

(1981)

COMPOSITION AND SYSTEMATIC POSITION OF THE GENUS ALLACTONEURA DE MEIJERE (DIPTERA, MYCETOPHILIDAE)

A.I. ZAYTSEV (ZAITSEV)

Representatives of the small genus *Allactoneura* De Meijere until recently were known only from a few parts of the Oriental Region, northern Australia, New Guinea, a series of islands in the Indian Ocean, and from East Africa. In connection with these reports, the opinion has been expressed that the distributional area of the genus is organically of areas adjacent to the Indian Ocean (Tuomikoski, 1966). At present 5 species of *Allactoneura* are known: *A. argenteosquamosa* (Enderlein), *A. cincta* De Meijere, *A. formosana* (Enderlein), *A. nigrofemorata* De Meijere, and *A. obscurata* (Walker). Two of these, (*A. formosana* and *A. nigrofemorata*) in the opinion of some authors (Hennig, 1955; Tuomikoski, 1966; Colles and Liepa, 1973), appear to be synonyms of *A. cincta*.

Since the time of the original description of the genus (De Meijere, 1907), numerous, sometimes widely differing, opinions have been expressed on the question of the systematic position and genetic relationships of these flies. This may be explained, on the one hand, by the poorly known imaginal morphology of *Allactoneura* spp., and, on the other hand, by the complete lack of any kind of information on the the biology and morphology of the preimaginal stages.

When field observations in several areas in southern Primorye were conducted peculiar larvae were found and the adult mycetophilid fly reared from them was referred to a species of *Allactoneura* new to science. Herewith are described the new species (including its preimaginal stages), the genetic relationship of the genus *Allactoneura* is discussed, and a review of the species so far known is presented.

The author expresses his deep gratitude to N.P. Krivosheina and Dr. P. Oosterbroek (Netherlands) for furnishing material of the genus.

Genus ALLACTONEURA De Meijere

Allactoneura De Meijere, 1907: 201.

Scottella Enderlein, 1910: 60.

Typical species, *Allactoneura cincta* De Meijere.

Medium-sized flies with elongate body. Head (in species examined) round, appressed to thorax. Hind margin of head with 30 or more long, stiff setae in a row on occiput behind eyes. Vertex with 3 ocelli placed in a line; median ocellus very small, scarcely distinguishable. Above upper eye margin 2 long setae. Front divided by longitudinal groove. Eye large, round, with small notch at base of antenna. Face quadrate or a little elongate. Clypeus large, bearing numerous short, thick setae. Palpus 4-segmented; 1st segment very short; 2nd and 3rd segments

weakly elongated, of approximately equal length; apical segment slender, about twice as long as 3rd. Antenna 2 + 14-segmented; segments of scape robust, bearing strong black setae; flagellar segments cylindrical, closely appressed to each other, covered with very short, dense pubescence.

Thorax strongly flattened dorsoventrally. Lateral cervical sclerites robust, adnate to posterior cervical sclerites (Fig. 1.7). Prosternum very broad, its margin reaching lateral surface of thorax. Lateral sclerites of prothorax weakly developed (Fig. 1.4). Dorsal part of pronotum forming a slender strip sharply expanded laterally (Fig. 1.7) and bearing dense, posteriorly directed, long setae. Episternum with dense, posteriorly directed setae. Epimeron very large, bare. Mesonotum strongly flattened, covered with dense small setae and lanceolate scales. Posterior part of mesonotum with a few long setae. Pleura bare. Mesopleuron distinctly longer than high. Sternopleuron divided from mesopleuron by a suture, hardly distinguishable posteriorly. Pteropleuron not completely separated from sternopleuron (Fig. 1.4). Scutellum with a pair of long, stiff setae placed on midline. Mediotergite bare, convex. Pleurotergite covered with dense, fine hairs, posteriorly with a row of long, stiff setae.

Legs relatively long. Coxae long and thick, with stiff apical setae. Femora, especially hindfemur, thick. Foretibia shortened; mid- and hindtibiae slightly curved, with 3 rows of very long, stiff setae and 2-3 rows of small setae. Tibial spurs long, outer about 2/3 as long as inner.

Wing (Fig. 1.3) narrow, without anal lobe. Membrane bearing microtrichiae. Costa not surpassing tip of R₅; Sc ending in C; Sc₂ present, before tip of Sc; radial veins gradually thinning toward tips; proximal part of Rs horizontal. Stem of medial fork short. Crossvein r-m vertical. Cu₁ weakly curved. C, Sc, R₁, and R₅ with numerous long setae. Stem of medial fork, M₂, and base of M₃₊₄ bare. M₁, tip of M₃₊₄, and Cu₁ bearing small setulae. Wings in resting position folded over each other longitudinally. Membrane with 2 sclerotized folds, between R₅ and M₁ and between M₂ and M₃₊₄. Halter with short stem and round club.

Abdomen thick, consisting of 7 visible segments, 7th in female strongly shortened. Abdominal segments covered with long dense setae and lanceolate scales. Male genitalia (Fig. 1.1) withdrawn into abdomen. Gonostyles elongate, attached to dorsolateral surface of gonocoxites. Aedeagus large, digitate. Female genitalia with long, stiff setae. Cerci single-segmented.

KEY TO SPECIES OF *ALLACTONEURA* De MEIJERE

- 1 (4) Abdomen unicolorous black or with triangular silvery areas on segments produced by scales.
- 2 (3) 2nd to 5th tergites of abdomen with lateral silvery areas. Fore- and mid-femora yellow with black tips; hindfemur black.
. *A. argenteosquamosa* (Enderlein).
- 3 (2) Abdomen unicolorous black; all femora black *A. Obscurata* (Walk.).
- 4 (1) Middle segments of abdomen with yellow transverse bands or yellow blotches on tergites.
- 5 (8) At least hindfemur unicolorous black.
- 6 (7) Femora black; face quadrate *A. nigrofemorata* De Meijere.

