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DESCRIPTION OF A NEW SPECIES OF *PERIBAEA* FROM NEW GUINEA, WITH NOTES ON *PERIBAEA ORBATA* (DIPTERA: TACHINIDAE)[1,2]

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Abstract. *Peribaea alternata,* n. sp. is described and illustrated from the New Guinea highlands. This species seems to be most closely allied to *P. orbata.* Geographical variations of *P. orbata* are briefly noted and the male and female genitalia of both species are described and illustrated.

In the course of my recent study on the tribe Siphonini from the Indo-Australasian Region, I found a new species of the genus *Peribaea* Robineau-Desvoidy from New Guinea, which seems to be most closely allied to *P. orbata* (Wiedemann). A description of the new species is given below.

P. orbata is widely distributed in the tropical and subtropical areas of the Old World and is one of the commonest species of the tribe Siphonini in these areas. In New Guinea it seems to occur in lowlands, usually below 1200 m, and is replaced by *P. alternata,* n. sp. between 1200–1800 m. Both species occur sympatrically at Wau (1200–1350 m), Papua New Guinea. It is interesting phylogenetically that a species widely distributed in the tropical areas of the Old World has a close relative known only from the New Guinea highlands. Hosts of the new species are not yet known.

The specimens examined in this study are from the collections of the following institutions: Bishop Museum, Honolulu (BISHOP); Biological Laboratory, College of General Education, Kyushu University, Fukuoka (BLKU); Department of Entomology, Kasetsart University, Bangkok (DEKU); Department of Entomology, University of the Philippines, Los Baños (UPCA) and International Rice Research Institute, Los Baños (IRRI).

Peribaea alternata Shima, **new species** Fig. 1, 2A

♂. *Head* grayish white pollinose; interfrontal area brown; antenna brown-black, without pale portion on 1st and 2nd segments; arista brown-black; palpus dark brown. Vertex 0.30–0.34 of head width; interfrontal area widened posteriorly, about 2× as wide as parafrontal at middle; parafacial narrowed below, about 2× as wide as base of arista; gena 0.19–0.20 of eye-height. Lower portion of parafrontal with 2–3 rows of fine and short hairs, which descend to the level of base of arista; inner vertical seta about $^4/_5$ of eye-height;

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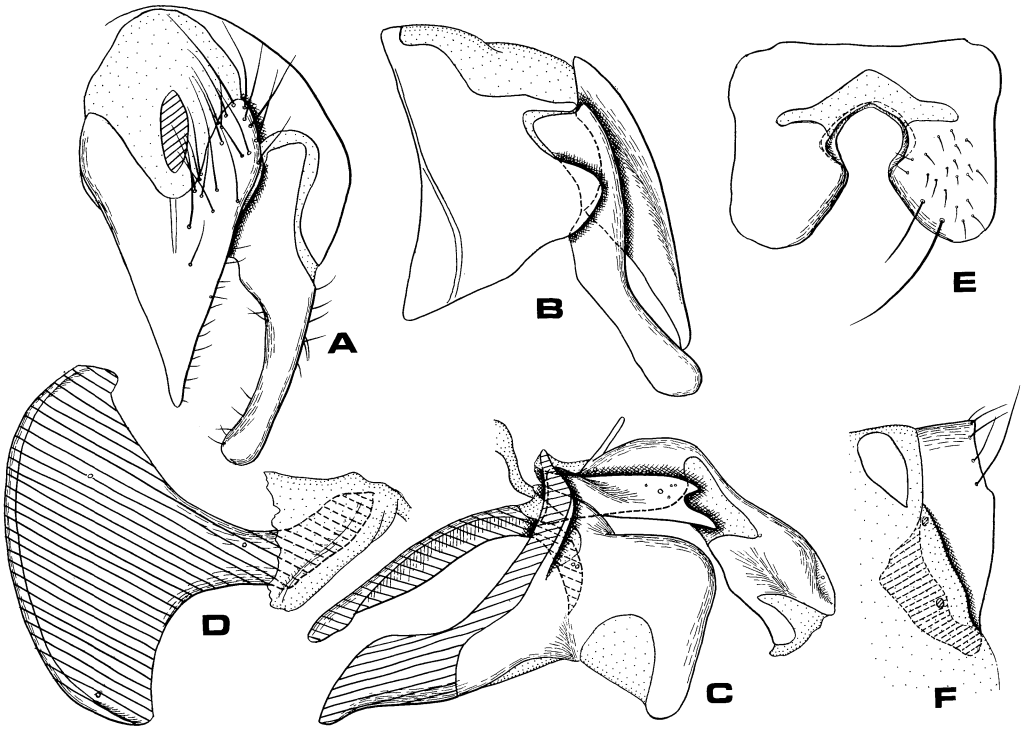

