

TRIBE CALLIPHORINI FROM AUSTRALIAN AND ORIENTAL  
REGIONS, IV. *ONESIA*-GROUP : GENUS *POLLENIOPSIS*  
(Diptera : Calliphoridae)<sup>1</sup>

By Hiromu Kurahashi<sup>2</sup>

*Abstract* : The genus *Pollenia* of Senior-White et al. (1940) is re-examined and five species are found members of the genus *Polleniopsis*. Fourteen species of the *Polleniopsis* including 8 new species are treated in this revision of the Australian and Oriental Calliphorini. These new species are *Polleniopsis elongata*, *P. jamesi*, *P. fulviventris*, *P. gressitti*, *P. fulvipes*, *P. dalatensis*, *P. annamensis* and *P. fukiensis*.

The genus *Polleniopsis* has usually either one pair of presutural *ac* or no presutural *ac*. The reduced number of presutural *ac* is a common property of this genus. The facial carina is more or less developed in most species. The densely dusted body and the lack of presutural *ia* are also characteristic of many species of *Polleniopsis*. The aedeagi are assorted into three forms. The most common form is represented by *Polleniopsis mongolica* Séguy, the aedeagus of which has a well developed vesicae and straight harpes. *Polleniopsis toxopei* (Sen.-White) has somewhat aberrant external morphology in having presutural *ia* present and a phallosome similar to that observed in the subgenus *Paracalliphora*. The third form is found in the two species herein described as new from Borneo and Viet Nam, respectively, the aedeagus of which has reduced harpes.

Senior-White, et al. (1940) revised the genus *Pollenia* with 17 Oriental species, of which two species were earlier placed in *Polleniopsis*. I have re-examined the species of *Pollenia* treated by these authors, and conclude that three species, *Pollenia asiatica* (Sen.-White), *P. inconclusa* (Walker), and *P. toxopei* (Sen.-White), should be placed in the genus *Polleniopsis*. *Pollenia khasiensis* (Sen.-White) may be included in the genus *Onesia* because the holotype and one paratype have two pairs of acrostichal bristles. I was able to study the generic position adequately by examining the types of these species. When Dr R. Kano examined types preserved in Paris Museum, he advised me that *Pollenia townsendi* Sen.-White seems to be conspecific with *Melinda pusilla* (Ville-neuve). *Pollenia rudis* (Fabricius) and *P. argenticincta* (Sen.-White) are undoubtedly members of the genus *Pollenia*, although the latter is somewhat aberrant in lacking crinkly golden hairs on the thorax. The remaining eight species belong in the genus *Dexopollenia* in the tribe Polleniini. After examination described species of related genera, I found that *Paratricyclea aurescens* Baranov is conspecific with *Polleniopsis toxopei*, and consequently synonymized herein.

Fourteen species of *Polleniopsis* can now be recognized in the Australian and Oriental regions.

1. Partial results of a grant to Bishop Museum from the United States National Institute of Health (AI-01723).
2. Department of Entomology, B. P. Bishop Museum, Honolulu, Hawaii 96818. Present address : Department of Anatomy, School of Medicine, Kanazawa University.

Genus *Polleniopsis* Townsend

*Polleniopsis* Townsend, 1917, *Rec. Ind. Mus.* 13: 201 (type-species: *Polleniopsis pilosa* Townsend, 1917).

Distinguished from the other Oriental and Australian genera of Calliphorini by the following characteristics:

Diagnosis: Thoracic squama with a small patch of setulae, usually only on basal half, sometimes with only a few setulae; subcostal sclerite usually tawny pubescent, without distinct black setulae; eyes bare, holoptic to subholoptic in ♂, dichoptic in ♀; presutural *ac* 0-1; presutural *ia* usually absent, sometimes present; facial carina usually well developed; abdomen blackish, densely covered with grayish or yellowish-dusting, sometimes with a slight blue tinge, or tawny, partly covered with dusting; hypopygium moderately developed, but without any remarkable modification; aedeagus usually with advanced harpes, which are not hooked but fused for a distance from base to apex, sometimes the harpes are either reduced or distinctly separated from one another; vesicae well developed; ovipositor moderate in length, and similar to that of *Onesia* (fig. 3 & 5); female internal genitalia of *Onesia*-type, uterovaginal tube straight with a pair of incubatory pouches or lateral sacs on dorsolateral sides.

*Polleniopsis toxopei* (Sen.-White) and a new species from Borneo have a well-developed *ia*. The aedeagus in *P. toxopei* has a primitive harpes as in the *Calliphora*-group. The Bornean species described below is more aberrant in having the harpes and facial carina reduced. Internal female sexual organ was examined using specimens of Japanese species.

Bionomics: Viviparous.

Geographical distribution: Throughout the Oriental region, and partly invading the Palearctic and Australian regions such as China, Korea, Japan, New Guinea and Solomon Islands.

*Polleniopsis toxopei* (Sen.-White) Fig. 1 a-d.

*Paratrioclelea toxopei* Sen.-White, 1926, *Rec. Ind. Mus.* 28: 135.

*Pollenia toxopei*: Sen.-White et al., 1940, *Fa. Brit. India, Dipt.* 6: 122.

*Polleniopsis toxopei*: James, 1966, *Ent. Meddel.* 34: 465.

*Calliphora (Polleniopsis) carinata* Malloch, 1927, *Suppl. Ent.* 16: 53.

*Paratrioclelea aurescens* Baranov, 1936, *Ann. Mag. Nat. Hist.*, ser. 10, 17: 103. **New Synonymy.**

Type-locality: Buru Is., Dutch East Indies. *Type* in the British Museum (Nat. Hist.), London.

Length: 5.0-9.5 mm.

SPECIMENS EXAMINED. PHILIPPINES: 4 ♂♂, Mt. Iriga, 500-600 m, Camarines Sur, 29.III.1962, 31.III.1962, 3.IV.1962, 11.IV.1962, H. M. Torrevillas (BISHOP); 1 ♀, Mt. Makiling, 17.III.1960, T. C. Maa (BISHOP); 1 ♂, 15 km SW of Gingoog, 1000-2000 m, Mt. Balatukan, Misamis Or., 27-30.IV.1960, Torrevillas (BISHOP); 1 ♀, 24 km E of Mayoyao, 800-1000 m, Jacmal Bunbian, Ifugao Province, 19-21.IV.1967, Torrevillas (BISHOP). MALAY: 1 ♀, Cameron Highlands, 5565 ft, Pahang, 20.V.1939, G. Tusar (BMNH). SUMATRA: Paratypes of *C. carinata* Malloch, 1 ♂, Gunung Singgalang, 1600 m, ?VII.

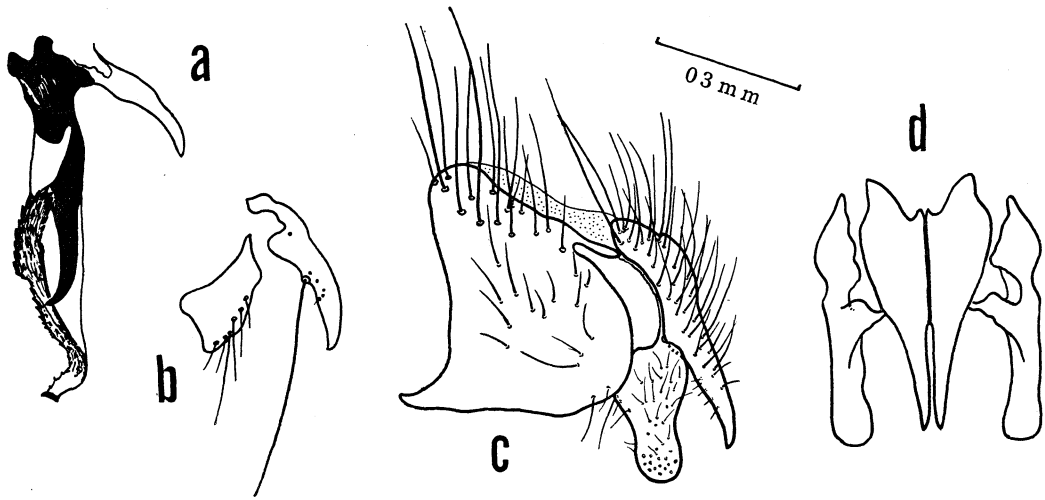


Fig. 1. *Polleniopsis toxopei* (Sen.-White), ♂ genitalia: a, aedeagus, lateral view; b, anterior and posterior parameres, lateral view; c, cerci and paralobi, lateral view; d, cerci and paralobi, caudal view.