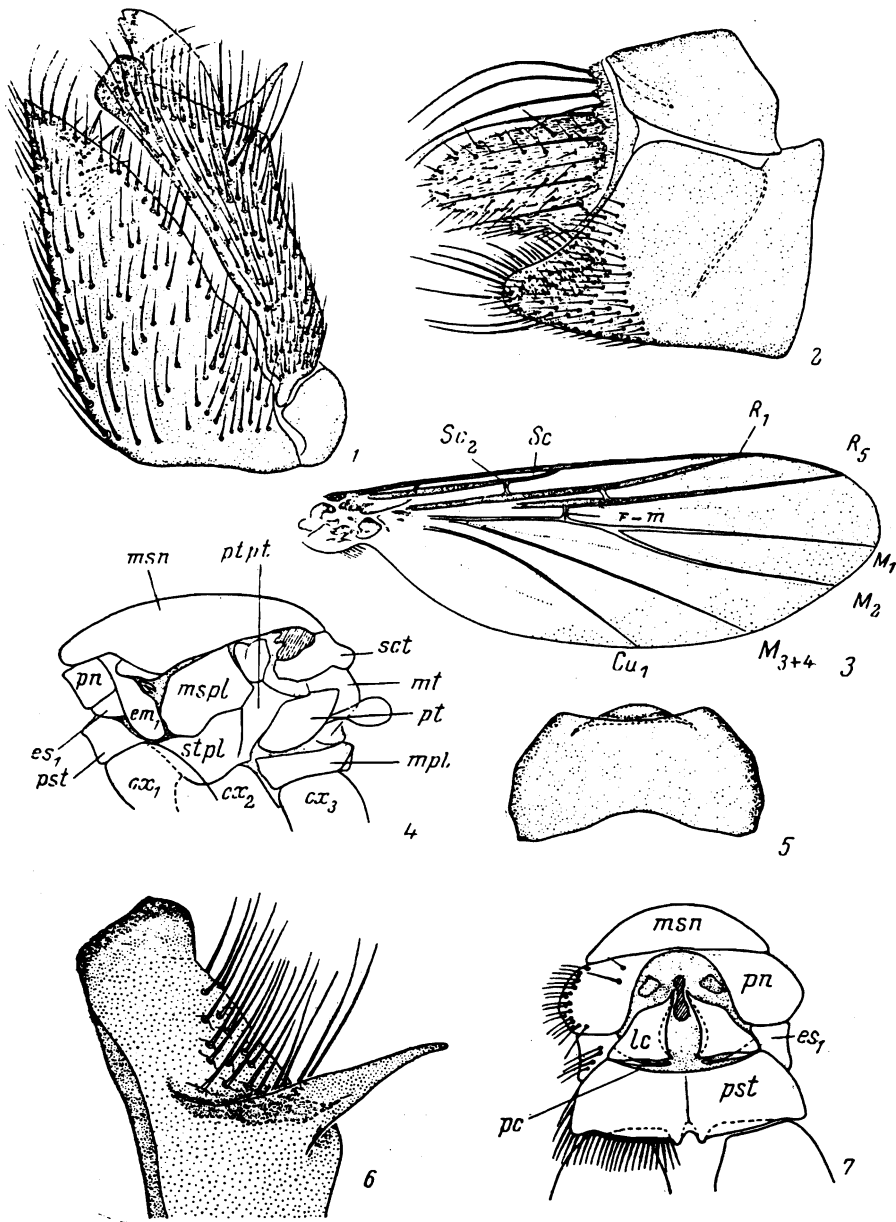


Fig. 1. *Allactoneura ussuriensis*, sp. n.

1.1 - male genitalia in profile; 1.2 - female genitalia in profile; 1.3 - wing; 1.4 - thorax in profile; 1.5 - female 8th tergite; 1.6 - male gonostyle in mesal view; 1.7 - thorax in anterior view. cx₁, cx₂, cx₃ - fore-, mid-, and hindcoxae; em₁ - proepimeron; es₁ - proepisternum; lc - lateral cervical sclerite; mpl - metapleuron; mspl - mesopleuron; mt - mediotergite; pc - posterior cervical sclerite; pn - dorsal part of pronotum; pst - prosternum; pt - pleurotergite; ptst - pteropleuron; sct - scutellum; stpl - sternopleuron.

7 (6) Fore- and midfemora yellow with black tips, hindfemur black; face elongate
 *A. cineta* De Meijere.

8 (5) All femora yellow with black tips.

9 (10) Male gonostyle with broad, blunt tip Fig. 1.1, 1.6)
 *A. ussuriensis*, sp. n.

10 (9) Male gonostyle with decidedly constricted tip (Fig. 3.1, 3.2).
. *A. formosana* (Enderlein).

Allactoneura argenteosquamosa (Enderlein).

Scottella argenteosquamosa Enderlein, 1910: 61.

Characters used in the original description were used in constructing the key.

It is well distinguished from other species in the genus by the presence of silvery spots on the mesonotum and abdominal tergites, as well as by leg color.

The species is known from Tanzania, the Seychelles, Mauritius, Sri Lanka, India, Malaysia, Thailand (Tuomikoski, 1966), and Madagascar (Stuckenberg, 1960).

Allactoneura cincta De Meijere.

Allactoneura cincta De Meijere, 1907: 202.

Male. Length of body 4.8 mm, of wing 3.8 mm. Hindmargin of head with 30 long, strong setae. Vertex and front shining, dark brown. Face shining, bright brown. Its length and breadth as 3 : 2. Clypeus bright brown, oval. Mouth parts and basal segment of palpus brown; remaining segments of palpus yellow. Antenna bicolored, scape and 3 basal flagellar segments yellow, remaining segments dark brown. Length of middle segments of flagellum a little greater than their breadth.

