

A Review of the Genera *Sophira* Walker and *Tritaeiopteron* De Meijere (Diptera: Tephritidae)¹

D. ELMO HARDY

HAWAII AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF HAWAII
HONOLULU, HAWAII

(Presented at the meeting of December 9, 1957)

Tritaeiopteron de Meijere has been previously treated as a synonym of *Sophira* Walker but I am now convinced that these are distinct genera. While studying at the British Museum (Natural History) and in various European Museums in 1954 I had an opportunity to study the existing types of most of the species and I believe I have examined the big majority of the specimens of these groups which have been collected to date. The following report is based upon this study.

Genus *Sophira* Walker

Sophira Walker, 1857, JOUR. PROC. LINN. SOC. LONDON 1:35.

Predominantly rufous to yellow flies characterized as follows: scutellum with six marginal bristles; the presutural bristles present and the sternopleural bristles absent; wings subhyaline to yellowish fumose with at least some fumose markings along the costa or along some of the veins; 3rd costal cell elongate, distinctly longer than the 2nd, vein R_1 extends approximately to a level with the m crossvein; vein R_{2+3} straight; two pairs of inferior fronto-orbital bristles situated on the lower part of the front, the first pair is smaller than the second; two pairs of superior fronto-orbital bristles present and the arista of the antenna long plumose. The secondary scutellar bristles are distinct but vary in size from approximately one-third to two-thirds the size of the other bristles. Shiraki (MEM. FAC. SCI. AGR. TAIHOKU IMP. UNIV. 8:320, 1933) characterized *Sophira* as having all the bristles yellow and the wings with three oblique bands. The latter would pertain to *Tritaeiopteron* but the color of the bristles is a specific rather than a generic character. Most species do have yellow to rufous bristles but some have them brown to black.

The genus *Sophira* is still very poorly known and is rare in collections. Eleven species and one subspecies (this should probably be a variety) fit my concept of this genus. Two of the species which have been previously treated as *Sophira* are herein placed in the genus *Tritaeiopteron*. Of the recognized

¹ Published with the approval of the Director of Hawaii Agricultural Experiment Station as Technical Paper No. 412.

Sophira seven species are known only from unique females; both sexes are known for only one species; and one species is known only from a unique male.

As now known the genus is apparently confined to the southwest Pacific and Malaya, except for one species from northeast India.

Type of the genus: *Sophira venusta* Walker.

KEY TO KNOWN SPECIES OF SOPHIRA

1. Wings with four longitudinal brown streaks, one along costa and one along each of veins R_{4+5} , M_{1+2} and M_{3+4} (fig. 2, B) (Malaya and Indonesia) **venusta** Walker
 Wings not as above. 2
2. A broad longitudinal band of brown extends diagonally from apex of cell R_5 basad along vein M_{1+2} across the m crossvein through cell M_4 to apex of cell Cu (figs. 1, F, and 1, I) 3
 No such longitudinal band extending to cell R_5 6
3. Wing margin brown from about middle of cell M_4 to base of cell Sc (fig. 1, F) 4
 At least apex of cell 2nd M_2 and a portion of the apex of cell R_3 paler colored than the brown markings (figs. 1, E, and 1, G) 5
4. Tibiae dark brown to black. Hind portion of mesonotum polished black. A shining black stripe extends over pleura from sternopleura over the mesopleura; this extends onto the dorsum in front of the suture and almost connects with the submedian black, longitudinal vittae. Cell 2nd M_2 entirely brown, cell R_1 largely brown (fig. 1, F) (Formosa) **limbata** Enderlein
 Tibiae reddish brown. Mesonotum reddish brown just in front of scutellum. Pleura reddish brown, with no shining black stripe. Cell 2nd M_2 with a yellow spot in the middle, cell R_1 largely yellow; the brown costal band extends part way along veins R_{2+3} , R_{4+5} and M_{1+2} (fig. 1, I) (India) **phlox** Munro
5. Apex of cell R_3 largely brown. Second costal cell brown (fig. 1, E) (Java) **insueta** Hering
 Apex of cell R_3 and second costal cell without brown fumidity (fig. 1, G) (Borneo) **limbata borneensis** Hering
6. Thorax entirely yellow to rufous 9
 Thorax with some black markings on the mesonotum 7
7. Wings with no dark brown band extending around apex and with a dark spot on vein M_{1+2} between the crossveins, or with a dark mark extending over the m crossvein 8
 Wings with a narrow brown band extending around costa from base of the subcostal cell to tip of vein M_{1+2} (fig. 1, H) (Sumatra) **mantissa** Hering