1925, E. Jacobson (BMNH); 1 ♂, Fort de Kock, 920 m, ?.?.1925, Jacobson (BMNH). JAVA: 2 ♂♂, Tjibodas, 1400 m, ?.?.1932, ? (BMNH). BORNEO: 30 ♂♂, Nanga Pelagus nr. Kapit, 180-585 m, Sarawak, 7-14.VIII.1958, T. C. Maa (BISHOP); 1 ♀, Nanau, 500 m, British N. Borneo, 28.IX-7.X.1958, Maa (BISHOP); 2 ♂♂, Keningau, British N. Borneo, 12-17.I.1959, T. C. Maa (BISHOP); 1 ♀, Bundu Tukan, British N. Borneo, 18.II.1959, Maa (BISHOP); 2 ♀♀, Tenompok, 1460 m, 48 km E of Jesselton, British N. Borneo, 26-31.I.1959, Maa (BISHOP); 2 ♀♀, Pinosuk Plateau, 5225 ft, Mt. Kinabalu, 28.III.1964, S. Kueh (BMNH); 2 ♂♂, Mesilau Camp, 5000 ft, Mt. Kinabalu, 20-27.III.1964, 26-29.III.1964, Kueh (BMNH); 1 ♂, Mt. Dulit, 4000 ft, Sarawak, 18.X.1932, B. M. Hobby & A. W. Moore (BMNH); 3 ♂♂, Junction of Rivers Tinjar & Lejok, Foot of Mt. Dulit, 5.VIII.1932, 13.IX.1932, Hobby & Moore (BMNH). BURU ISL.: Holotype ♀ of *P. toxopei* Sen.-White, Station 9, Buru, ?.?.1921, L. J. Toxopeus (BMNH). NEW GUINEA: 5 ♂♂ 3 ♀♀, Wau, 1050-1250 m, Morobe Distr., 11.XI.1961, 9.XII.1961, 20-26.V.1962, 15-19.VI.1962, 23-27.VII.1962, 15.I.1963, 3-7.IV.1964, 12.II.1965, J. Sedlacek (BISHOP); 3 ♂♂ 2 ♀♀, W of Lake Anggi Giji, 1850 m, Sacrameba Vill., Vogelkop, 1-2.VIII.1957, D. Elmo Hardy (BISHOP); 3 ♂♂, W. shore of Lake Anggi Giji, 1850 m, Sururai Vill. area, Vogelkop, 25-27.VII.1957, Hardy (BISHOP); 1 ♂ 2 ♀♀, SW of Lake Anggi Giji, ± 200-2100 m, Sururai, Vogelkop, 27.II.1963, 4-5.III.1963, R. Straatman (BISHOP); 1 ♂ 1 ♀, S of Hollandia, 460-500 m, Waris, 24-31.VIII.1959, Maa (BISHOP); 1 ♀, Bulolo R., 850 m, 24.VIII.1965, J. & M. Sedlacek (BISHOP); 1 ♂, 16 km NW of Banz, 1700 m, 29. VI.1963, M. Sedlacek (BISHOP); 1 ♀, Singuawa R., 147°10' E, 6°45' S, 30 m, Lae, 11.IV.1966, O. R. Wilkes (BISHOP); 2 ♀♀, Wamena, 1700 m, 10-25.II.1960, Maa (BISHOP); 2 ♂♂, Funyende, 1200 m and Alyawa Vill., Saidor, Finisterre Range, 16-23.VI.1958, 24-30. IX.1958, W. W. Brandt (BISHOP); 1 ♀, Koibuga, 1500 m, 5.VII.1963, H. C. (BISHOP); 1 ♂, Asaro V., 1900 m, Miramar, 27. VI.1955, J. L. Gressitt (BISHOP); 1 ♀, 16 km NW of Ganz, 1700 m, 29.VI.1963, M. Sedlacek (BISHOP); 1 ♂, Maprik, 160 m, 14.X.1957, Gressitt (BISHOP); 1 ♂, Eliptamin

Valley, 1200-1350 m, 1-15.VIII.1959, W. W. Brandt (BISHOP); 1 ♂ 1 ♀, Sewa Bay, Wakaiuna, Normanby I., Papua, 25-30.X.1956, Brandt (BISHOP); 1 ♀, Tororo, 1560 m, Goilala, Owen Stanley Range, Papua, 15-20.II.1958, Brandt (BISHOP); 1 ♂, W. Highlands, Minj, Papua, 8-13.IX.1959, Maa (BISHOP); 1 ♀, Oriomo Govt. Sta., W. Distr., 26-28.X.1960, Gressitt (BISHOP); 1 ♂ 1 ♀, E of Korn Farm, 1560-1650 m, Goiburung, W. Highlands, 16-19.X.1958, Gressitt (BISHOP); 1 ♂, Humbolt Bay, 200-300 ft, Dutch New Guinea, ?IV.1936, L. E. Cheesman (BMNH); 5 ♂♂ 1 ♀, Budemu, c. 4000 ft, Finisterre Mts., Madang Distr., 15-24.X.1964, M. E. Bacchus (BMNH); 1 ♀, nr. Madang, Madang Distr., 7-14.VI.1965, R. W. Crosskey (BMNH); 2 ♂♂ 3 ♀♀, Wau, 3500-4000 ft, Morobe Distr., 14-23.V.1965, 21-23.V.1965, Crosskey (BMNH); 1 ♀, Daulo Pass, 8175 ft, 25 m W of Goroka, Eastern Highlands, 31.V.1965, Crosskey (BMNH); 4 ♂♂ 11 ♀♀, 13 km E of Mt. Hagen, Olgoboly, Western Highlands, 4-7.VI.1965, Crosskey (BMNH); 3 ♂♂, 25 km W of Mt. Hagen, c. 1800 ft, Tomba, Western Highlands, 5.VI.1965, Crosskey (BMNH). BISMARCK ARCH.: 1 ♂ 1 ♀, SW of Keravat, Vudal, New Britain, 13.XII.1959, Maa (BISHOP); 1 ♀ 10 km E of Keravat, Vunabakan, 180 m, New Britain, 16-20.XI.1959, Maa (BISHOP); 1 ♂, Keravat, 135 m, 20-25.XI.1959, Maa (BISHOP); 1 ♀, St. Paul's, 350 m, Bainings, Gazelle Pen., New Britain, 9.IX.1955, Gressitt (BISHOP); 1 ♂, Gaulim, 140 m, Gazelle Pen., New Britain, 21-27.X.1962, J. Sedlacek (BISHOP); 1 ♂, Kandan, New Ireland, 1.I.1960, Brandt (BMNH). SOLOMON IS.: Holotype ♂ of *P. aurescens* Baranov, Guadalcanal, 12.VIII.1934, R. A. Lever (BMNH); 1 ♂, Simba Mission, Bougainville, 1.VII.1956, E. J. Ford, Jr. (BISHOP); 1 ♂ 1 ♀, Tenaru R., 25 m, Guadalcanal, 15.IX.1957, Gressitt (BISHOP); 1 ♂, Suta, 500-1200 m, Guadalcanal, 27.VI.1956, Gressitt (BISHOP); 1 ♂, Agric. Sta., Buka, 6-10.XII.1959, Maa (BISHOP).

