, and basal half of scutellum medially, also large part of sternopleuron, dull olivaceous; humeri, mesonotum and scutellum with rather dense gray pollen when viewed from behind; sternopleura and propleura less evidently so. A narrow cupreous vitta between each acrostichal and dorsocentral row, extending a little beyond the suture, and a broader, less well defined one outside each dorsocentral row. Anterior spiracle with brownish black hairs. Acrostichals 2:2, first presutural pair weak; 3 marginal and 1 well-differentiated discal scutellar; an accessory propleural but no accessory stigmal. Squamae brown; the thoracic the darker of the two, strongly lobulated, the lobe extending under the margin of the scutellum. Basicostal scale black. Wing subhyaline. Stem vein bare in hollow below; R_{4+5} setulose about one-fourth way from node to r-m, setulose on node below. Femora black, front pair more greenish; tibiae and base of tarsi dark reddish yellow. Middle tibia without a ventral bristle.

Abdomen shining blue-green and dull or subshining black; first tergum black, apices of second and third, a mid-dorsal stripe extending from the apex of the third to base of abdomen (and evident because of lack of pollen even against the black areas), and ventral aspects of terga, black, as a result the green of the second tergum reduced to lateral spots; fourth tergum and exposed part of hypopygium green to bluish. All pile and bristles black; marginal row on first and second terga, except laterally, weak and scarcely differentiated, that on third not much stronger; fourth tergum with a strong discal and marginal row. Greyish pollen evident from posterior view on most of abdomen except

laterally, densest on the sterna. Genitalia (fig. 6) similar to those of *delectans*, as illustrated by Peris (1952, p. 165).

F e m a l e. Frons at vertex about 0.25 head width, widening to 0.36 head width at base of antennae. Frontal area parallel-sided, reddish brown; about 10 frontals; 2 proclinate and 1 reclinate frontoorbitals, ocellars and outer verticals strong and of about equal strength, inner verticals distinctly longer, postocellars minute. Thorax wholly blue and greenish blue, the stripes that are cupreous in the male becoming bluish in the female but still clearly distinguishable; first preacrostichal sometimes barely distinguishable or absent. Middle tibia with a strong ventral bristle. Second abdominal tergum, like the third, green or blue dorsally and laterally except for the narrow apex and mid-dorsal vitta; first tergum also more or less blue or green laterally. Otherwise, except sexually, as described for the male.

T y p e s. Holotype, male, PALAWAN: Mantalingajan Range, Pinigisan, 600 m, malaise trap, 1 Sept. 1961. Allotype, female, same data. Paratypes, 1 ♂, 7 ♀, same data; 6 ♀, same data but 2 to 5 Sept.; 5 ♀, Brooke's Point, Uring Uring, malaise trap, 16 to 25 Aug., 1961; 1 ♀, BALABAC: Dalawan Bay, malaise trap, 12 Oct. 1961.

Somomyia pictifacies Bigot was described from Java and recorded by Peris from Laos. Though Bigot described both sexes, Peris makes no mention of the male. The Palawan form traces well in Peris' (1952) key and fits Bigot's description for the most part, and I would take it to be *pictifacies* except for the deeply brown squamae in both sexes, which contrast strongly with the white or pale testaceous squamae described by Bigot. At the present state of our knowledge, this form seems to fit well into a subspecific pattern. It is being described at length here because of the inadequacy of the treatment of what I take to be the typical subspecies, *pictifacies pictifacies*.

***Isomyia scabra*, new species.**

M a l e. Parafrontals, parafacials, most of gena, and occiput black, with dense whitish pollen except on the cerebrale and usual upper parts of the occiput, which are subshining; anterior part of gena glossy in certain lights, though with a change of light incidence it is also pollinose; pollen of parafrontals next to ocellar triangle brownish black. Face and facial ridges yellow, peristomal

region and lunule reddish yellow. Occipital fringe black; hairs of occiput and posterior part of gena white, abundant and long below, hairs of frons, ocellar triangle, parafacials and anterior part of gena, and all bristles, black; parafacial hairs in 2 or 3 irregular rows. Lunule with several black setulae on each side. Frons at narrowest about one tenth head width; frontal vitta distinct, reddish brown below and blackish above, at narrowest about width of parafrontal at corresponding area. Ocellars about as long and strong as the longer frontals; outer verticals much stronger; inner verticals absent; about nine or ten stronger and several weak frontals. Occipital fringes with 4 or 5 setulae above which are noticeably longer than the rest. Vibrissae relatively high above oral margin. Antennae reddish yellow; third segment more reddish brown and dulled with whitish pollen; arista mostly brown; third antennal segment unusually short. Palpi bright orange. Head measurements in micrometer units ($60 = 1$ mm): head width, 190; minimum width of frons, 20; minimum width of parafacial, 20; vibrissa above oral margin, 20; length third antennal segment 28 (measurements from holotype).