FIG. 1. Male genitalia of *Peribaea alternata*: **A,** epandrium, cerci and surstylus in dorsal view; **B,** same in lateral view; **C,** hypandrium, pre- and postgonites and aedeagus in lateral view; **D,** ejaculatory apodeme in dorsal view; **E,** 5th sternum in ventral view; **F,** 6th tergum and synsternum 7+8 in lateral view.

outer vertical seta about ½ of inner seta; ocellar seta subequal in length to outer vertical seta; anterior reclinate orbital seta slightly longer than outer vertical seta, situated nearly on middle of parafrontal in profile; anterior proclinate orbital seta subequal in length to ocellar seta, situated nearly on anterior $^2/_5$ of parafrontal; upper occiput with a row of 3–6 fine black hairs. Third antennal segment about 2.5× as long as wide, and 3.5–3.8× as long as 2nd segment. Second aristal segment about 4× as long as wide; 3rd segment thickened on its basal ⅓. Palpus clavate, about ⅔× as long as 3rd antennal segment. *Thorax* black in ground color, brownish gray pollinose on dorsum, grayish pollinose on pleura, apex of scutellum scarcely reddish; longitudinal vitta indistinct on dorsum; 3+4 ac; 3+4 dc; distance between bases of 2 subapical scutellar setae about 2× as long as that between basal and subapical setae of same side. *Wing* hyaline, weakly tinged with brown; tegula black; basicosta dark brown; calypter pale brownish white. Costal spine subequal in length to r-m crossvein; vein R_1 setulose dorsally on its whole length, bare ventrally, rarely with 1–2 fine ventral setulae at apical ½; vein R_{4+5} setulose dorsally from its base to the level of apex of vein M_3, with only 1 setula at base ventrally; ultimate section of vein M_3 about 2× as long as discal crossvein, about 1.4× as long as vein M_1 from r-m crossvein to discal crossvein. *Legs* black; pulvilli whitish. Fore tibia with regular rows of 4–5 ad and pd setae and with 1 p seta; mid tibia with 1 ad, 2 pd and 1 v setae; claws and pulvilli very short. *Abdomen* shining black in ground color, 3rd to 5th terga with thin whitish pollinosity on anterior ⅓–½ of each tergum. Second tergum without marginal seta; 3rd tergum with 2 strong median marginal and 1 lateral marginal setae; 4th and 5th terga each with a row of strong marginal setae.

♂ *genitalia.* 5th sternum nearly parallel-sided, posterior lobe occupying posterior ⅔ of sternum, with 2 strong and many fine hairs; 6th tergum short but distinct, divided into 2 hemitergites at mid-dorsal portion,

without hair; 6th spiracle in membrane in front of anteroventral portion of synsternum 7+8; 6th sternum articulated on left side with synsternum 7+8 and widely separated from it on right side; cerci fused with each other, in dorsal view long triangular in form, about $^3/_5\times$ as wide as long; surstylus narrow and long, weakly curved dorsally in lateral view; basiliform sclerites (processi longi) fused with each other ventrally, articulated with hypandrial arms which are separated from each other; pregonite short and broad, broadly membranous on ventral portion, without hair; postgonite bifurcate at apex; epiphallus slender; distiphallus short and broad; ejaculatory apodeme very large, fan-shaped.