Bionomics: Nothing is known.

DISTRIBUTION: Philippines, Malay, Borneo, Sumatra, Java, Buru I., New Guinea, Bismarck Arch., Solomon Is., Admiralty Is. (Sen.-White et al., 1940).

***Polleniopsis elongata* Kurahashi, new species** Fig. 2 a-d.

♂. *Head*: Eyes bare, subholoptic, separated at narrowest point of frons by a distance slightly more than one and a half times the width of ocellar triangle; frontal stripe reddish black, not obliterated at narrowest point; parafrontalia and parafacialia gray-dusted, sparsely setulose, parafrontalia slightly darkened towards vertex, with ca. 7 pairs of *ordi*; face dark, gray-dusted, with a reduced median carina; facialia dark red, gray-dusted, almost bare, a few setulae present just above vibrissae; vibrissae strongly developed; vibrissaria and medianae dark red; epistome dark red, normal in shape, not projecting forward; jowls, post-jowls and occiput black, gray-dusted, clothed with black hairs; antennae black, 2nd segment reddish, 3rd segment slightly more than  $3 \times$  as long as 2nd; arista blackish, plumose towards tip; palpi fuscous, with black hairs.

*Thorax*: Black, gray-dusted, 6-7 longitudinal dark stripes visible on anterior thoracic dorsum; scutellum concolorous with thoracic dorsum; pleura covered with black hairs and bristles; prosternum blackish hairy; supraspiracular convexity pubescent; pleurotergite blackish setulose; post-alar declivity fuscous, with black hairs; suprasquamal ridge bare on anterior and posterior parts, tympanic tuft also absent; thoracic spiracles black. Chaetotaxy; *ac* 1+3, *dc* 2+3, *ia* 1+2, *h* 3, *ph* 1, *prs* 1, *sa* 3, *pa* 2, *n*, 2. *sc* 3+1, *st* 2+1, propleural and prostigmatic bristles present.

*Wings*: Yellowish hyaline; veins brown; epaulet dark brown; basicosta brown; subcostal sclerite brown, yellowish pubescent; node of 2nd and 3rd longitudinal veins with a few black

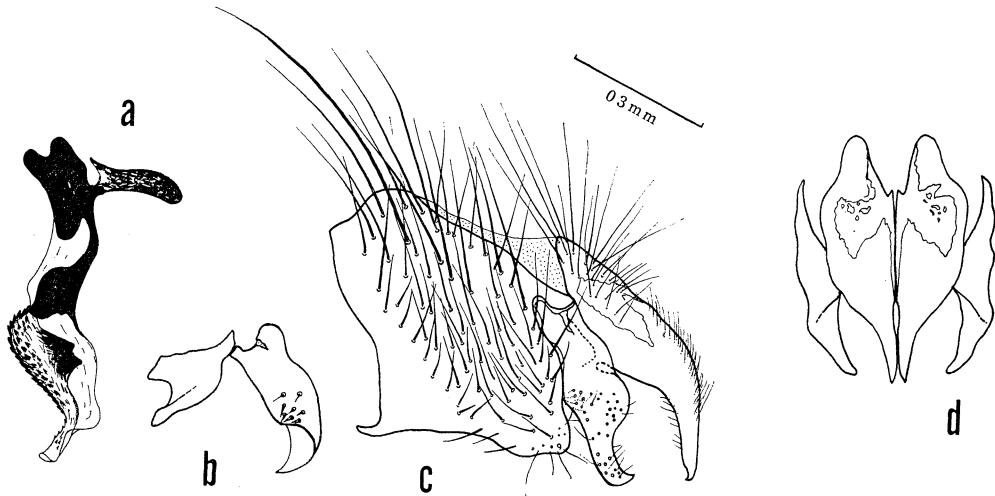


Fig. 2. *Polleniopsis elongata* n. sp., ♂ genitalia: a, aedeagus, lateral view; b, anterior and posterior parameres, lateral view; c, cerci and paralobi, lateral view; d, cerci and paralobi, caudal view.

setulae above and below; bend of 4th longitudinal vein forming a rounded angle;  $R_5$  open; squamae yellowish brown, thoracic one with a few black hairs near posterior suprasquamal ridge. Halteres orange.

**Legs:** Brownish except for fuscous tarsi, femora slightly darkened on basal 1/2; front tibia with 3 *ad* and 1 *p*; mid tibia with 1 *ad* and 2 *pd*, without *v*; hind tibia with 2 *ad*, 2 *pd* and 2 *av*; femoral bristles strong, and rather long; claws and pulvilli rather long.

**Abdomen:** Submetallic bronzy, thinly covered with gray dusting; hairs and bristles black; marginal bristles present on 4th and 5th tergites, 3rd tergite with marginal bristles only on lateral sides; hypopygium rather prominent, as shown in Fig. 2; harpes reduced, vesicae poorly developed, without cornu.

♀. **Head:** Eyes bare, separated at vertex by a distance slightly less than 1/3 of the total head-width; frontal stripe reddish black, slightly narrowed vertex, the width equal to 3 × as wide as one of parafrontalia just in front of anterior ocellus; parafrontalia and parafacialia yellowish-gray or golden-dusted, darkened towards vertex, parafrontalia with ca. 8 pairs of *ori*; *ors* 2+1; *oc* developed; *iv* and *ov* well developed; *poc* divergent; one *occ* present. **Thorax:** *ac* 1+2. **Legs:** Mid tibia with 1 *v* in addition to 1 *ad* and 2 *pd*; hind tibia with 4 *av*, 2 *ad* and 2 *pd*; claws and pulvilli normal in length.

**Abdomen:** Elongate oval, metallic bronzy. Otherwise as described for male except for genitalia. Length: 7.0-7.5 mm.

Holotype ♂ (BISHOP 9840), Kambaranga, 2140 m, Mt. Kinabalu, Sabah (N. Borneo), 22-30.X.1958, T. C. Maa. Paratypes: 1 ♀, Tenompok, 1460 m, Jesselton, 30 mi E., British N. Borneo, 10-19.II.1959, Maa (BISHOP); 1 ♀, Mesilau Trail, 5000 ft, Mt. Kinabalu, 13-15.III.1964, S. Kueh (BMNH). The type specimens are preserved in the B. P. Bishop Museum, Honolulu. One paratype is deposited in the British Museum (Nat. Hist.), London.

**Bionomics:** Holotype ♂ collected on human excrement.

**DISTRIBUTION:** Borneo.

Relationships. The present new species resembles the genus *Tainania* especially in having the phallosomal harpes reduced, but differing from them in the following external characteristics: suprasquamal ridge entirely bare; no tympanic tuft; presutural *ia* well developed; thoracic squama with a few black setulae near posterior suprasquamal ridge. The subholoptic eyes and rather large claws and pulvilli in ♂ are valuable in distinguishing this new species from others.

**Polleniopsis inconclusa** (Walker), new combination

*Musca inconclusa* Walker, 1861, *Proc. Linn. Soc. Lond.* 5: 160.

*Pollenia inconclusa*: Sen.-White et al., 1940, *Fa. Brit. India. Dipt.* 6: 123.

Type-locality: Amboina. Type in the British Museum (Nat. Hist.).

The type specimen was reexamined and the following characters do not agree with the redescription by Sen.-White et al. (1940): propleura distinctly covered with black hairs; palpi brown; *st* 2+1; facial carina poorly developed; *ia* 1+2; *sa* 2+3. Otherwise as redescribed by Sen.-White et al. This species is closely related to *Polleniopsis elongata* Kurahashi except for the colouration of the legs, antennae and palpi. The strong lateral marginal bristles on all visible tergites and strong median marginals and discals on 3rd and 4th tergites are characteristic of these two species.