Thorax bright green; pleura more bluish green; a fairly definite bronze stripe between the acrostichal rows and suggestions of one between each dorsocentral and intraalar row. A few pale hairs on lower side of humerus above propleural depression; hairs and bristles of thorax otherwise black. Pollen sparse except on lower sternopleura, whitish. Acrostichals 2:2, the first presutural distinct but weak; 3 marginal and 1 discal scutellar, with a weak accessory marginal basad of the first (absent in one female paratype). Squamae not lobulated; lower pale yellow, upper almost white. Halteres slender, pale yellow, knob darker centrally. Basicostal scale black. Wing very lightly infumated; R_{4+5} setulose only at the node; ventral hollow of stem vein bare. Legs black with black hairs and bristles; front femur green posteriorly; middle tibia without ventrals; hind tibia without anteroventrals.

Abdomen green, more or less with bronze reflections, posterior margins of segments and a median vitta black; pollen more conspicuous than on thorax; hairs and bristles all black except for some long yellow setae and hairs on sterna 1 to 3; a moderately strong discal row on fourth tergum, marginal rows weak except laterally on first three terga, strong on fourth and hypopygium; first three sterna with several strong and several weaker bristles.

Genitalia as in fig. 7; inner forceps yellow, broad, bent sharply forward beyond middle; beyond the bend the forceps, viewed posteriorly, form a trough; the forceps separated for about the apical fourth. Sclerotized part of aedeagus glossy black.

Length, 9—11 mm.

F e m a l e. Frons at vertex 0.20 head width, widening to 0.40 head width at antennal bases; frontal area reddish brown, widest just in front of anterior ocellus, then narrowing to lunule; parafrontals subshining near ocellar triangle. Proclinate frontoorbitals 2 strong plus 1—3 weak, 1 strong reclinate frontoorbital; outer verticals as strong as the frontals. Longer hairs of occipital fringe gradually increasing in length above. Thorax more uniformly bluegreen than in the male, but the three mesonotal stripes distinct, broad and blackish. Pollen more evident than in the male. Middle tibiae with a strong ventral and hind tibia with 2 small anteroventrals. Marginals and discals of fourth tergum rather weak, though distinct.

T y p e s. Holotype, male, PALAWAN: Mantalingajan Range, Pinigisan, 600 m, malaise trap, 1 Sept. 1961. Allotype, female, same data but 2 Sept. Paratypes, 1 ♂, 2 ♀, same data but 1 and 2 Sept.; 1 ♀, Brooke's Point, Uring Uring, malaise trap, 22 Aug. 1961.

This species belongs to the *yerburyi* group of Peris and traces to *confixa* (Walker) except for the lack of anteroventral bristles on the hind tibia of the male. The genitalia are similar to those of *pseudoviridana* Peris, as illustrated by Peris (1952, p. 181) but the inner forceps bend more abruptly and the shape of the outer forceps is different. Senior-White's highly diagrammatic illustration of what he took to be *tibialis* (Villeneuve) (according to Peris, *pseudoviridana* rather than true *tibialis*) suggests that the structure of the aedeagus of the two species is much the same. *Pseudoviridana* has considerable golden pile on the pleura. The three species are apparently very closely related to one another.

***Isomyia flavicornis*, new species.**

M a l e. Parafrontals, parafacials and occiput black; genae, face, facial ridges, and peristomal regions yellow; upper occiput subshining; pollen of parafrontals, parafacials, occipital orbits and genae dense, pale golden, that of lower occiput sparser, more whitish; the pollen on the parafrontals extending onto the occiput.