♀. Closely resembling ♂ but differing as follows: vertex 0.32–0.36 of head width; 3rd antennal segment about 3× as long as wide; palpus sometimes paler at apex. ♀ terminalia: 6th tergum very short, about $^1/_{10}$ length of 5th tergum, narrowly divided into hemitergites at mid-dorsal portion, without hair; 6th sternum about ½ length of 5th sternum, with dense minute hairs; 7th tergum of small hemitergites, subequal in length to 6th tergum, without hair; 6th and 7th spiracles situated on ventral portions of 6th and 7th terga, respectively; 7th sternum about $^5/_6$ length of 6th sternum, with dense minute hairs; 8th tergum of rather broad hemitergites, about 2× length of 7th tergum, with several hairs on posteroventral portion; membranous area below 8th tergum with dense fine pubescence; 8th sternum of a very small rectangular sclerite, without hair; 9th tergum (supra-anal plate) entire or narrowly divided into 2 small hemitergites, with a row of 8–10 hairs on posterior portion; cercus short and rather broad; only 2 spermathecae.

Body length. 3.8–5.0 mm; wing length, 3.4–4.0 mm.

Holotype ♂, PNG: NEW GUINEA (NE): Wau, Mt Kaindi, 2350 m, 26–29.XII.1973, H. Shima (BISHOP 11,980). Paratypes: IRIAN: NEW GUINEA (NW), 2♀, Wisselmeren, Enarotadi, 1850 m, 12.VII–4.VIII.1962, malaise trap, J. Sedlacek (BISHOP); PNG: NEW GUINEA (SE): 1♂, Margarima, Wak Riv, 2100 m, 5.II.1978, R. Kano (BLKU); 1♂, Mt Giluwe, N side Malgi, 2500 m, 25–30.V.1961, J.L. Gressitt (BISHOP); PNG: NEW GUINEA (NE): 1♀, Goroka, 1650 m, 14.V.1966, malaise trap, Gressitt (BISHOP); 4♂,1♀, 22 km SE of Okapa, 2100 m, 28.VIII.1964, J. & M. Sedlacek (BISHOP); 13♂,1♀, E Highlands, Aiyura, 1800 m, 7–9.I.1964, malaise trap, Gressitt (BISHOP); 1♂, Mt Wilhelm, 2850 m, 6.VII.1963, J. Sedlacek (BISHOP); 1♀, Dualo Pass area, 2500 m, 25–30.V.1961, D.E. Hardy (BISHOP); 1♂,1♀, Wau area, Edie Creek, 2000 m, 5–11.X.1961, malaise trap, J. Sedlacek (BISHOP); 5♂, same locality as holotype, 7.IX.1966, malaise trap, Gressitt (BISHOP); 7♂, same locality as holotype, 26–29.XII.1973, H. Shima (BLKU); 1♂, same as preceding, 10–13.I.1974, S. Shinonaga (BLKU); 1♂, Wau, 1200 m, 11.II.1966, malaise trap, J. & M. Sedlacek (BISHOP); 2♂, Wau, 1350 m, 22–31.XII.1973, H. Shima (BLKU).

Distribution. Irian Jaya (Indonesia) and Papua New Guinea.

Remarks. The structures of the male and female genitalia and other external characters indicate that this species is most closely related to *P. orbata*. *P. alternata* can be easily distinguished from *P. orbata* by the brownish black 1st and 2nd antennal segments, the dark brown palpus, the presence of a row of 3–6 black hairs on the upper occiput and the almost always bare ventral surface of wing vein R_1.

Peribaea orbata (Wiedemann) Fig. 2B, 3

Tachina orbata Wiedemann, 1830: 336.

A redescription of this species is given in detail under the name of *Strobliomyia aegyptia* by Mesnil (1963). The detailed synonymies and identity of this species are