Length: 5.5 mm.

**SPECIMENS EXAMINED.** PHILIPPINES: 1 ♀, 8 km E of Mayoyao, 1000–1300 m, Liwo, Ifugao Prov., 2.VI.1967, H. M. Torrevillas (BISHOP) (probably this species). AMBOINA: Type ♂, without data label (BMNH).

Bionomics: Nothing is known.

**DISTRIBUTION:** Philippines, Celebes and Amboina (Sen.-White et al., 1940).

**Polleniopsis jamesi** Kurahashi, new species      Fig. 3 a-b.

♀. **Head:** Eyes bare, separated at vertex by a distance slightly less than 0.25 of head width; frontal stripe dark red, slightly narrowed toward vertex, the width about  $3 \times$  one of parafrontalia just in front of anterior ocellus; parafacialia and parafrontalia golden-dusted, irregularly with shifting dark spots, with black setulae; parafrontalia with ca. 10 pairs of *ori*; *ors* 2+1; *oc* developed; *ov* and *iv* strongly developed; *poc* divergent; 1-2 occipital hairs present; face reddish, slightly golden-dusted, median carina developed; epistome concolorous with face; facialia with fine black hairs on lower 1/3; medianae and vibrissaria dark red, covered with golden dusting; anterior parts of jowls dark red, golden-dusted, clothed with black hairs, posterior parts of jowls and post-jowls black, yellowish-gray dusted, clothed with golden soft hairs; jowls slightly less than 1/3 of head-height; antennae reddish brown, 3rd segment slightly more than  $3 \times$  as long as 2nd; arista dark red, long-plumose; palpi orange.

**Thorax:** Dull olivaceous green, gray-dusted; post-alar calli slightly reddish; thoracic dorsum with 6 dark longitudinal stripes anteriorly, median and submedian ones narrow, lateral one broad; scutellum concolorous with thoracic dorsum; prosternum and propleura golden hairy; sternopleura, mesopleura, and pteropleura clothed with both black and yellow hairs; supraspiracular convexity pubescent; pleurotergite yellowish setulose; post-alar declivity with yellowish fine hairs; suprasquamal ridge with anterior parasquamal and tympanic tufts; thoracic spiracles

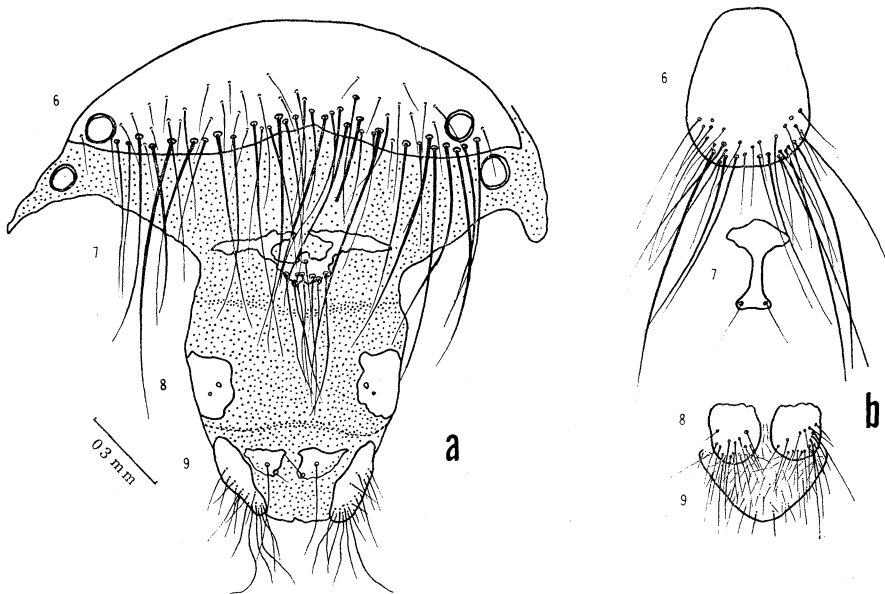


Fig. 3. *Polleniopsis jamesi* n. sp., ovipositor: a, 6-9th tergites, dorsal view; b, 6-9th sternites, ventral view.

dark brown, sometimes golden pubescent. Chaetotaxy; *ac* 1+3, *dc* 2-3+3, *ia* 0+2, *h* 3-4, *ph* 2, *prs* 1, *sa* 3, *pa* 2, *sc* 4+1, *st* 2+1, propleural and prostigmatic bristles well developed.

*Wings*: Hyaline, brownish at base; veins brown; epaulet dark brown; basicosta orange; subcostal sclerite light orange, pubescent; node of 2nd and 3rd longitudinal veins with several black setulose hairs above and below; 4th vein bent at right angle; squama brownish orange, thoracic one yellowish hairy on basal 2/3 of upper surface.

*Legs*: Black; coxae with yellow hairs in part, intermixed with black ones; front tibia with 1 *p* and several short *ad*; mid tibia with 1 *ad*, 2 *pd* and 1 *v*; hind tibia with 2 *ad*, 1 *av* and 3 *pd*.

*Abdomen*: Bluish green, densely pruinose; typical row of marginal bristles present only on 4th and 5th tergites; 1st and 2nd combined and 3rd tergites with some marginal bristles on lateral sides of abdomen; ventral sides of 1st and 2nd combined tergite with yellow hairs; sternites also with yellow hairs as well as black setulae.

*Length*: 11.0 mm.

♂. Unknown.

Holotype ♀ (BISHOP 9841), Tapo (=Tapu), 1650 m, 3 km NW of Kainantu, New Guinea, 22.X.1959, T. C. Maa. Paratype ♀, Daulo Pass, 2400 m, Asaro-Chimbu div., New Guinea, 12.VI.1955, J. L. Gressitt (BISHOP). Type specimens are preserved in the B. P. Bishop Museum, Honolulu.

Bionomics: Paratype ♀ collected by a light trap.

DISTRIBUTION: New Guinea.

**Polleniopsis fulviventris** Kurahashi, new species      Fig. 4 a-d.

♂. *Head*: Eyes bare, separated at point of closest approximation by a distance slightly more than the width of anterior ocellus; frontal stripe dark red, more or less obliterated at narrowest point; parafrontalia and parafacialia yellowish-silver dusted, without irregular shifting dark spots, with sparse yellow setulose hairs; face light brown, yellowish-silver dusted, with broad median carina; facialia light brown, with black setulae on lower 1/3 of a distance from vibrissae to antennal bases; vibrissae strongly developed; vibrissaria narrow, with several black setulae; medianae brown to dark red; jowls and post-jowls brown, yellowish-silver dusted; jowls clothed with black fine hairs; post-jowls with yellow hairs; occiput black, yellowish-silver dusted clothed with yellow hairs; antennae bright orange, 3rd segment slightly more than 3 × as long as 2nd; arista brown, long-plumose; palpi orange.

*Thorax*: Densely yellowish-silver dusted; 4 longitudinal dark stripes indistinct owing to heavy dusting, lateral ones broad, anterior end furnished just behind internal *ph*; post-alar calli and undersurface of scutellum reddish; pleura also reddish in part; prosternum and propleura yellowish hairy, other pleura clothed with both pale and black hairs; supraspiracular convexity pubescent; pleurotergite blackish setulose; post-alar declivity with a tuft of both yellow and black hairs in central circle; supra-squamal ridge bare, a few yellow tympanic hairs present; thoracic spiracles blackish brown. Chaetotaxy; *ac* 1+3, *dc* 2+3, *ia* 0+2, *h* 3, *ph* 1, *prs* 1, *sa* 3, *pa* 2-3, *n* 2, *sc* 3-4+1, *st* 1+1, propleural and prostigmatic bristles strongly developed.