Frons 0.18 head width; frontal stripe reddish brown, at narrowest about equal in width to the parafrontal at the same level; lunule reddish yellow, bare. A single irregular row of mostly black setulae on lower half of parafrontal and the length of the parafacial to level of the vibrissae; 2 or 3 of those below much larger than the others and simulating small bristles; occipital fringe, setulae of vertex and ocellar triangle, and those of anterior half or less of genae black, the other genal and occipital hairs yellow and relatively soft. Frontals 6 or 7; 1 strong reclinate frontoorbital; ocellars and inner verticals strong, no outer verticals. Vibrissae very close to oral margin. Antenna yellow, third segment somewhat brownish externally below arista; thickened basal half of arista yellow. Palpi bright yellow. Head measurements, based on holotype, in micrometer units ($60 = 1$ mm): head width, 153; minimum width of frons, 28, of parafacial, 17; vibrissa above oral margin, 6; length third antennal segment, 46.

Thorax bright green; a pair of narrow bronze vittae between the acrostichal and dorsocentral rows; some other mesonotal areas showing some bronze under the proper light incidence. Mesonotal and scutellar pile black; pile of lower half of humerus and of all pleural areas yellow to golden except for the usual group of black setae on the upper part of the mesopleuron; all thoracic bristles black. Thorax with whitish pollen, evident under proper light incidence and densest on the sternopleura. Acrostichals apparently 2:4, the anterior presutural and the first two post-sutural weak. Marginal scutellars 3; discal scutellars 2 pairs, but illy defined from the adjacent setulae. Squamae yellowish white to pale yellow; thoracic squama not lobulated. Halteres slender, yellow. Wing lightly infumated; R_{4+5} setulose half way to r-m; stem vein bare in its ventral hollow. Legs black, femora greenish posteriorly; middle and hind tibiae without ventral and antero-ventral bristles. Anterior spiracle with reddish brown hairs.

Abdomen bright green; first and second terga blackish medially but with complete posterior margins green; third extensively, both dorsally and ventrally, and fourth largely black; these black areas with strong violaceous reflections, especially on the posterior parts of the third and fourth terga, the sides of these terga, more extensively on the third than on the fourth, green. First sternum with white hairs and 4 or 5 black bristles, the others with black hairs and bristles. Abdomen with white pollen, more evident than on

the thorax and densest on the ventral aspects of the first three terga. Fourth abdominal tergum and first hypopygial segment with strong marginal rows and without discals; marginal rows of other abdominal terga weak except laterally. First hypopygial tergum with strong violaceous reflections; inner and outer forceps yellowish brown. Genitalia as in fig. 8.

Length, 8 mm.

F e m a l e. Frons about 0.27 head width at vertex, widening to 0.40 head width at base of antennae. Frontal area almost parallel-sided. Two strong proclinate and 1 strong reclinate fronto-orbitals; outer verticals broken off in allotype but apparently well developed, as indicated by the bristle scars. Middle tibia with a strong ventral bristle, hind tibia with 2 anteroventrals. Discal scutellars hardly distinguishable. Length, 9 mm.

T y p e s. Holotype, male, BALABAC: Dalawan Bay, 11 Oct. 1961. Allotype, female, PALAWAN: Brooke's Point, Uring Uring, malaise trap, 18 Aug. 1961; paratype, male, Mantalingajan Range, Pinigisan, 600 m, 17. Sept. 1961.

This species belongs to the *yerburyi* group of Peris and traces in his key to *sivah* (Bigot); in Séguy's (1949) key, p. 119, it traces to *phryxea* (Séguy) and, with a variation in the number of acrostichals, it might trace to *inops* (Séguy) and *cybele* (Séguy). These species, along with *flavicornis*, apparently form a closely related complex. *I. sivah*, *cybele*, and *inops* were described from females only and *phryxea* from the male only; the genitalia of *phryxea* were not illustrated or described. The black tibiae, concolorous with the black areas of the femur, will separate *flavicornis* from the other four species, according to their descriptions, and the long third antennal segment, three times the length of the second, conflicts with the descriptions of Séguy's species in which the antennal ratio is stated at not more than 2:1. The broad frons of *phryxea* Séguy is similar to that of *flavicornis*, but, among other things, the pleura are much more extensively black-pilose. *I. sivah*, for which the ratio of the length of the second and third antennal segments is 1:3, as in *flavicornis*, has a different abdominal pattern with a median vitta and incisures black.

Rhynchomyia setipyga Villeneuve.