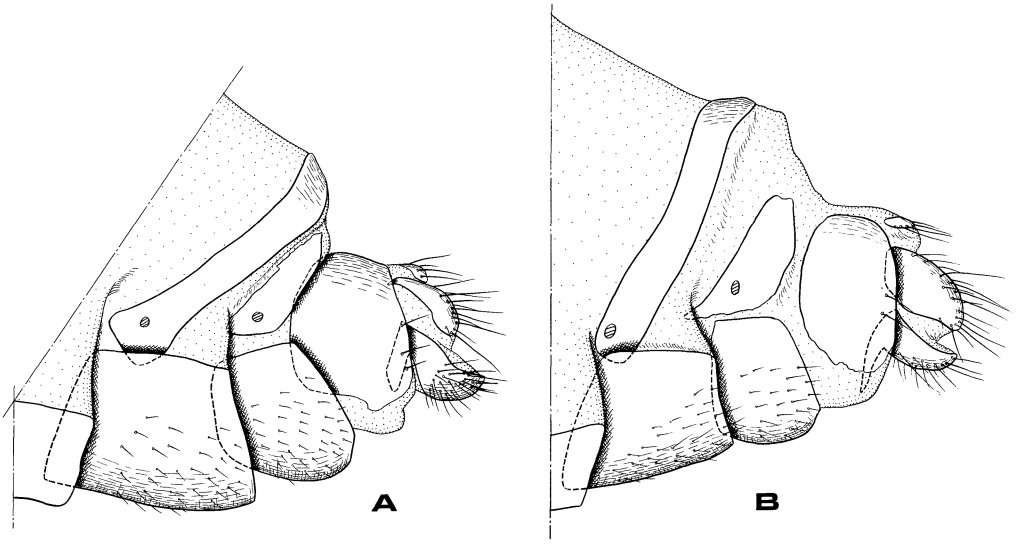

FIG. 2. Female terminalia of *Peribaea alternata* (**A**) and *P. orbata* (**B**) in lateral view.

discussed by Crosskey (1966). This species is widespread from Africa through the Oriental Region to Australasia. Among a large number of specimens examined in this study, some geographical variations were observed: in specimens from Punciak, Java, 1st and 2nd antennal segments sometimes darker than usual; in specimens from Mt Apo, Mindanao, 1st and 2nd antennal segments dark brown except for apices, thoracic dorsum brownish gray pollinose, wing rather more strongly tinged with brown than usual and 3rd–5th abdominal terga more thinly whitish pollinose on anterior ½ of each tergum. In these respects, these specimens resemble *P. alternata,* but they differ from it in the yellowish palpus, haired ventral surface of the wing vein R_1, yellowish basicosta of the wing and absence of black hairs on the upper occiput; the shape of the male cerci of *P. orbata* is also different from that of *P. alternata.* Specimens of *P. orbata* from Wau, Papua New Guinea, sometimes much resemble those from Mt Apo and also *P. alternata,* i.e. 1st and 2nd antennal segments darkened, thorax brownish gray pollinose, tegula brown and legs brown-black. Despite the resemblance in these characters, they are constantly different from *P. alternata* in color of the palpus, ciliation of the ventral surface of the wing vein R_1, hairing of the upper occiput and shape of the male cerci.

The male and female genitalia of this species are different from those of the preceding species in the following features. In the ♂ genitalia, cerci shorter, width about ⅔ length, strongly narrowed at apical $^1/_5$; postgonite more weakly bifurcate; and ejaculatory apodeme distinctly smaller. In the ♀ terminalia, 8th tergum smaller, only about 1.5 length of 7th tergum; and 8th sternum smaller.