Thorax dark brown, almost black. Pleura and mesonotum with silvery sheen. Forelegs yellow, only trochanters and base and tip of femora black. Tarsi brownish. Lengths of foretibia and basal segment of foretarsus as 4 : 3; lengths of foretarsal segments as 3.0 : 1.8 : 1.3 : 0.8 : 0.8. Midlegs yellow; only base of coxae, trochanters, and apical 1/3 of femora black. Lengths of midtibiae and basal segment of midtarsus as 5.6 : 3.7; lengths of tarsal segments as 3.7 : 2.2 : 1.7 : 1.2 : 0.8. Hindlegs yellow, only base of coxae and femora black. Lengths of hindtibia and basal segment of hindtarsus as 6.8 : 3.5; lengths of hindtarsal segments as 3.5 : 2.2 : 1.7 : 1.2 : 0.9. Midtibia with 1-4 anterior (a), 4-5 anterodorsal (ad), 5-6 dorsal (d), 4-8 posterodorsal (pd), and 3-7 ventral (v) setae. Hindtibia with 0-3 a, 4-9 ad, 6-7 d, 6-10 pd, 6 p, and 1-5 v setae. Wing yellowish, with darkened apical 1/3. Veins dark. Halter whitish yellow.

Abdomen black, 4th tergite with broad yellow band along anterior margin, 3rd and 4th sternites yellow. Genitalia bright-colored (Fig. 2.1-2.3). Gonostyle with pointed tip (Fig. 2.3).

Female. Length of body 4.6 mm, of wing 4.2 mm. Coloration similar to that of male. Genitalia as in Fig. 2.5. Abdominal tergite 8 with truncated hindcorners (Fig. 2.4).

From other species of the genus *A. cincta* is well distinguished by the color of the abdomen and hindfemur, the lack of strong spines on the inner surface of the gonocoxites (Fig. 2.2), as well as the structure of the male gonostyles (Fig. 2.3) and the female 8th tergite (Fig. 2.4). The coloration evidently may vary. Edwards (1928) determined a single specimen with yellow basal part of hindfemur as *A. cincta*. This, however, needs checking.

Material. Holotype: ♂ with label "Java, Semarang, II.III.1906, Jacobson"; 2 ♂, 3 ♀, Java, collections of E. Jacobson and W. Roepke; 1 ♀, Krakatau Island

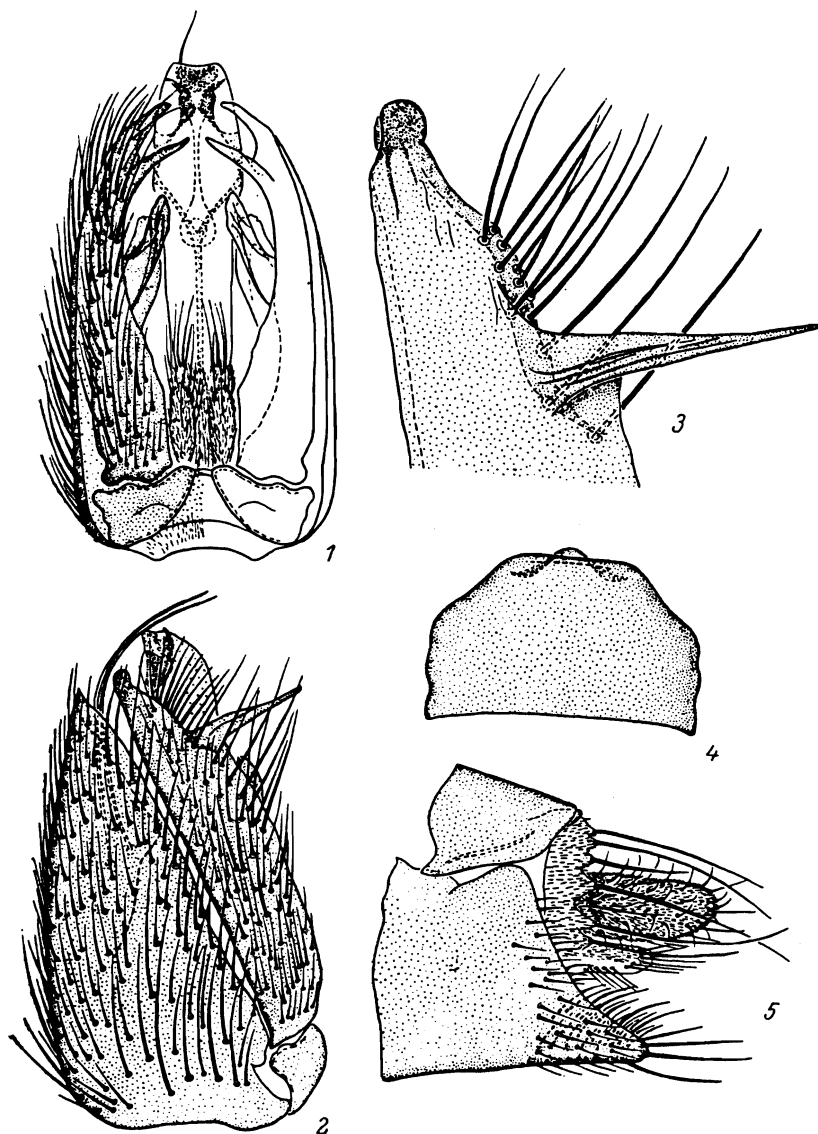


Fig. 2. *Allactoneura cincta* De Meijere.