Rhynchomyia setipyga Villeneuve, 1929, p. 62.

PALAWAN: Brooke's Point, Uring Uring, 15 Aug. to 21 Sept. 1961, 1 ♂, 25 ♀.

***Idiella tripartita* (Bigot).**

Idia tripartita Bigot, 1874, p. 236.

The type of this species is stated by Bigot as coming from the East Indies (Indes orientales), not India, as stated by Peris.

PALAWAN: Mantalingajan Range, Pinigisan, 600 m, 5—14 Sept. 1961, 4 ♀; Mantalingajan Range, Tagembung, 1150 m, 15—16 Sept. 1961, 4 ♀. — TAWI TAWI; Tarakawan, 24 Oct. and 9 Nov. 1961, 2 ♀.

***Idiella euidielloides* Senior-White.**

Idiella euidielloides Senior-White, 1922, p. 166.

Idiella divisa (Walker), Peris, 1952, p. 51, partim.

Peris synonymized Senior-White's and Walker's species but at the same time discussed the variability of *divisa* sensu lato and recognized several groups within the supposed species. The first group consisted of typical *divisa*, which Peris said might be specifically distinct from the others. Until the matter can be settled, it seems preferable to recognize *divisa sensu stricto* for the typical form and to call the others *euidielloides*, apparently the oldest available name. Since Peris feels that this remaining *euidielloides* complex can not consist of more than one species, further subdivision at the present time is not warranted.

In my Philippine Islands material, the abdominal pattern varies somewhat from that described by Senior-White and Malloch (as *nigritibia*), but is well within the range of expected variation. The sides (from the dorsal view) of the first two and part of the third terga are reddish yellow, this color extending across the base of the first tergum and then taking up most of the central part of the first, second, and sometimes part of the third tergum; the overall effect is a U-shaped blackish area, with blue reflections, extending from the first tergum onto the fourth, enclosing a reddish-yellow area in the center and margined outwardly by reddish-yellow along the arms of the U and with dark green around its curve.

PALAWAN: Mantalingajan Range, Tagembung, 1150 m, 15—20 Sept. 1961, 12 ♀, 35 ♂; Mantalingajan Range, Pinigisan, 600 m, 5 & 9 Sept. 1961, 2 ♀, 1 ♂.

***Stomorhina discolor* (Fabricius).**

Musca discolor Fabricius, 1794, p. 320.

PALAWAN: Mantalingajan Range, Pinigisan, 600 m, 5 Sept.

1961, 1 ♀. — TAWI TAWI: Tarakawan, 22 & 26 Oct., 13 Nov.
1961, 3 ♀.

Chlororhinia exempta (Walker).

Idia exempta Walker, 1857, p. 128.

PALAWAN: Brooke's Point, Uring Uring, 16 Aug. 1961, 1 ♀.

Borbororhinia bivittata (Walker).

Idia bivittata Walker, 1857, p. 128.

Alikangia pulchella Villeneuve, 1927, p. 390.

I am accepting Peris' synonymy in respect to this species. The specimens before me conform to Villeneuve's form, however, rather than to the typical one.

MINDORO: San Jose, May 1945, E. S. Ross, 2 ♂, 1 ♀, California Academy of Sciences. — PALAWAN: Mantalingajan Range, Pinigisan, 5—23 Sept. 1961, 2 ♂, 4 ♀. — TAWI TAWI: Tarakawan, 20 Oct. to 13 Nov., 1961, 3 ♂, 2 ♀.

Strongyloneura prasina Bigot.

Strongyloneura prasina Bigot, 1886, p. xiv.

MINDORO: San Jose, 5 April 1945, E. S. Ross, 2 ♀, California Academy of Sciences. — PALAWAN: Brooke's Point, Uring Uring, 18—25 Aug. 1961, 3 ♀, 1 ♂; Mantalingajan Range, Pinigisan, 600 m, 3 ♀, 1 ♂. — BALABAC: Dalawan Bay, 11—12 Oct. 1961, 7 ♀, 2 ♂. — TAWI TAWI: Tarakawan, 2 Nov. 1961, 1 ♀.

Sumatria brevis, new species.