8. Hind margin of mesonotum broadly black and with two longitudinal black vittae extending over most of dorsum. Cell Sc dark brown and with a brown spot on vein M_{1+2} between crossveins (fig. 1, A) (Sumatra) **appendiculata** Enderlein
 Mesonotum rufous except for an abbreviated vitta on each side from inside humerus to just before suture. Wings rather evenly yellow fumose with a dark spot at the apex of cell R_5 and across m crossvein (fig. 1, C) (Sumatra) **flavicans** (Edwards)
9. Crossvein r-m situated well beyond the middle of 1st M_2 10
 Crossvein r-m situated at basal third of 1st M_2 (fig. 1, B) (New Guinea) **flava** (Edwards)
10. Abdomen with at least two spots on the fifth tergum. Wings at least slightly yellowish fumose 12
 Abdomen entirely yellow. Wings hyaline (fig. 1, D) (Bismarck Archipelago) **holoxantha** Hering
11. Wings chiefly yellow fumose, intensely so at base and on anterior portion. Cell Sc all yellow. Posterior portion of wing broadly gray-brown fumose (fig. 2, A). Female with two spots on sixth tergum. Ovipositor base equal to the combined lengths of segments 4 and 5 (Solomon Islands) **quadripunctata** Malloch
 Wings subhyaline, slightly yellowish. Posterior portion of wing nearly hyaline. Apex of cell Sc brown. Sixth tergum of female entirely yellow. Ovipositor base equal to segment 5 plus visible portion of 6. (Celebes) **signata** (Walker)

Sophira appendiculata Enderlein (fig. 1, A)

Sophira appendiculata Enderlein, 1911, Zool. Jahrb. Syst. 31:434, fig. M.

This species fits near *S. flavicans* (Edwards) in my key but the two are obviously not closely related. *S. appendiculata* differs by having the wings predominantly pale yellowish with a brown mark only on vein M_{1+2} between the r-m and m crossveins and in cell Sc; by having a distinct lobe developed at lower apex of cell M_4 (fig. 1, A); and by having two black longitudinal vittae extending over most of the dorsum, and the hind margin of the mesonotum chiefly black.

The original description is adequate. Enderlein says that the scutellum has four long black bristles; I assume that it also has a pair of small secondary bristles.

Type locality: Soekaranda, Sumatra.

Type in the Stettiner Zoologischen Museum.

The species is apparently known only from the type male.

Sophira flava (Edwards) (fig. 1, B)

Rioxa flava Edwards, 1915, TRANS. ZOOLOGICAL SOCIETY LONDON. 20(13):421, pl. XXXVIII, figs. 10, 10a.

This species is related to *S. quadripunctata* Malloch and to *S. signata* (Walker) but is readily differentiated by having the r-m crossvein situated near the basal third of cell 1st M_2 rather than well beyond the middle; also, as pointed out by Malloch (ANN. MAG. NAT. HIST. Ser. 11, Vol. 4:257, 1939), the markings of the body and wings are quite different.

An entirely yellow to rufous species except for the pair of black spots on the fifth abdominal tergum. Edwards' figure (10) is somewhat misleading, for it shows four dark vittae extending down the mesonotum; his type shows very faint evidence of what might be interpreted as vittae but these are not distinct. I believe these are entirely due to slight discoloration of the mesonotum; other specimens on hand from New Guinea show no indication whatsoever of any mesonotal vittae. Edwards also failed to show the black marks on the fifth tergum, and his r-m crossvein is near the basal two-thirds of cell 1st M_2 . The bristles of the head and thorax are entirely yellow. The secondary scutellars are strong, they are two-thirds to three-fourths as long as the other bristles. The wing is as in figure 1, B. The third costal section, cell Sc , is about one-third longer than the second and is brown in the apical portion. A narrow band of brown extends from just before apex of vein R_{2+3} around the wing apex to just slightly beyond the tip of vein M_{1+2} . The m crossvein is clouded with brown, vein M_{3+4} is also gray-brown fumose. The basal third of the wing and the anterior margin are slightly yellow fumose. The apical portion is largely subhyaline and the posterior margin is grayish fumose. The r-m crossvein is situated near the basal third of cell 1st M_2 . The spots on the sides of the fifth tergum are oblong in shape and extend slightly over one-half the length of the segment. The ovipositor is entirely yellow; the basal segment is approximately equal in length to segments 4 plus 5. The apex of the piercer appears to be rather blunt and has two strong setae, one on each side just behind apex.