*Wings*: Hyaline, fuscated on apical 1/2, especially along costa; epaulet and basicosta light brown; subcostal sclerite pale brown, pubescent; node of 2nd and 3rd longitudinal veins with a few black stulae above and below; 4th vein bent at right angle; squamae pale brown, thoracic one with a small patch of yellow hairs on basal 1/2. Halteres yellow.

*Legs*: Entirely fuscous, coxae brownish in part; coxae with brown hairs as well as black ones, the other segments only with blackish hairs; front tibia with 1 *p* and a row of short *ad*; mid tibia with 1 *ad*, 1 *pd*, 2 *p* and 1 *v*; hind tibia with 2 *ad* and a row of short *ad*, 2 *pd* and 1 *av*.

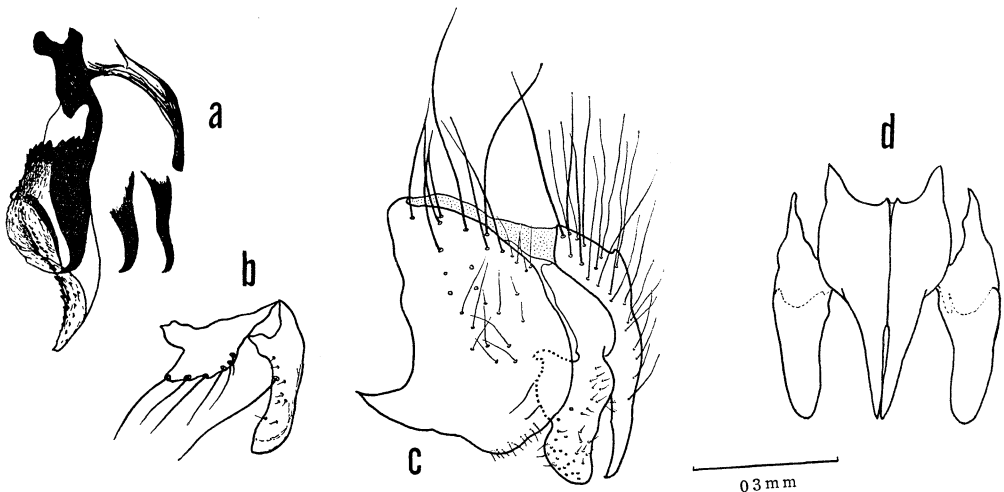


Fig. 4. *Polleniopsis fulviventris* n. sp., ♂ genitalia: a, aedeagus, lateral view; b, anterior and posterior parameres, lateral view; c, cerci and paralobi, lateral view; d, cerci and paralobi, caudal view.



*Abaomen*: Tawny, semitransparent in part, usually darkened on hind margin of 3rd to 4th tergites, covered with irregularly shifting silver dusting; marginal bristles well developed on 3rd to 5th tergites, median marginals erect; 1st and 2nd combined tergite with strong marginals on lateral sides of abdomen.

♀. *Head*: Eyes separated at vertex by a distance slightly more than a quarter of head width; frontal stripe dark red, broad, parallel-sided, the width about  $3 \times$  one of parafrontalia just in front of anterior ocellus; parafrontalia and parafacialia yellowish-silver to golden dusted, parafrontalia blackish setulose, provided with ca. 8 pairs of *ori*; *ors* 2+1; *oc* strongly developed; *ov* and *iv* well developed; *poc* divergent; 1-3 occipital hairs present. Otherwise as described for ♂.

Length: 6.0-9.0 mm.

Holotype ♂, Humboldt Bay, 200-300 ft, NW New Guinea, ?IV.1936, L. E. Cheesman (BMNH). Paratypes: 1 ♀, S of Mt. Bougainville, 300 ft, Njau-limon, W New Guinea, ?II.1936, Cheesman (BMNH); 1 ♂, Trail Sucumi to Ransiki, 300-10 m, Vogelkop, Northwest, New Guinea, 7.VIII.1957, D. Elmo Hardy (BISHOP); 1 ♂, 2 ♀♀, Cyclops Mts., 150-250 m, W. Sentani, Hollandia Area, NW New Guinea, 17.VI.1959, J. L. Gressitt, 18.VI.1959, 23.VI.1959, T. C. Maa (BISHOP); 1 ♀, 40 km W of Hollandia, 100-200 m, Genjam, Neth., New Guinea, 1-10.III.1960, Maa (BISHOP); 1 ♀, Hollandia, NW New Guinea, 25-28.VI.1962, N. Wilson (BISHOP); 1 ♀, Nabire, 5-50 m, W New Guinea, 25.VIII-2.IX.1962, J. Sedlacek (BISHOP); 2 ♀♀, Sago forest, 100 m, May R. Patrol Sta., NE New Guinea, 31.V.1963, R. Straatman (BISHOP); 1 ♀, Dreikikir, 350 m, Sepik Distr., NE New Guinea, 23.VI.1961, J. L. & M. Gressitt (BISHOP).

Bionomics: Unknown.

DISTRIBUTION: New Guinea.

**Polleniopsis gressitti** Kurahashi, new species      Fig. 5 a-b.

♀. *Head*: Eyes bare, separated at vertex by a distance slightly less than  $1/3$  of head width; frontal stripe dark red, slightly narrowed towards vertex, the width about  $3 \times$  one of parafrontalia just in front of anterior ocellus; parafrontalia and parafacialia golden-dusted, with irregularly shifting dark spots, blackish setulose, lower parts of parafacialia bare; parafrontalia provided with ca. 5 pairs of *ori*; *ors* 2+1; *oc* developed; *ov* and *iv* well developed; *poc* divergent; 1-2 occipital hairs present; face reddish, slightly yellowish-gray dusted, with well developed median carina; epistome concolorous with face; facialia with fine black hairs on lower  $1/4$ ; medianae and vibrissaria reddish, vibrissaria yellowish-gray dusted anteriorly; jowls and occiput black, yellowish-gray dusted, jowls black haired, slightly less than  $1/3$  of head width; post-jowls brown, covered with yellow hairs; antennae reddish, 3rd segment largely darkened apically, slightly less than  $3 \times$  as long as 2nd; arista brown, blackish on base, long-plumose; palpi orange.

*Thorax*: Fulvous yellow except for fuscous dorsum, yellowish-gray and golden dusted, 4 longitudinal dark stripes indicated on notum, lateral ones broader, not interrupted just behind inner *ph*; scutellum, humeri and post-alar calli fulvous yellow; sternopleura sometimes darkened ventrally; propleura and prosternum blackish hairy; sternopleura, mesopleura, pteropleura and hypopleura clothed with black hairs; supraspiracular convexity pubescent; pleurotergite blackish setulose; post-alar declivity with black hairs; suprasquamal ridge with sparse black hairs on anterior parasquamal and tympanic portions; thoracic spiracles bright orange. Chaetotaxy; *ac* 1+1-2, *dc* 2+3, *ia* 0+2, *h* 2, *ph* 1, *prs* 1, *sa* 3, *pa* 2, *n* 2, *sc* 3+1, *st* 1+1, propleural and prostigmatic bristles developed.