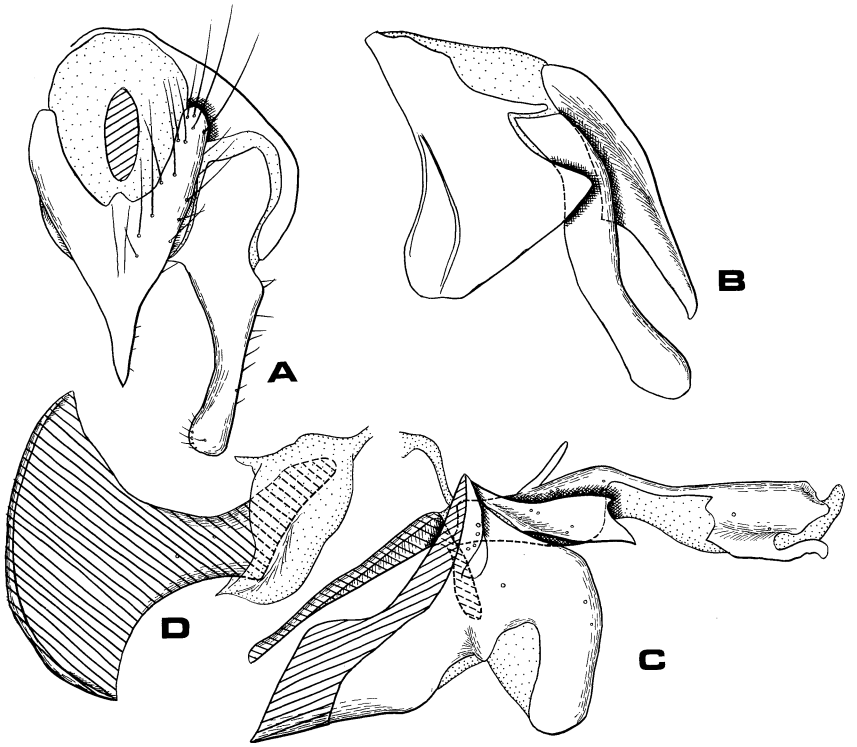

FIG. 3. Male genitalia of *Peribaea orbata*: **A,** epandrium, cerci and surstylus in dorsal view; **B,** same in lateral view; **C,** hypandrium, pre- and postgonites and aedeagus in lateral view; **D,** ejaculatory apodeme in dorsal view.

Specimens examined. JAPAN: Honshu: 2♂, Aichi, Kasugai; Kyushu: 1♂, Kanoya, Kotobukicho; 1♂, Kagoshima, Nagasakibana; Yaku I: 1♂, Miyanoura; 2♀, Kurio; 1♀, Nagata; 1♂,1♀, Kusukawa (all in BLKU). RYUKYUS: Amami Oshima I: 1♀, Uragami (BLKU); Miyako I: 2♂,4♀ (BISHOP, BLKU); Iriomote I: 1♂, Sonai (BLKU); 1♂, Mt Ushiku (BISHOP). TAIWAN: 1♀, Santiaoling; 1♂,2♀, Taipei; 1♂, Kueishan, 300–500 m; 1♀, Chiayi Hsien, Chiayi (all in BISHOP); 5♂,7♀, Tainan Hsien, Kuantzuling (BISHOP, BLKU); 1♀, Taitung Hsien, Tzepen (BISHOP); 1♀, Kaoshung, Kontei Park (BLKU); 1♂, Kuraru, Henchung Park, 250 m (BISHOP). HONG KONG: 8♂,1♀, Kowloon, Taipokau; 1♂, Yuen Long Distr, Castle Pk. Stn. area; 5♂, Sai Kung Stn. (all in BISHOP). CHINA: Fukien: 1♂,1♀, Chung An, Bohea Hills; 1♀, Yung An (all in BISHOP). LAOS: 2♀, Vientiane Prov, Gision Vill, de Tha Ngone (BISHOP). THAILAND: 1♂, Ban Pong Ding, 10 km NE of Doi Saket (BLKU); 1♂, Chiang Mai (BLKU); 1♂, Trang Prov, Khaophappha, Khaochung, 200 m (BISHOP); 1♂, Philiu (DEKU); 1♂, Phu Kae (DEKU). PENINSULAR MALAYSIA: 1♀, Cameron Highlands; 1♀, Ulogomback Rd, 30 km E of Kuala Lumpur (all in BLKU). MALAYSIA: SABAH: 5♂,6♀, Quoin Hill; 3♂, Kota Kinabalu (all in BISHOP); SARAWAK: 2♀, Nanga Pelagus, nr Kapit, 180–585 m; 1♂,1♀, Meirrai Val, nr. Kapit, 30–300 m; 2♂,1♀, Bidi, 90–240 m (all in BISHOP). SINGAPORE: 1♂, Bukit Pangian, Bukit Tima, 177 m (BLKU). INDONESIA: JAVA: 1♀, Bogor, Botanical Garden (BISHOP); 27♂,15♀, Punciak, 1300 m; 1♂, Cirebon, Tjemere (all in BLKU); SULAWESI: 1♂, Makassar, 50 m; 3♂, Noongan, 1200 m (all in BLKU); BALI: 1♂, Mt Batukau, 600 m (BLKU); AMBON: 1♂ (BLKU); TANINBAR: 1♀, Larat (BISHOP). PHILIPPINES: Luzon I: 2♂,1♀, Nueva Vizcaya, Dalton Pass, 915 m; 1♂, La Trinidad; 1♀, Baguio, Benguet, 1525 m (all in BISHOP); 4♂,1♀, Lagna (UPCA); 2♀, 4 km E of Los Baños (IRRI); 2♀, Los Baños, Mt Maquilling, 500–1000 m (BISHOP, BLKU); 2♂,4♀, Ba. Cale, 7 km NW of Tanauan (IRRI);