2.1 - male genitalia from above; 2.2 - same in profile; 2.3 - male gonostyle, mesal view; 2.4 - female 8th tergite; 2.5 - female genitalia in profile.

(without indication of collector) (Instituut voor Taxonomische Zoölogie, Amsterdam, Netherlands, det. De Meijere); 1 ♀ with label "Jawa, Buitenzorg, 26.VII.07, O. John" (Zoological Institute of the Acad. Sci. USSR, Leningrad).

The species occurs in India, Nepal, Sri Lanka (Brunetti, 1912), Malaysia (Edwards, 1928), Mentawai Island (Tuomikoski, 1966), Java (De Meijere, 1907, 1913, 1924), Krakatau Island, and in the Philippines (Edwards, 1929).

Allactoneura formosana (Enderlein).

Scottella formosana Enderlein, 1910: 63.

Male. Length of body 5.0 mm, of wing 4.2 mm.

Posterior margin of head with 26 long stiff setae. Vertex and front dark brown, nearly black, shining. Face brown, its length to width as 5 : 4. Clypeus

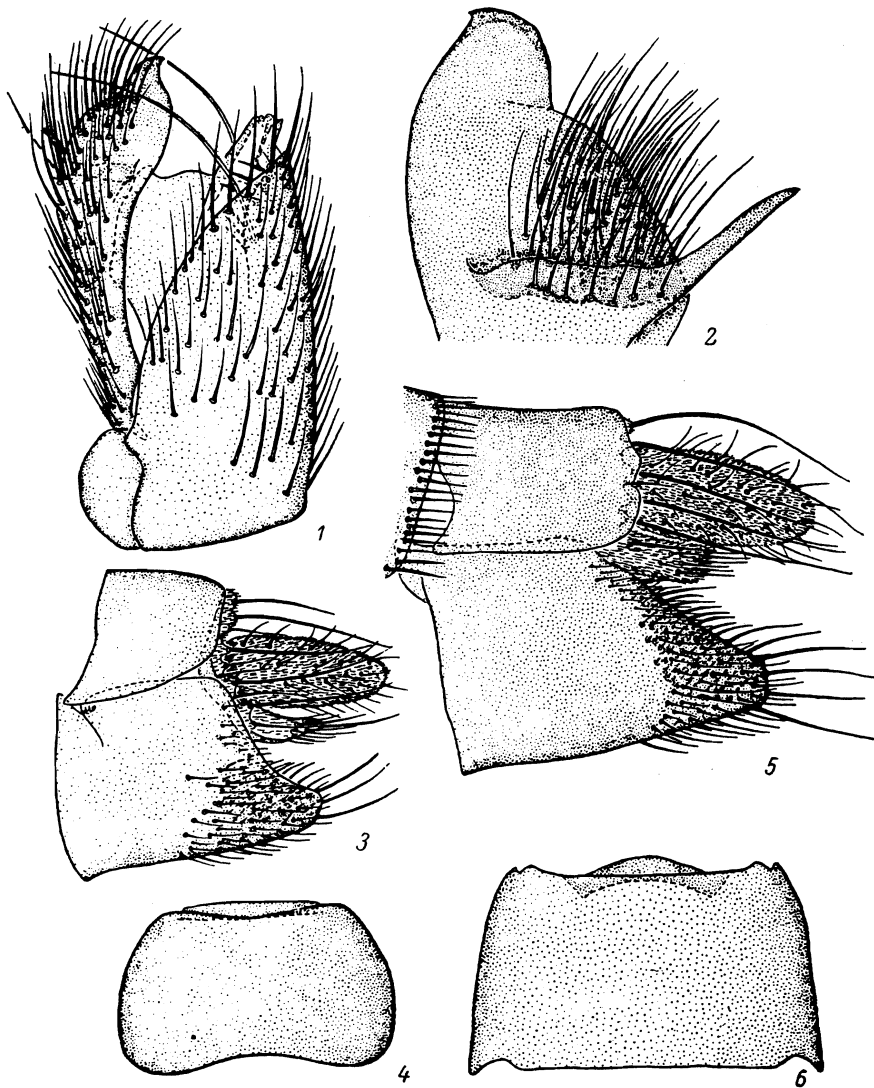


Fig. 3. *Allactoneura formosa* (Enderlein): 3.1 - male genitalia in profile; 3.2 - male gonostyle in mesal view. *A. nigrofemorata* De Meijere: 3.3 - female genitalia in profile; 3.4 - female 8th tergite. *A. obscurata* (Walk.): 3.5 - female genitalia in profile; 3.6 - female 8th tergite.

dark brown, with black setae. Palpus yellow, only basal segment brown. Antenna bicolored, scape and 2 basal flagellar segments yellow, remainder dark brown. Median flagellar segments with length to width as 5 : 3.

Thorax dark brown, almost black. Mesonotum with fatty sheen. Pleura shining. Coxae yellow, only mid- and hindcoxae dark basally. Femora yellow with black tips. Hindfemur also with basiventral dark streak. Lengths of tibiae and their corresponding basal tarsal segments as 3.1 : 3.0; 6.1 : 3.8; 7.0 : 3.7. Lengths of segments of fore-, mid-, and hindtarsi as 3.1 : 1.5; 1.4 : 0.9 : 0.9; 3.8 : 2.5 : 1.8 : 1.2 : 0.8; 3.7 : 2.3 : 1.7 : 1.2 : 1.0. Midtibia with 2-3 a, 3-5 ad, 5-8 d, 5-6 pd, 4-6 p, 0-6 v. Hindtibia with 2-3 a, 4-5 ad, 5 d, 6-7 pd, 5-6 v. Wing hyaline, yellowish, apical 1/4 darkened. Veins dark brown. Halter yellow.