*Wings*: Yellowish hyaline; veins orange to brown; epaulet brown; basicosta orange; subcostal

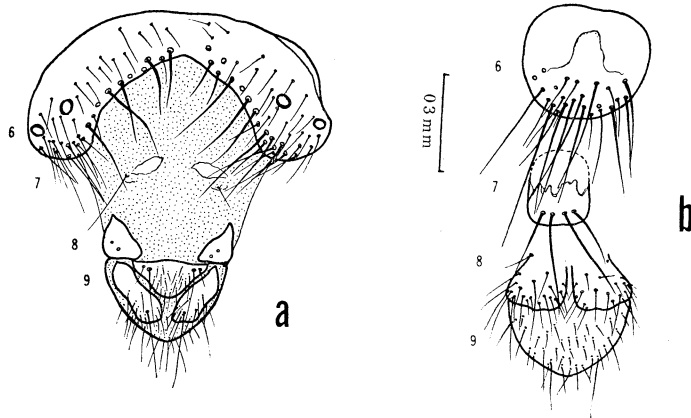


Fig. 5. *Polleniopsis gressitti* n. sp., ovipositor: a, 6-9th tergites, dorsal view; b, 6-9th sternites, ventral view.

sclerite light orange, pubescent; node of 2nd and 3rd longitudinal veins with a few black setulae above and below; 4th vein bent at right angle; squamae brownish orange, thoracic one with black hairs on basal 1/3 of upper surface. Halteres yellow.

*Legs*: Fulvous yellow, blackish haired, tarsi usually darkened; front tibia 1 *p* and 3-4 short *ad*; mid tibia with 1 *ad*, 1 *pd*, 2 *p* and 1 *v*; hind tibia with 2 *ad*, 2 *pd* and 1-2 *av*.

*Abdomen*: Metallic bronzy, sometimes with red tinge, thinly covered with silver gray dusting; abdominal hairs black; typical marginal row of bristles present on 4th tergite, the other tergites with some marginals only on lateral sides of abdomen; sternites broad.

Length: 6.5-8.0 mm.

♂. Unknown.

Holotype ♀ (BISHOP 9842), Dalat, 1550 m, Viet Nam, 11.IX.1960, J. L. Gressitt. Paratypes: 1 ♀, Dalat, 1500 m, Viet Nam, 26-27.IX.1960, Gressitt (BISHOP); 2 ♀♀, 6 km S of Dalat, 1400-1500 m, 12.IX.1960, Gressitt, 9.VI-7.VII.1961, N. R. Spencer (BISHOP).

Bionomics: Unknown.

DISTRIBUTION: Viet Nam.

#### *Polleniopsis asiatica* (Sen.-White), new combination

*Paratricylea asiatica* Sen.-White, 1923, *Mem. Dept. Agric. Ind.*, ent. ser. 8: 38.

*Pollenia asiatica*: Sen.-White et al., 1940, *Fa. Brit. India. Dipt.* 6: 126.

Type-locality: Western Chats, India. Type in the National Hungarian Museum, Budapest.

Length: 7 mm.

SPECIMENS EXAMINED. INDIA: Paratype ♀, Matheran, 800 m, ??1902, purchd. from R. Senior-White (BMNH).

Bionomics: Unknown.

DISTRIBUTION: India.

**Polleniopsis fulvipes** Kurahashi, new species      Fig. 6 a-d.

♂. *Head*: Eyes bare, separated at point of closest approximation by a distance slightly more than the width of anterior ocellus; frontal stripe not obliterated at narrowest point, dark red; parafrontalia narrow, yellowish-gray dusted; parafacialia dull-golden dusted, with irregularly shifting dark spots, black setulose; face dark fuscous, gray-dusted, with poorly developed median carina; facialia reddish, with several setulae just above vibrissae; vibrissae strongly developed; vibrissaria brown; medianae dark red; jowls and post-jowls black, gray-dusted, clothed with black hairs; occiput concolorous with jowls, clothed with black and brown hairs; antennae red, blackish on apical 1/2 of 3rd segment, 3rd segment about 3 × as long as 2nd; arista dark brown, long-plumose; palpi orange.

*Thorax*: Fuscous, gray-dusted; 4 longitudinal stripes clearly indicated on notum, lateral one broader than median one, interrupted just behind inner *ph*; humeri, post-alar calli and scutellum concolorous with notum, sometimes reddish along margins; propleura and prosternum blackish hairy; sternopleura, mesopleura, pteropleura and hypopleura clothed with black hairs; supra-spiracular convexity pubescent; pleurotergite blackish setulose; post-alar declivity with black hairs; suprasquamal ridge bare; mesothoracic spiracle blackish brown, metathoracic one dark brown. Chaetotaxy: *ac* 1+2, *dc* 2+3, *ia* 0+2, *h* 2, *ph* 1, *prs* 1, *sa* 3, *pa* 2, *n* 2, *sc* 3+1, *st* 1+1, propleura and prostigmatic bristles developed.

*Wings*: Hyaline, yellowish at base; veins brown; epaulet brown; basicosta yellow; subcostal sclerite light orange, pubescent; costal spin distinct; node of 2nd and 3rd longitudinal veins with a few black setulae above and below; 4th vein bending forward with an obtuse angle; squamae pale brown, semitransparent, thoracic one with a small patch of black hairs on basal 1/3. Halteres yellow.

*Legs*: Fulvous yellow, tarsi usually darkened, blackish haired; front tibia with 1 *p* and 2-3 *ad*; mid tibia with 1 *ad*, 1 *pd* and 2 *p*, one weak *v* present; hind tibia with 2 *ad*, 2 *pd* and 2 *av*.

*Abdomen*: Bronzy, sometimes with red tinge, covered with silver-gray dusting; abdominal hairs black; typical marginal row of bristles present on 4th and 5th tergites, some marginals also developed on lateral sides of 1st and 2nd combined and 3rd tergites.

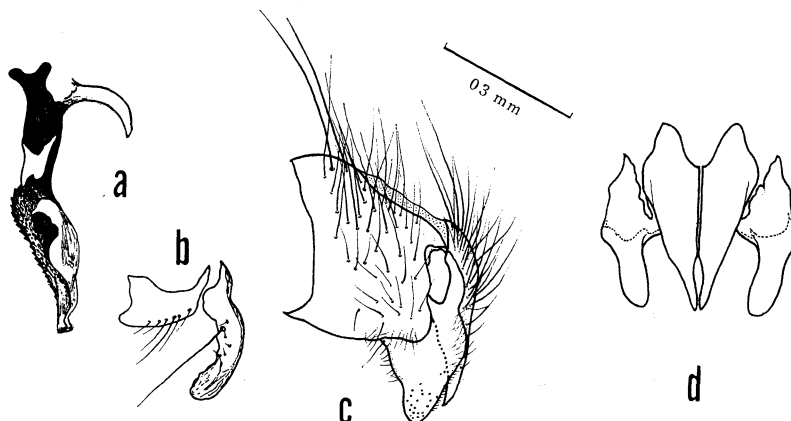


Fig. 6. *Polleniopsis fulvipes* n. sp., ♂ genitalia: a, aedeagus, lateral view; b, anterior and posterior parameres, lateral view; c, cerci and paralobi, lateral view; d, cerci and paralobi, caudal view.

♀. *Head*: Eyes separated at vertex by a distance slightly less than 1/3 of head width; frontal stripe dark red, broad, parallel-sided, the width about 3 × one of parafrontalia just in front of anterior ocellus; parafrontalia and parafacialia dull-golden dusted; face with a rounded, but distinct keel; post-jowls covered with yellow hairs. *Thorax*: Prosternum and propleuraon yellowish hairy, the other pleura at least in part covered with brownish hairs; thoracic spiracles bright orange; post-alar declivity and pleurotergite with yellowish hairs; suprasquamal ridge with poorly developed tympanic tuft of yellow hairs. *Wings*: 4th longitudinal vein bent at right angle; thoracic squama with a small patch of yellow hairs. *Legs*: Coxae with yellow hairs in part. *Abdomen*: Similar to that of ♂ except genitalia.

Length: 5.5-6.0 mm.

Holotype ♂ (BISHOP 9843), 6 km S of Dalat, 1400-1500 m, Viet Nam, 9. VI-7.VII. 1961, N. R. Spencer. Paratype ♀, same data as holotype. The type specimens are preserved in the B. P. Bishop Museum, Honolulu.