Type locality: Mimika River, Netherlands New Guinea.

Type in the British Museum (Natural History).

I have examined the type female, which is in poor condition; it apparently is discolored, the abdomen is missing, and one wing is broken. Three female specimens are in the collection from Kokoda, Papua. These have been reported by Malloch (PROC. LINN. SOC. N. S. WALES 64(3-4):430, fig. E, 1939—he saw four females). Malloch also stated that the type locality was "Utakwa River, Dutch New Guinea," but this is not the locality name which was on the type. I have one female specimen at hand from Laloki, Papua, 1919 (F. Muir). Hering (TREUBIA 21(3):521, 1953) recorded a female from Bernhard Camp, Netherlands New Guinea.

Sophira flavicans (Edwards) (fig. 1, C), new combination

Rioxa flavicans Edwards, 1919, JOUR. FED. MALAY STATES MUS. 8(3):50, fig. 26.

This species fits in my key near *appendiculata* Enderlein but the two are not related. As shown in the key, the description below, and in figure 1, C, the wing and body markings are very different in the two species.)

A predominantly yellow to rufous species, with a short black vitta extending down the front portion of the thorax on each side from behind the humerus to just before the suture. Occiput with a dark brown to black spot on each upper corner, just behind upper level of eyes. Only part of the scutellars and the supraalar bristles remain on the thorax and head of the type, and these are black. The fourth abdominal tergum has a small black spot on each side. The fifth has an oval-shaped black spot on each side extending approximately one-half the length of the segment. The sixth tergum is entirely rufous. Female ovipositor yellow, the basal segment, *in situ*, is just slightly longer than abdominal segments 5 plus 6. Wings rather intensely yellow fumose. The third section of the costa is approximately equal to or just slightly longer than the second. Cell Sc is entirely yellow. A faint brownish discoloration (rather quadrate in shape) is situated near the apex of vein R_{2+3} , extending from costa to about the middle of cell R_3 . The apical portion of cell R_5 has a brown to brownish black spot and a streak of brown to black fumosity extending over the m crossvein; a faint indication of this also extends up into cell R_5 just above the m crossvein, and a faint brownish streak extends along the underside of vein M_{3+4} for about half its length. The r-m crossvein is situated near the apical third of cell 1st M_2 . Edwards' wing photograph (which is reproduced here, fig. 1, C) is not very good, and the contrast between the yellow and brown markings is not clearly shown.

Type locality: Sungei Kumbang, Korinchi, Sumatra.

Type in the British Museum (Natural History).

The species is known only from the type. Edwards indicated in his description that the type was a male. I have examined it and it is a female. The type is in fair condition except that the antennae and many of the bristles have been broken off.

Sophira holoxantha Hering (fig. 1, D)

Sophira holoxantha Hering, 1941, SIRUNA SEVA 3:21, fig. 19.

This species is very close to *Sophira signata* (Walker) and apparently differs by having the abdomen entirely yellow, lacking black spots on the fifth tergum; by having the basal segment of the ovipositor about equal in length to abdominal segments 4 plus 5, rather than equal to segments 5 plus the visible portion of 6; by having the wings hyaline, not slightly yellowish; and by having the narrow costal band originating before the apex of cell Sc, and

cell Sc almost entirely hyaline (fig. 1, D), rather than having the costal band beginning just beyond the tip of vein R_1 , and the apex of cell Sc brown.

An all-yellow species except for a black spot on each side of the face. The bristles are all yellow. Wings as in figure 1, D.

Type locality: Ralum, Bismarck Archipelago.

Type in the Zoologisches Museum, Humboldt Universität, Berlin.

Known only from the type female. I have studied this specimen.