Abdomen black; 4th tergite with yellow basal crossband; 2nd sternite with triangular yellow blotch on hindmargin, 3rd and 4th sternites yellow. Genitalia (Fig. 3.1) bright-colored. Gonostyles (Fig. 3.2) with pointed tips.

Female. According to original description (Enderlein, 1910), similar to male. Triangular yellow blotch on 2nd abdominal sternite lacking. Length of body about 5 mm, of wing 4.8 mm.

A. formosana differs from other species of the genus in leg color, as well as structure of the male genitalia.

Material. 1 ♂ with label "Java, Nongkodjardjar, Jan. 1911, E. Jacobson"; 1 ♂ with label "Java, Jacobson" (Instituut voor Taxonomische Zoölogie, Amsterdam, Netherlands, det. De Meijere).

The species is known so far from Java and Taiwan (Enderlein, 1910).

Allactoneura nigrofemorata De Meijere.

Allactoneura nigrofemorata De Meijere, 1913: 322.

Female. Length of body 4.9 mm, of wing 5.0 mm.

Posterior margin of head bearing 30 long, stiff setae. -Vertex and front dark brown, shining. Face dark brown, as long as wide. Clypeus brown. Mouthparts and palpus yellow. Antenna bicolored; scape and 2 basal flagellar segments yellow, remainder dark brown. Medial flagellar segments as long as wide.

Thorax dark brown, almost black. Mesonotum with silvery sheen. Pleura shining. Coxae yellow, only bases of mid- and hindcoxae dark brown. Femora unicolorous black. Tibiae and tarsi dark brown. Lengths of tibiae and basal tarsal segments as 3.2 : 3.1 ; 5.7 : 3.8; 7.5 : 3.4. Lengths of tarsal segments of fore-, mid-, and hindlegs as 3.1 : 1.8 : 1.6 : 0.9 : 0.9; 3.8 : 2.4 : 1.5 : 1.2 : 1.0; 3.4 : 2.3 : 1.6 : 1.2 : 1.0. Midtibia with 1-4 a, 4-5 ad, 5-6 d, 6 pd, 2-4 p, 5-6 v. Hindtibia with 1-2 a, 5-7 ad, 6-8 d, 9 pd, 4-5 v. Wing yellowish, with indistinct short dark crossband before tip. Veins dark brown. Halter yellow.

Abdomen black; 4th sternite with broad yellow anterior band which on 4th tergite forms 2 lateral blotches. Genitalia as in Fig. 3.3. Tergite 8 with shallow posterior emargination (Fig. 3.4).

Male unknown.

A. nigrifemorata is well distinguished from other species by color of femora and abdomen.

Material. Holotype ♀ with label "Nongkodjardjar, Jan. 1911, E. Jacobson"; 1 ♀ with label "Sumatra, Aut Kumanis, III.1914, E. Jacobson" (Instituut voor Taxonomische Zoölogie, Amsterdam, Netherlands, det. De Meijere).

The species is known from Sumatra and Java.

Allactoneura obscurata (Walk.).

Mycetophila obscurata Walker, 1865: 130.

Female. Length of body 5.5 mm, of wing 4.3 mm.

Posterior margin of head with 36 long stiff setae. Vertex and front dark brown, almost black, shining. Face dark brown, elongate, its length almost twice

its width. Clypeus bright brown. Palpus with 3 basal segments dark brown, apical segment yellow, brown only at base. Antenna dark brown, scape and 1st flagellar segment brighter-colored. Length of median flagellar segments about equal to their width.

Thorax black. Mesonotum with fatty sheen, pleura shining. Coxae bicolored, basal half dark brown or black, apical half yellow. Femora black; tibiae and tarsi dark brown. Lengths of tibiae and basal segment of corresponding tarsi as 3.7 : 3.2; 6.5 : 4.4; 8.0 : 4.3. Lengths of segments of fore-, mid-, and hind-tarsi as 3.2 : 1.9 : 1.5 : 1.0 : 0.8; 4.4 : 2.5; 2.0 : 1.5 : 1.0; 4.3 : 2.5; 2.2 : 1.5 : 1.0. Midtibia with 4 ad, 7 d, 6 pd, 6 v; hindtibia with 5 ad, 6 d, 7 pd, 7 v. Wing yellowish, anterior parts darkened. Veins dark. Halter yellow.

Abdomen unicolorous black, shining. Genitalia as in Fig. 3.5. Tergite 8 (Fig. 3.6) with nearly straight posterior margin.

A. obscurata differs sharply from other species of the genus in coloration of abdomen and femora.

Material. 1 ♀ with label "Buru, Station 9, 22.V.1925, L.J. Toxopeus" (Instituut voor Taxonomische Zoölogie, Amsterdam, Netherlands, det. F.W. Edwards).

The species was described from Salawati (Salwatty; Walker, 1865); it has been found also in northern Kalimantan, Sulawesi Island, the Solomons, Australia (northern Queensland; Tuomikoski, 1966), Sula, and Buru (Edwards, 1926).

Allactoneura ussuriensis A. Zaitsev, sp. n.

Male. Length of body 5 mm, of wing 4.3 mm.

Posterior margin of head with 32 long, stiff setae. Vertex and front black, shining. Face dark brown, its length and width as 5 : 4. Clypeus bright brown. Mouthparts and palpus yellow. Antenna dark brown, only scape yellow. Length of median flagellar segments to width as 11 : 8.