Bionomics: Unknown.

DISTRIBUTION: Viet Nam.

#### *Polleniopsis pilosa* (Townsend)

*Polleniopsis pilosa* Townsend, 1917, *Rec. Ind. Mus.* 13: 202.

*Pollenia pilosa*: Sen.-White et al., 1940, *Fa. Brit. India. Dipt.* 6: 121.

Type-locality: India. Type in the Indian Museum, Calcutta.

Length: 6.0-7.0 mm.

SPECIMENS EXAMINED. INDIA: 2 ♀♀, Assam, Shillong, 9.X.1920, 12.X.1920, purchd. from R. Senior-White (BMNH).

Bionomics: Nothing is known.

DISTRIBUTION: India (Sen.-White et al., 1940).

#### *Polleniopsis dalatensis* Kurahashi, new species      Fig. 7 a-d.

♂. *Head*: Eyes bare, separated at point of closest approximation by a distance slightly more than the width of anterior ocellus; frontal stripe dark red, not obliterated at narrowest point; parafrontalia and parafacialia silver-gray dusted, slightly yellowish in part, sparsely black setulose; face black, silver-gray dusted, with poorly developed median carina; facialia dark red, with black setulae on lower 1/3; vibrissae well developed; vibrissaria narrow, with a few fine setulae; medianae dark red, broad; jowls and post-jowls black, silver-gray dusted; jowls clothed with black hairs; post-jowls with yellowish hairs; occiput concolorous with jowls, with yellowish hairs on lower and central parts; antennae reddish, 3rd segment darkened dorsally, about 2.5 × as long as 2nd; arista brown, darkened basally, long-plumose; palpi brown.

*Thorax*: Lead-gray, gray-dusted, 4 longitudinal dark stripes marked on prescutum, lateral one broad interrupted just behind internal *ph*, a fine longitudinal dark stripe sometimes present between the median and lateral ones; post-alar calli slightly reddish in part; scutellum concolorous with thoracic dorsum; prosternum and propleura blackish hairy, the other pleura also blackish haired; supra-spiracular convexity pubescent; pleurotergite with black hairs; post-alar declivity with tuft of black hairs in center; both tympanic and anterior parasquamal tufts present, the hairs black; thoracic spiracles dark brown. Chaetotaxy; *ac* 1+2, *dc* 2+3, *ia* 0+2, *h* 2, *ph* 1, *prs* 1, *sa* 3, *pa* 2, *n* 2, *sc* 3+1, *st* 2+1, propleural and prostigmatic bristles well developed.

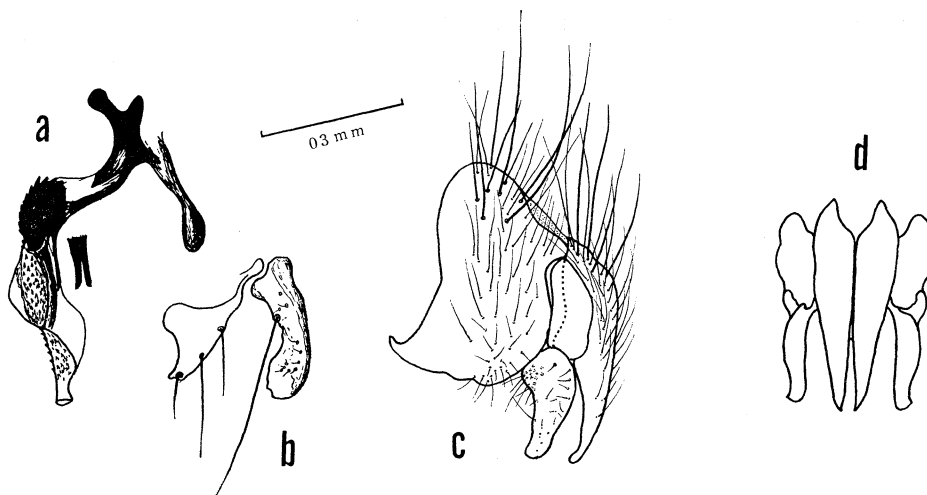


Fig. 7. *Polleniopsis dalatensis* n. sp., ♂ genitalia : a, aedeagus, lateral view ; b, anterior and posterior parameres, lateral view ; c, cerci and paralobi, lateral view ; d, cerci and paralobi, caudal view.

**Wings:** Hyaline, slightly brownish at base; epaulet dark brown; basicosta light brown; veins brown; subcostal sclerite light brown, pubescent; node of 2nd and 3rd longitudinal veins with a few black setulae above and below; 4th veins bending forward at right angle; squamae pale brown, semitransparent, thoracic one with a small patch of black hairs on basal half. Halteres orange.

**Legs:** Black, tibiae and knee brown, blackish haired; front tibia 1 *ad* and a incomplete row of short *ad*; mid tibia with 1 *ad*, 1 *pd*, 2-3 *p* and 1 *v*; hind tibia with 2 *ad*, 2 *pd* and 1 *av*.

**Abdomen:** Entirely lead-gray, densely silver-gray dusted; median dark longitudinal stripe inconspicuous; abdominal hairs black; typical marginal row of bristles present on 4th and 5th tergites; 1st and 2nd combined and 3rd tergites with several marginals on lateral sides of abdomen.

♀. **Head:** Eyes separated at vertex by a distance slightly less than 1/3 of head width; frontal stripe broad, parallel-sided, dark red, the width about 3.5 × that of one of parafrontalia just in front of anterior ocellus; parafrontalia blackish setulose, provided with ca. 5 pairs of *ori*; *ors* 2+1; *oc* developed; *ov* and *iv* well developed; *poc* divergent; 1 occipital hair present. Otherwise as described for ♂ except for genitalia.

Length: 5.5-7.0 mm.

Holotype ♂ (BISHOP 9844), 6 km SW of Dalat, 1550 m, Viet Nam, 11.IX.1960, J. L. Gressitt. Paratypes: 3 ♂♂, same data as holotype; 1 ♂ 1 ♀, Mt. Lang Bian, 1500-2000 m, Viet Nam, 19.V-8.VI.1961, N. R. Spencer (BISHOP); 2 ♀♀, Fray, 900-1000 m, Viet Nam, 11.VII-9.VIII.1961, N. R. Spencer (BISHOP). The type specimens are preserved in the Bishop Museum, Honolulu.

**Bionomics:** Unknown.

**DISTRIBUTION:** Viet Nam.

**Polleniopsis annamensis** Kurahashi, new species      Fig. 8 a-d.

♂. Closely similar to ♂ of *Polleniopsis dalatensis* Kurahashi n. sp. in external morphology. The present new species can be distinguished from the latter by the following characteristics; facial carina well developed; post-jowls clothed with blackish hairs; *st* 1+1; 3rd antennal segment about 3 × as long as 2nd.

Length: 6.5 mm.

Holotype ♂ (BISHOP 9845), 6 km S of Dalat, 1400-1500 m, 9.VI-7.VII.1961, N. R. Spencer. The type specimen is preserved in the B. P. Bishop Museum, Honolulu.

Bionomics: Unknown.

DISTRIBUTION: Viet Nam.