Sophira insueta Hering (fig. 1, E)

Sophira insueta Hering, 1952, TREUBIA 21(2):274, fig. 6.

This is related to *S. limbata borneensis* Hering but is differentiated by having the apex of cell R_3 largely brown fumose and the second costal cell brown (fig. 1, E).

Head yellow except for a black transverse mark behind the vertex which extends into the black spot on the ocellar triangle. Thorax brownish yellow, with two widely separated black vittae on the mesonotum extending from the mesonotum to the suture, and also with a brown spot on each side between the presutural and notopleural bristles and another black mark on each side in the supraalar area. The mesopleura lack a dark vertical band. The abdomen is chiefly yellow with the first tergum brownish, the second black on the anterior half, the third and fourth with a black band across the base, and the fifth and sixth with a black spot on each side. The ovipositor is one-half longer than segments 5 plus 6. Legs yellow. Wings pale yellow with a dark brown to black band extending from near base of second costal cell to apex of vein R_{2+3} and with another broad brown band extending from apices of cells R_5 and 2nd M_2 over vein M_{1+2} , obliquely over the m crossvein, and through upper half of cell M_4 to the apex of cell Cu (fig. 1, E).

Type locality: West Java.

Type in the Rijksmuseum van Natuurlijke Historie, Leiden.

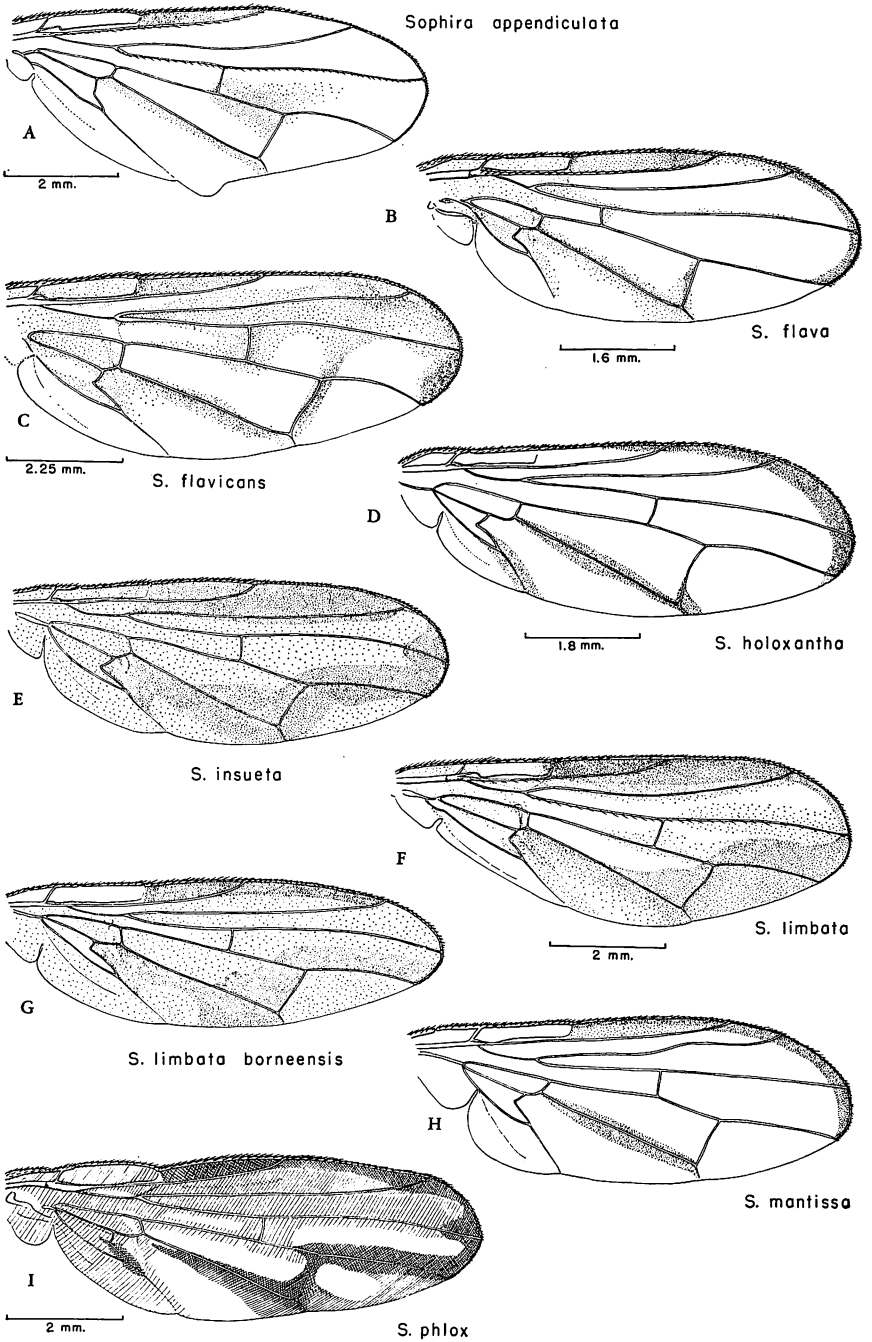
Known only from the type female.