Panay I: 1♀, Iloilo Prov, Bo. Cardoha, 5 km NW of Tigbauan (IRRI); Negros I: 1♂, Valencia (BISHOP); Parawan I: 4♀, 3 km NE of Tinabog (BISHOP); Mindanao I: 2♂, Mt Apo, Agko, 1350 m (BLKU); 1♀, Bukidnon, Dalwasan, 1800 m; 1♂, Malaybalay, Malaybalay For. Stn. (all in BISHOP); 1♂, Davao, Tagun (BLKU). IRIAN: NEW GUINEA (NW): 1♂, SE Biak I; 1♂, Wisselmeren, Enarotadi, 1850 m; 3♂, Nabire, S Geelvink Bay, 0–30 m; 3♂, Nabire; 1♂, Star Mts, Sibil Val, 1245 m; 1♂, Cyclops Mts, Ifar, 300–500 m. PNG: NEW GUINEA (NE): 1♂, Minj area, 1700 m; 1♀ E Highlands, Kudiawa; 1♀, Huon Penin, Pindiu, 850–990 m (all in BISHOP); 68♂,16♀, Wau, 1200–1350 m (BISHOP, BLKU); 2♀, Port Moresby, Sogeri (BLKU); 3♀, Kokoda, 400 m; 2♂, Cape Rodney, 10 m (all in BISHOP). PNG: BISMARCK ARCH.: NEW BRITAIN: 1♂, Gazelle Penin, Upper Warangoi, Illugi, 220 m (BISHOP). AUSTRALIA: 1♂,1♀, Darwin; 1♂,2♀, Maningrida, Arnhem Land, 5 m; 1♂,2♀, Cairns; 3♀, W Brisbane, Moggill Farm, 5 m; 2♀, Brisbane; 1♀, 32 km S of Ayr (all in BISHOP). PNG: N SOLOMON IS: 2♀, Bougainville I, Kieta, 0–500 m (BLKU). SOLOMON IS: New Georgia Gp.: 1♂, Munda I, 0–50 m; Guadalcanal I: 1♂, Mt Austen, 410 m (all in BLKU); 1♂, Tambalia, 40 km W of Honiara; Russel Is: 1♀, Pavuvu I; Malaita I: 5♂,9♀, Dala; San Christobal I: 1♀, Kirakira (all in BISHOP). NEW HEBRIDES IS [VANUATU]: Efate I: 1♂,1♀, 10 km NW of Port Villa (BLKU); Espirito Santo: 1♂,1♀, Below Namataspa, 250 m (BISHOP). NEW CALEDONIA: 1♀, Hienghene (BLKU); 1♂,2♀, Tao; 1♂, Poindimie (all in BISHOP); 1♀, Petchecara (BLKU); 3♂, La Crouen; 1♂, Tipindji; 2♂, Noumea (all in BISHOP). FIJI: Viti Levu: 1♀, Nadi, 0 m; 13♂, 70 km W of Suva, 0–20 m (all in BLKU). MICRONESIA: Ogasawara Is: Chichijima I: 1♀, Omura (BISHOP); 1♂,1♀, Fukiage-dani (BLKU); Guam: 1♀, Apra Heights (BISHOP).

Distribution. Widespread from Africa through SE Asia to Australia, Melanesia and Micronesia.

Hosts. Aedia leucomelas, Heliothis armigera, Leucania separata (new record), *Leucania venalba, Pseudaletia unipuncta, Spodoptera exigua, Spodoptera litura, Spodoptera mauritia* (Lep., Noctuidae); *Hedylepta indicata* (Lep., Pyralidae) (new record).

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