Male. Head black; frontal stripe dull, granular; parafrontals subshining except a white-pollinose spot on its lower third, and shining below this spot; parafacials shining except a white-pollinose spot below the antennal base; genae shining anteriorly with steel-blue reflections, posteriorly white pollinose, this pollen continuing onto occipital orbits. Frons approximately parallel-sided, one-third head width; parafrontals narrow; a row of about 8 frontals, the uppermost reclinate; no orbitals unless the reclinate frontal is considered a frontoorbital in line with the frontals; inner and outer verticals both well developed, long and strong. Some whitish hairs on lower occiput, hairs otherwise and bristles black. Vibrissae set on oral margin. Antennae reaching almost to vibrissae, third segment twice as long as wide; arista short haired, shorter below than above, longest hairs above not exceeding one-fourth width of third antennal segment. Antenna brownish black, apex of second segment brownish red; third segment more red-

dish inwardly; palpi black. Head measurements, based on holotype, in micrometer units ($60 = 1$ mm): head width, 97; width of frons, 32, of parafrontal, 5, of frontal area, 22; third antennal segment, length, 21, width, 11; length of arista, 35; third antennal above oral margin, 3.

Thorax black with dull greenish reflections in certain lights, subshining but hardly with a trace of pale pollen except for the lightly whitish-pollinose metanotum. Hairs and bristles of thorax black. Acrostichals 0:1, dorsocentrals 0:2, sternopleurals 1:1, mesopleuron with posterior row of 4 or 5. Squamae and wings yellowish brown, the wings brown at apex; halteres yellow. Coxae reddish brown, the front pair the darkest, tending to brownish black; femora black; tibiae dark reddish brown; tarsi yellowish, the front pair darkened beyond their basitarsi.

Abdomen on apical half like thorax, on basal half reddish brown, the extent of that color variable but occupying all the first segment dorsally and ventrally; second segment may be half to all reddish brown and in one paratype this color occupies two large spots on the third tergum dorsally and two small basal areas on the fourth; in the holotype the basal coloration ends sharply at the apex of the second tergum. Genitalia of a peculiar type. Fifth sternum (fig. 11) broad, consisting of three parts: a basal crescentric portion, divided medially; a broad, median semi-oval part separated from the basal part by a furrow, not a suture; and a complicated apical part, separated from the median part by a conjunctiva and terminating in a pair of sclerotized arms and two pairs of moderately sclerotized but thin, leaf-like processes. Forceps slender; inner forceps hook-like, contiguous but separated from each other from the base and diverging slightly apically; outer forceps somewhat blunt at apex. Aedeagus complicated; its last and penultimate segments each with a membranous flange; penultimate segment with a thin oval hood. Anterior claspers oval, posterior digitate, each with a distinct seta, that of the posterior claspers much the larger.

F e m a l e : unknown.

T y p e s. Holotype, male, PALAWAN: Mantalingajan Range, Pinigisan, 600 m, malaise trap, 13 Sept. 1961. Paratypes, 3 ♂, same data but 11, 13 & 14 Sept.; 2 ♂, Mantalingajan Range, Tagabung, 1150 m, malaise traps, 16 Sept. 1961.

This species fails to trace to *Sumatria* in Peris' generic key. To

trace it to paragraph 26 one would have to consider the hairs on the arista as exceeding half the length of the third antennal segment, which is not the case, and the lack of a posteroventral submedian on the front tibia would carry it to paragraph 27 rather than to 28, the correct one. In the latter respect, however, *brevis* agrees with Malloch's (1926) original description of *Sumatria* in that, in his key, the genus is stated as having the fore tibia "without any median bristles".

S. brevis is apparently quite close to *latifrons* Malloch, to which it traces, somewhat unsatisfactorily, in Peris' key to the species of that genus; it is readily distinguishable from *latifrons*, among other things, in the much shorter hairs of the arista, the wholly black femora, the largely subshining parafrontals, and the yellowish-brown base of the abdomen.

Summary.

Thirty-two species are recorded from the Philippine Islands, mostly from the southern islands of Palawan, Balabac, Tawi Tawi, and the Zamboanga Peninsula of Mindanao, but with some records from Mindoro. Most records were based on malaise trap collections and common, widespread synanthropic species are scantily represented. New taxa are *Phumosia abdominalis pallida*, *Bengalia lyneborgi*, *Isomyia achaeta*, *I. pictifacies palawanensis*, *I. scabra*, *I. flavicornis*, and *Sumatria brevis*, all from the southern islands.

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