Thorax black. Mesonotum with silvery sheen. Pleura shining. Coxae yellow, only base of mid- and hindcoxae black. Femora yellow, black in apical 1/3. Tibiae and tarsi brown. Lengths of tibiae and corresponding basal tarsal segments as 3.5 : 3.2; 5.6 : 3.9; 7.3 : 3.6. Lengths of segments of fore-, mid-, and hind-tarsi as 3.2 : 1.9 : 1.4 : 0.9 : 0.9; 3.9 : 2.3 : 1.8 : 1.2 : 1.2; 3.6 : 2.2 : 1.9 : 1.3 : 1.3. Midtibia with 2-3 a, 3-4 ad, 6-7 d, 6-7 pd, 4-5 p, 5-7 v. Hindtibia with 3 a, 5 ad, 6-9 d, 7-10 pd, 5-7 v. Wing hyaline, apical 1/3 darkened. Halter whitish yellow.

Abdomen black; 4th tergite with broad yellow anterior band divided by narrow extension of black band into two; 3rd and 4th sternites yellow, with narrow black posterior margin broadened laterally. Genitalia (Fig. 1.1) bright-colored. Gonostyles (Fig. 1.6) with broad, blunt tips.

Female. Similar to male. Longitudinal stripe on 4th tergite dividing yellow band broader than in male; 3rd sternite black, sometimes with bright-colored lateral spots; 4th sternite with broad yellow crossband. Genitalia as in Fig. 1.2. Anterior margin of 8th tergite (Fig. 1.5) emarginate.

The species here described is very close to *A. formosana*, but differs sharply therefrom in the structure of the male genitalia.

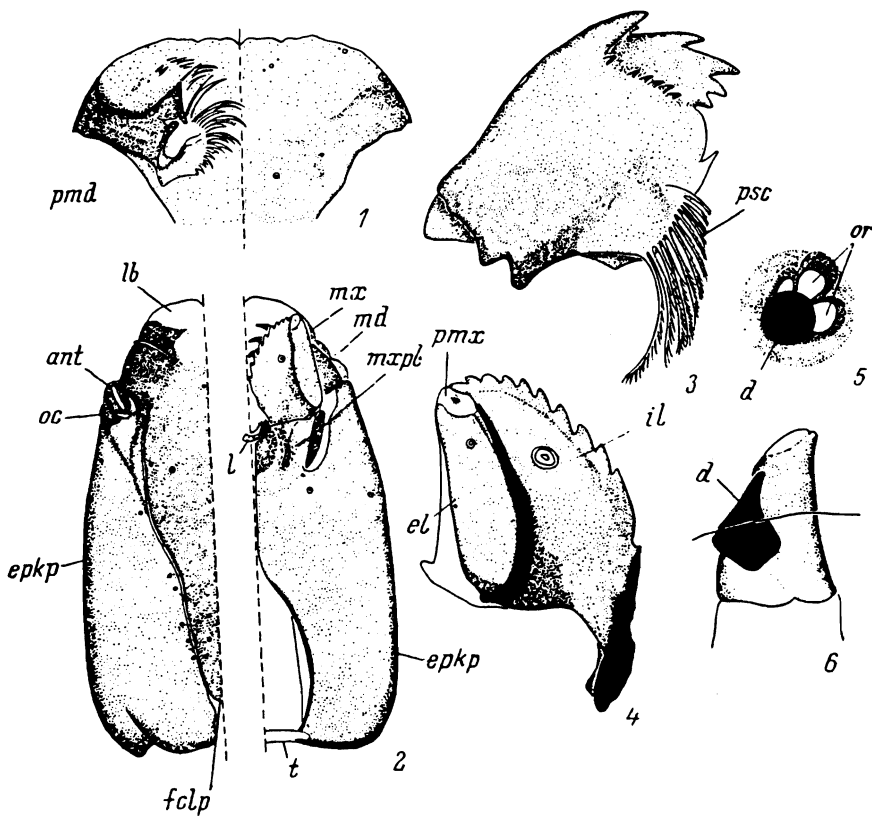


Fig. 4. *Allactoneura ussuriensis*, sp. n., larva. 4.1 - labrum (ventral view at left, dorsal view at right); 4.2 - head capsule (dorsal view at left, ventral view at right); 4.3 - mandible; 4.4 - maxilla; 4.5 - prothoracic spiracle from above; 4.6 - same in profile. ant - antenna; d - ecdysial scar; el - exterior lobe of maxilla; epkp - epicranial plate; fclp - frontoclypeal plate; il - interior lobe of maxilla; l - labium; lb - labrum; md - mandible; mx - maxilla; mxpl - maxillar plate; oc - ocellus; or - spiracular orifice; pmd - premandible; pmx - maxillary palpus; psc - prostheca; t - tentorial bridge.

Larva. Length of body of mature larva 15 - 18 mm; head capsule 1.7 - 2.2 mm long, 1.1 mm wide.

Head capsule strongly sclerotized, shining black, gently tapering forward (Fig. 4.2). Frontoclypeal plate sharply tapering posteriorly considerably short of reaching posterior margin of head capsule, bearing 6 small round sensilla each side of midline. Epicranial plate bearing 6 round sensilla on dorsal surface along frontal suture, a single round sensillum on anterolateral surface, and 4 round sensilla on ventral surface near anterior edge. Hindmargin of epicranial plate with small lateral emarginations. Ventral side of epicranial plate bridged across in anterior half and diverging to posterior margin of head capsule. Posteroventral margin conjoined by narrow, transparent tentorial bridge. Maxillar plate not completely separated from anteroventral margin of epicranial plate. Antenna (Fig. 4.2) strongly reduced; a single segment consisting of narrow piece of thick cuticle. Ocelli small, rounded, placed laterad of antenna. Labrum (Fig. 4.1) membranous, transparent, its base strongly sclerotized dorsally; dorsal surface bearing 8 round sensilla symmetrically placed on either side of midline. Dark, elongate, 2-branched premandible joined to lower side of labrum. Flattened, pointed processes adjoin anterior branch of premandible. Posterior

branch of premandible furnished with longer and broader mesally directed unguiform platelets. Mandible (Fig. 4.3) with 6 pointed teeth along inner margin and transparent pointed process on medial surface. Dorsal plate with 6 pointed accessory teeth. Protheca formed of 12 flat, elongate platelets with fimbriate anterior edges. Outer and ventral surfaces of mandible bearing 1 large, oval sensillum. Maxilla (Fig. 4.4) flat, strongly sclerotized. Outer lobe of maxilla with 2 round sensilla and small sensory field representing rudiment of maxillary palpus. Inner lobe of maxilla with 10 teeth directed anteriorly and with a large round sensillum. Hypopharynx formed of greatly elongate, dark, dorsal and ventral sclerites. Hind-margins of dorsal sclerites membranous, furnished with rows of small denticles. Labium consisting of small rectangular plate. Sclerite encircling pharynx narrow and arcuate.