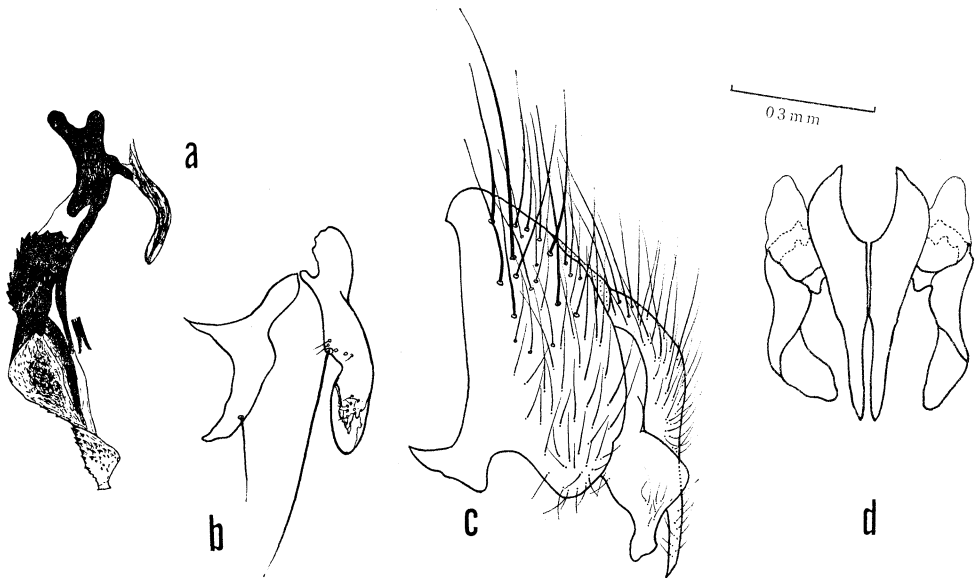


Fig. 8. *Polleniopsis annamensis* n. sp., ♂ genitalia: a, aedeagus, lateral view; b, anterior and posterior parameres, lateral view; c, cerci and paralobi, lateral view; d, cerci and paralobi, caudal view.

**Polleniopsis fukienensis** Kurahashi, new species      Fig. 9 a-d.

♂. Closely resembles ♂ of *Polleniopsis dalatensis* Kurahashi n. sp. and *P. annamensis* Kurahashi n. sp. The present new species can be distinguished from them by the antennae sharpened at apex; the 3rd segment slightly less than 2 × as long as 2nd. It also differs from the former new species in having a developed facial carina.

Length: 7.0 mm.

Holotype ♂ (BISHOP 9846), Bohea Hills, ChungAn, Fukien, S. China, 24.IV.1940, T. C. Maa. The type specimen is preserved in the B. P. Bishop Museum, Honolulu.

Bionomics: Unknown.

DISTRIBUTION : S. China.

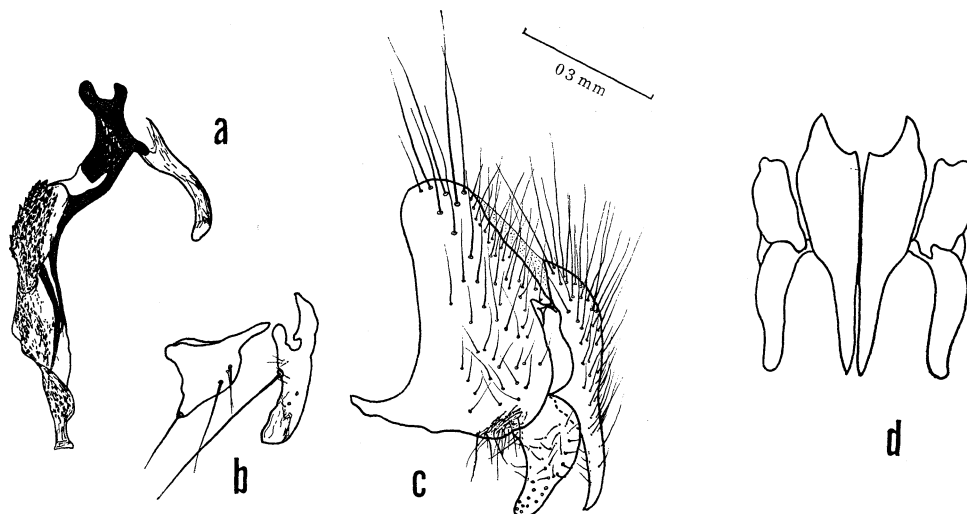


Fig. 9. *Polleniopsis fukienensis* n. sp., ♂ genitalia: a, aedeagus, lateral view; b, anterior and posterior parameres, lateral view; c, cerci and paralobi, lateral view; d, cerci and paralobi, caudal view.

#### *Polleniopsis mongolica* Séguy

*Polleniopsis mongolica* Séguy, 1928, *Encycl. Entom.* 9: 119.

*Pollenia mongolica*: Sen.-White et al., 1940, *Fa. Brit. India. Dipt.* 6: 120.

Type-locality : Mongolia. Type in the Muséum National d'Histoire Naturelle, Paris.

No available materials from the Oriental region.

Length : 7.5-8.0 mm.

SPECIMENS EXAMINED. MONGOLIA : Cotype ♀, route d'Ouliassoutai à Kordo, limites extremes du Gobi, ??1909, D<sup>r</sup> du Chazaud (MNHN).

Bionomics : Nothing is known.

DISTRIBUTION : Annam (Séguy, 1928), [China (Séguy, 1934 ; Fan, 1965) and Mongolia (Séguy, 1928)].

#### KEY TO SPECIES OF POLLENIOPSIS

1. Presutural *ia* present.....2
- Presutural *ia* absent ..... 4
- 2 (1). Abdomen black, densely covered with yellowish gray or golden dusting, strongly tessellated; legs black; claws and pulvilli normal in size; facial carina well developed; external *ph* present ..... *toxopei* (Sen.-White)
- Abdomen bronzy, more or less silver-gray dusted, with an obscure black median stripe; femora and tibiae fulvous, sometimes entirely fuscous; claws and pulvilli

- large; facial carina poorly developed; external *ph* absent..... 3
- 3 (2). Apical 1/2 of femora and tibiae fulvous; palpi blackish; 3rd antennal segment entirely blackish ..... *elongata* Kurahashi\*  
 Legs entirely fuscous except for yellow knee; palpi brown; 3rd antennal segment reddish on ventral surface at base.....*inconclusa* (Walker)
- 4 (1). External *ph* absent..... 5  
 External *ph* present..... *jamesi* Kurahashi\*
- 5 (4). Legs light brown at least on femora and tibiae.....10  
 Legs entirely fuscous to black, at most tibiae and knees sometimes brownish ..... 6
- 6 (5). Abdomen tawny, sometimes semitransparent; jowls yellow; thoracic squama yellowish hairy; *ac* 1+3 ..... *fulviventris* Kurahashi\*  
 Abdomen black, with bluish or bronzy tinge, silver-gray dusted; jowls black; thoracic squama with blackish hairs; *ac* 1+2 or 1+3.....7
- 7 (6). Legs entirely fuscous to black; *ac* 1+3; thorax and abdomen densely silver-gray dusted; wings yellow..... *mongolica* Séguy  
 Tibiae brownish; *ac* 1+2 ..... 8
- 8 (7). Facial carina well developed; *st* 1+1 ..... *annamensis* Kurahashi\*  
*St* 2+1..... 9
- 9 (8). Facial carina poorly developed, lower part broad, low and rounded; 3rd antennal segment distinctly more than 2 × as long as 2nd.....*dalatensis* Kurahashi\*  
 Facial carina developed, upper part sharp, lower part slightly rounded, but high; 3rd antennal segment nearly 2 × as long as 2nd ..... *fukienensis* Kurahashi\*
- 10 (5). Scutellum fulvous yellow..... 11  
 Scutellum blackish, covered with brownish gray dusting ..... 12
- 11 (10). Abdomen entirely tessellated; lateral sides of thorax fuscous; *st* 2+1 .....  
 ..... *asiatica* (Sen.-White)  
 Abdomen submetallic; 5th tergite pruinose; lateral sides of thorax conspicuously orange; *st* 1+1 ..... *gressitti* Kurahashi\*
- 12 (10). *Ac* 0+1..... *pilosa* (Townsend)  
*Ac* 1+2 ..... *fulvipes* Kurahashi\*

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\* Described as new.