Sophira limbata Enderlein (fig. 1, F)

Sophira limbata Enderlein, 1911, ZOOL. JAHRB. SYST. 31:435, fig. N.

This species fits close to *S. pblox* and is characterized by the broad brown band extending all the way around the margin of the wing (fig. 1, F), by the black markings on the thorax and abdomen, and the dark brown to black tibiae. The wing markings are somewhat like those of *S. insueta* Hering (fig. 1, E). That species apparently differs by lacking the black vertical band over the mesopleura, as well as in other details.

The head of *limbata* is rufous with a black band extending across the vertex and onto the upper portions of the occiput, behind the eye margins. The bristles of the head and thorax are all black. The secondary scutellars are comparatively small, not over one-fourth as long as the other bristles. The



thorax is predominantly yellow in ground color with two shining black vittae extending from outer scapular bristles to about opposite the anterior supraalar bristles. The hind portion of the mesonotum is polished black. A shining, black, vertical stripe extends across the pleura from each sternopleuron over the mesopleuron, onto the dorsum through the area between the humerus and notopleuron in front of the suture, almost connecting with the submedian black vittae. The metapleura, hypopleura, and the metanotum are shining black. The scutellum is all yellow. The legs are yellow to rufous except for the brown to black tibiae. The wings are as in figure 1, F. The third costal section is slightly longer than the second, and the r-m crossvein is situated at about the apical three-fifths of cell 1st M_2 . The brown band through the posterior portion of the wing is narrowly connected with that of the anterior margin by a thin band extending around the margin in cell R_3 . The first abdominal tergum is rufous. The second has a black band across the middle and is otherwise yellow. The third and fourth terga are largely yellow, and each has an arcuate black band extending across the basal portion and curving down on the sides to posterior lateral corners of the segment. Fifth tergum with a black spot on each side. Ovipositor rufous, the basal segment, *in situ*, slightly longer than segments 5 plus 6. Segment 6 also has a black spot on each side.

Malloch (PROC. LINN. SOC. N. S. WALES 64(3-4):431, 1939) recorded the only known male specimen of *limbata*. He said the male has a prominent conical protuberance on each gena which is armed with numerous curled black hairs at the apex, that the legs are entirely yellow, and that "there is some difference also in the bristling of the legs."

Type locality: Sumatra.

Type in the Stettiner Zoologischen Museum.

Described from two females. I have studied eight female specimens in the British Museum collection from Mt. Bulit, junction of Rivers Tinjar and Lejok, Sarawak, Borneo, 13-9-32, Oxford Univ. Exped. (B. M. Hobby and A. W. Moore). This record was reported by Perkins (ANN. MAG. NAT. HIST., Ser. 11, Vol. 2:402, 1938—he reported 11 females). Malloch (*loc. cit.*) also recorded it from Borneo.

Sophira limbata borneensis Hering (fig. 1, G)

Sophira limbata borneensis Hering, 1952, TREUBIA 21(2):273, fig. 5.