Body integument transparent. Segments cylindrical, elongate, without any supporting structure. Tracheal system of peripneustic type. Prothoracic spiracle (Fig. 4.5, 4.6) with 3 orifices emerging from cone projecting above body surface. Abdominal spiracles considerably smaller than those of prothorax.

The larvae develop on the surface of various wood-disintegrating fungi [*Cori-olus versicolor* (Fr.) Quel., *Laetiporus sulphureus* (Fr.) Bond., *Fellinus* sp., etc.]. They are most often found on the hymenophores of the fruiting body. The larvae are extremely active, moving about on mucous strands. They often occur together with larvae of other mycetophiloid flies, for example *Sciophila rufa* Meig. They feed as zoomycetophages. They pupate on the surface of the fungi, as free pupae with strongly sclerotized integument attached to the substrate by means of mucous filaments.

Material. Holotype: ♂, Primorye Region, Lazo District, Sokol'chi, 29.VII.1979, from larva found on surface of *Cori-olus versicolor* on willow, imago emerging 2.VIII.1979. Paratypes: 1 ♂, 5 ♀, same label; 1 ♂, 5 ♀, same, 11.VII.1979, from larvae found on *C. versicolor* on birch, imago emerging 28.VII.1979; 1 ♀, same, 14.VII.1979, from larva found on *Fomitopsis* sp. on alder, imago emerging 22.VII.1979; 1 ♀, same, 3.VIII.1979, from larva found on *C. versicolor*; 1 ♀, same, 26.VII.1979; 1 ♀, same, 21.VIII.1979, from larva found on fungus on willow; 1 ♂, 1 ♀, same, 3.VIII.1979, from larvae found on *C. versicolor* on alder, imago emerging 17.VIII.1979; 3 ♂, same, 9.VIII.1979, from larvae found on *Laetiporus sulphureus*, imago emerging 13.VIII.1979 (all collected by author); 2 ♀, Primorye Region, Ussurian Reserve, 8.IX.1968, from larvae found on old carpophores of *Pleurotus citrinopileatus* Sing. (N.P. Krivosheina); 1 ♀, same, 23.V.1969 (N.P. Krivosheina). Holotype and 2 paratypes (♂ and ♀) in Zoological Institute of the Academy of Sciences of the USSR in Leningrad. Remaining material in the collections of the A.N. Severtsov Institute of Evolutionary Morphology and Ecology of Animals of the Academy of Sciences of the USSR in Moscow.

A. ussuriensis, sp. n. is the only species of its genus noted so far in the Palearctic Region.

POSITION OF THE GENUS *ALLACTONEURA* DE MEIJERE WITHIN THE SUPERFAMILY MYCETOPHILOIDEA

Most authors have noted the uniqueness of the mycetophiloid flies of the genus *Allactoneura*. Some of these (Rodendorf, 1946; Brues et al., 1954) have even erected a special family Allactoneuridae. It should, however, be pointed out that such distinction partially is contained in the presence of a series of characteristics of clearly apomorphic rank. Among such should be placed the head structure, which in shape recalls the head of higher flies (Edwards, 1925), the

the scaly integument of the mesonotum and abdomen, and the presence on the membrane of the wing of sclerotized folds by which the wing is folded longitudinally. These folds in several cases (De Meijere, 1907; Enderlein, 1910) have been erroneously interpreted as persistent veins, which has led to misunderstanding in attempts to analyze the familial relationships of *Allactoneura*. Thus, the genus has been aligned with *Mesochria* Enderlein (Enderlein, 1910). However, this latter genus on characters of wing venation (especially the branching of the radial sector and the position and direction of Cu_1) is sharply distinguished from *Allactoneura* and is clearly close to forms included in the Anisopodidae (De Meijere, 1943). Rodendorf (1946), relying on erroneous figures of the wing venation of *Allactoneura* presented in several works (De Meijere, 1907; Johannsen, 1909), placed the genus close to a whole series of fossil forms from Jurassic deposits. Subsequently these fossil mycetophiloids were relegated to a separate family Fungivoritidae (Rodendorf, 1957, 1964). Hennig (1954, 1955) indicated that these forms are remote from the recent *Allactoneura*.

Edwards (1925) aligned *Allactoneura* with *Manota* Will. and put them together in the subfamily Manotinae, indicating, however, that there are substantial differences between the 2 genera. Detailed study of the wing venation of both genera (Hennig, 1955) and of the structure of the thoracic sclerites (Shaw & Shaw, 1951) showed considerable separation between *Allactoneura* and *Manota*.