This subspecies differs from typical *limbata* by the wing markings. The brown costal band is not continuous around the wing margin but is broken

FIG 1. A, *Sophira appendiculata* Enderlein, copied from original. B, *S. flava* (Edwards), specimen from Laloki, Papua. C, *S. flavicans* (Edwards), copied from original. D, *S. holoxantha* Hering, copied from original. E, *S. insueta* Hering, copied from original. F, *S. limbata* Enderlein, specimen from Sarawak, Borneo. G, *S. limbata borneensis* Hering, copied from original. H, *S. mantissa* Hering, copied from original. I, *S. phlox* Munro, copied from original.

through cell R_3 , the upper part of cell R_5 , and through cell 2nd M_2 . The apical portion of cell 2nd M_2 is pale brownish to dark smoky fumose—not as pale colored as would seem to be indicated by Hering's figure 5 (fig. 1, G). The other areas of the wing which are sparsely dotted on Hering's figure, except the hind margin, are clear yellow.

Type locality: East Borneo.

Type in the Rijksmuseum van Natuurlijke Historie, Leiden.

Known only from Borneo, and only females have been recorded. I have studied three paratypes in the Naturhistorisches Museum, Basel.

Sophira mantissa Hering (fig. 1, H)

Sophira mantissa Hering, 1952, TREUBIA 21(2):275, fig. 7.

This species fits in the key near *S. appendiculata* Enderlein and *flavicans* (Edwards), but the markings on the wings are very distinctive. The presence of a narrow brown costal band and a brown band over vein M_{3+4} , together with the presence of dark brown markings on the mesonotum, will distinguish it from other *Sophira*.

Head and appendages chiefly yellow. Face with a pair of large black spots. The third antennal segment is brown. Thorax reddish yellow with a pair of longitudinal vittae in the middle of the mesonotum and a dark spot behind each wing base. The metanotum has two black spots. Abdomen rufous with a black spot on each side of terga four and five. The basal segment of the ovipositor is slightly longer than abdominal segments 5 plus 6. Wings yellowish hyaline, the venation and markings as in figure 1, H. All of the body bristles are yellow-brown.

Type locality: East Sumatra.

Type in the Rijksmuseum van Natuurlijke Historie, Leiden.

Known only from the type female.

Sophira phlox Munro (fig. 1, I)

Sophira phlox Munro, 1935, REC. INDIAN MUS. 37(1):25, fig. 6.

This species is related to *S. limbata* Enderlein, but, as pointed out in the key, the body and wing markings and coloration are quite different (fig. 1, I). In addition to these characters the lack of black bands on the abdominal segments will also differentiate *phlox* from *limbata*.

For a description of the species refer to the original.

Type locality: Garo Hills, Assam.

Type in the Indian Museum, Calcutta.

Known only from the type female.

Sophira quadripunctata Malloch (fig. 2, A)

Sophira quadripunctata Malloch, 1939, ANN. MAG. NAT. HIST. Ser. 11, Vol. 4:255, pl. XI, fig. 17.

This species is related to *S. signata* (Walker) and is differentiated by the wing markings, by the presence of two black spots on the sixth tergum, and by the longer basal segment of the ovipositor, as pointed out in the key.

A predominantly rufous to orange-yellow species with brownish red bristles. The thorax is entirely rufous and the abdomen is red except for a large black spot on each side of segment 5; these extend approximately four-fifths the length of the segment. The sixth tergum has a small black spot on each side. The ovipositor is rufous, and the basal portion, *in situ*, is approximately equal in length to abdominal segments 4, 5, and 6 together. The wings are predominantly yellow fumose basally and along anterior portion, with a distinct brown costal band extending around the wing apex to the tip of vein M_{1+2} . The hind portion of the wing is rather deeply gray-brown fumose. The third section of the costa is about one-fourth to one-third longer than the second. The r-m crossvein is situated near the apical third of cell 1st M_2 (fig. 2, A). The species has been adequately described by Malloch. His wing photograph, which I have reproduced here, is not too good.

Type locality: Lunga, Guadalcanal, Solomon Islands.

Type in the British Museum (Natural History).

Known only from the type female. I have studied this specimen. It is in poor condition, as the head and one wing are missing.

Sophira signata (Walker), new combination

Seraca signata Walker, 1860, JOUR. PROC. LINN. SOC. LONDON 4:165.

This species is related to *S. quadripunctata* Malloch and differs by having the wings subhyaline, slightly yellowish, with the posterior portion nearly hyaline, and the apical portion of cell Sc brown fumose. *S. quadripunctata* has wings predominantly yellow, intensely so at the basal and anterior portions, with the posterior portion broadly gray-brown fumose, and the subcostal cell yellow. *S. signata* also differs by having the sixth tergum of the female entirely yellow, rather than with two black spots. *S. signata* is somewhat more slender in build, and the ovipositor base is shorter than in *quadripunctata*. The base is equal to abdominal segment 5 plus the visible portion of 6, rather than being equal to segments 4 plus 5. It is also related to *S. holoxantha* Hering but differs by having black spots on the fifth tergum, rather than having the abdomen entirely yellow.

An entirely pale yellow species except for the black spots on the fifth tergum. The costal and basal cells of the wings are almost hyaline. The r-m crossvein is situated at the apical two-thirds to three-fourths of cell 1st M_2 . The narrow brown costal band is continuous from just beyond the tip of vein R_1 to the apex of vein M_{1+2} . The species has not been figured in the literature.

Type locality: Makassar, Celebes.

Type in the British Museum (Natural History).

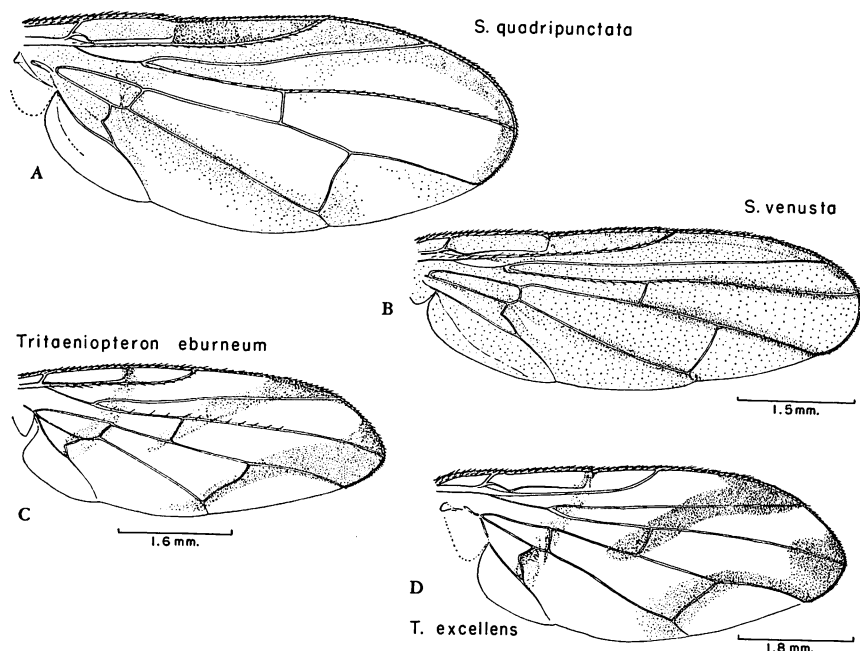


FIG. 2. A, *Sophira quadripunctata* Malloch, copied from original. B, *S. venusta* Walker, type specimen. C, *Tritaeniopteron eburneum* de Meijere, copied from original. D, *T. excellens* Hendel, copied from original.

Known only from the type female. I have examined this specimen. It is in fair condition except that the wings are damaged, and I was unable to make a drawing of the venation and maculation.

Sophira venusta Walker (fig. 2, B)

Sophira venusta Walker, 1857, JOUR. PROC. LINN. SOC. LOND. 1:35.

This species is characterized from all other known *Sophira* by the marking on the wings: having a longitudinal brown streak along each of veins R_{4+5} , M_{1+2} , and M_{3+4} , in addition to a brown costal band (fig. 2, B).

A predominantly yellow species. The pleura each have a vertical stripe of black extending from the lower part of the sternopleuron to the upper margin of the mesopleuron; this extends onto the mesonotum at the suture. The mesonotum also has a narrow black vitta on each side in line with the outer scapular bristles, extending as far as the anterior supraalar bristles. The hind portion of the mesonotum is black. The first abdominal tergum is yellow. The second has a black transverse band near its base. The third and fourth terga each have a moon-shaped black band extending across the basal margin in the middle and curving posteriorly toward the posterior lateral margins of the segment. The fifth tergum has an oblique black stripe on each side, ex-

tending from the posterolateral margin to the base of the segment. The wings are predominantly yellow fumose; the markings are as in figure 2, B.

Type locality: Singapore.

Type in the British Museum (Natural History).

I have examined the type female and one other female specimen from Molucca (British Museum collection). Enderlein (1911, ZOOLOG. JAHRB. 31:434) recorded three female specimens from Sumatra, and Hering (1952, TRUEBIA 21(2):273) recorded a female from Borneo.

Genus *Tritaeniopteron* de Meijere

Tritaeniopteron de Meijere, 1914, TIJDS. v. ENT. 57:209.

Pale-colored flies looking very much like *Sophira* Walker. This has previously been treated as a synonym under *Sophira*. (See Hendel, ANN. MUS. NAT. HUNG. 13:441, 1915, and Shiraki, MEM. FAC. SCI. AGR. TAIHOKU IMP. UNIV. 8:320, 1933.) I am convinced that *Tritaeniopteron* is a good genus differing from *Sophira* by the short subcostal cell, scarcely over half as long as the second costal cell; by the presence of strong sternopleural bristles; and by the presence of transverse bands on the wings (fig. 2, C).

Type of the genus: *Tritaeniopteron eburneum* de Meijere

KEY TO KNOWN SPECIES OF TRITAENIOPTERON

- Face entirely yellow. Abdominal terga three to five with black spot on each side (Formosa) *excellens* (Hendel)
- Face with a black spot in lower median portion. Abdominal terga three to five each with a black band along the base (Java)
 *eburneum* de Meijere

Tritaeniopteron eburneum de Meijere (fig. 2, C)

Tritaeniopteron eburneum de Meijere, 1914, TIJDS. v. ENT. 57:209, pl. 6, fig. 14.

This species is obviously very close to *T. excellens* (Hendel). I see no significant differences in the wing venation and maculation and comparatively slight differences in body markings in comparing with Hendel's original description and with the supplemental description published by Shiraki (MEM. FAC. SCI. AGR. TAIHOKU IMP. UNIV. 8:322, 1933). *T. eburneum* apparently differs by having a black spot on the lower median portion of the face; by having a black band across the bases of abdominal terga three to five; and by having the basal segment of the ovipositor about equal to segments 4 plus 5.

Face and front all yellow, except for the black spot on lower median portion of face. Thorax predominantly pale yellow with a black spot behind each humerus which connects with a vertical black stripe which extends over the

mesopleuron and the sternopleuron. An almost complete circle of black is present on the hind half of the mesonotum, and the arms of this mark extend longitudinally to just behind the suture and are curved inward at this point toward the middle line. Legs entirely yellow. All bristles yellow. Abdomen and ovipositor as described above. Wing (fig. 2, C) subhyaline, yellowish on the basal portion; with three brown transverse bands, one at level of the tip of Sc, one oblique band from apex of cell R_1 across r-m crossvein, and another oblique band from apex of cell R_5 and lower apex of R_3 extending across the m crossvein.

Type locality: Tandjong Priok, Java.

Type in the Zoological Museum, Amsterdam.

I have examined the type and five cotypes. The above notes are based upon these specimens.

Tritaeniopteron excellens (Hendel), new combination (fig. 2, D)

Sophira excellens Hendel, 1915, ANN. MUS. NAT. HUNG. 13:441, pl. IX, fig. 14.

Sophira excellens Hendel, Shiraki, 1933, MEM. FAC. SCI. AGR. TAIHOKU IMP. UNIV. 8:322.

This species is very close to *T. eburneum* de Meijere and apparently is differentiated by having the face all yellow, lacking a black spot in the middle; by having a pair of black spots on each of abdominal terga three to five, rather than a black basal band on each segment; by having the mesonotum quite differently marked, as described below; and by having the basal segment of the ovipositor half as long as the abdomen, rather than equal to segments 4 plus 5.

Thorax shining, predominantly pale yellow to rufous. Mesonotum with a round black spot on each side before the suture and with a black streak on each side behind the suture.

Refer to Hendel and to Shiraki for more complete details, and to figure 2, D.

Type locality: Kankau, Formosa.

The type was in the Hungarian National Museum, Budapest.

Known from both sexes. Shiraki recorded it from Koshun, Formosa.