At present the consensus is with some reservation to include the genus in the tribe Leiini. Tuomikoski (1966) considers that more extreme development of characters distinctive of this tribe are found in representatives of the genus, and aligns them with *Greenomyia* Brunetti and *Procycloneura* Edw. However, *Greenomyia* in both wing venation and details of thoracic structure is often close to the typical genus of the tribe, *Leia* Meig., and therefore the rapprochement of *Allactoneura* and *Greenomyia* is scarcely justified. Matile (1978) notes that in working up a revision of the tribe Leiini the genus *Allactoneura* can be considered outside its limits. However, it may now be remarked that the wing venation of species of *Allactoneura* have a series of substantial differences from the type of venation characteristic of the Leiini. Flies of this tribe have a distinctively short R_1 and almost horizontally placed r-m (Edwards, 1925). In *Allactoneura* (Fig. 1.3), on the contrary, R_1 is rather long and r-m is very short and vertical. Furthermore, characteristically present is the horizontal proximal part of R_s (before r-m), which is completely lacking in all representatives of the Leiini. Details of the structure of the thoracic sclerites also indicate removal of *Allactoneura* from proper Leiini (*Leia*, *Greenomyia*, *Neoclastobasis* Ostr.). The suture between mesopleuron and sternopleuron in *Allactoneura* is rather well developed in its anterior parts and hardly noticeable posteriorly. In representatives of the Leiini (e.g., *Leia*, *Greenomyia*), this suture, on the contrary, fades away in its anterior part, and in *Anomalomyia* Hutton is preserved only in its posterior part (Shaw & Shaw, 1951). The sternopleuron and pteropleuron in *Allactoneura* are not completely separated, which is not seen in representatives of the Leiini. And finally, an extremely distinctive peculiarity is the strong development of the proepimeron and the prosternum, part of which is found on the lateral surface of the thorax (Fig. 1.4).

At present because of the lack of data on larvae of most representatives of the Leiini, it does not seem feasible to give an exhaustive summary of the pre-imaginal stages of these flies. However, in a series of works (Madwar, 1937; Plassmann, 1972; Zaytsev, 1979) there is cited as one characteristic trait of them the weak development of notches on the hindmargin of the epicranial plate. In *Allactoneura* larvae such notches are quite distinctly developed. Furthermore, some reduction of the frontoclypeal plate is characteristic; it does not reach

the hindmargin of the head capsule by a rather broad interval (Fig. 4.2). A similar reduction of the frontoclypeal plate in larvae of mycetophiloid flies is connected by some authors (Plachter, 1979) with increased mobility of the larvae.

In this way, the genus *Allactoneura* is sufficiently isolated from representatives of the tribe Leini both by a whole complex of characters of the imago and of the larva. In this connection it is submitted as expedient to consider the subject genus as a separate tribe Allactoneurini (as was proposed by Shaw & Shaw, 1951). However, these authors erroneously referring to the lack of a suture between mesopleuron and sternopleuron and counting this character as one of the characters of the new tribe, placed *Allactoneura* next to *Procycloneura*. Judging by the figure of the wing venation (Johannsen, 1909) and the structure of the thoracic sclerites (Shaw & Shaw, 1951), the genus *Allactoneura* is apparently close to the New Zealand genus *Cycloneura* Marshall.

Now then, the tribe Allactoneurini includes only the one genus *Allactoneura*, characterized by the following: Sc long, ending in C; Sc₂ present; Rs with well-developed proximal part; r-m short, vertical; proepimeron and lateral part of prosternum strongly developed; mesonotum and abdomen with flat, lanceolate scales.

LITERATURE CITED

- BRUES, C.T., AL.L MELANDER, and F.H. CARPENTER. 1954. Classification of Insects. Bull. Mus. Comp. Zool., Harvard Univ. 73. 672 p.
- BRUNETTI, E. 1912. Diptera Nematocera. Fauna Brit. India 28. 581 p.
- COLLES, D.D. and Z. LIEPA. 1973. Family Mycetophilidae. IN: Delfinado, M.C., and D.E. Hardy, A catalog of the Diptera of the Oriental Region 1: 444-463.
- DE MEIJERE, J.C.H. 1907. Studien über südostasiatische Diptera. 1. Tijdschr. Entomol. 50 (4): 196-264.
- DE MEIJERE, J.C.H. 1913. Idem, VII. Tijdschr. Entomol. 56: 317-355.
- DE MEIJERE, J.C.H. 1924. Idem, XVI. Tijdschr. Entomol. 67: 197-224.
- EDWARDS, F.W. 1925. British fungus-gnats (Diptera, Mycetophilidae). With a revised generic classification of the family. Trans. Entomol. Soc. London 1924: 505-670.
- EDWARDS, F.W. 1926. Fauna Buruana. Diptera, Nematocera. Treubia 7 (2): 134-144.
- EDWARDS, F.W. 1928. Diptera Nematocera from the Federated Malay States Museum. J. Feder. Malat St. Mus. 14 (1): 1-139.
- EDWARDS, F.W. 1929. Philippine Nematoceros Diptera, III. Not. Entomol. 9: 70-81.
- ENDERLEIN, G. 1910. The Percy Sladen Trust Expedition to the Indian Ocean in 1905, III. 5. Diptera, Mycetophilidae. Trans. Linn. Soc. London (ser. 2, Zool.) 14 (1): 59-81.
- HENNIG, W. 1954. Flügelgeäder und System der Dipteren. Beitr. Entomol. 4: 275-388.

- HENNIG, W. 1955. Das Flügelgeäder der Gattung *Allactoneura*. Beitr. Entomol. 5 (1/2): 127-128.
- JOHANNSEN, O.A. 1909. Diptera, Fam. Mycetophilidae. IN: Wytzman, P., Genera Insectorum 93. 141 p.
- MADWAR, S. 1937. Biology and morphology of the immature stages of Mycetophilidae (Diptera, Nematocera). Phil. Trans. R. Soc. London (ser. B) 541, 227: 1-110.
- PLACHTER, H. 1979. Zur Kenntnis der Präimaginalstadien der Pilzmücken (Diptera, Mycetophiloidea). Teil II: Eidonomie der Larven. Zool. Jahrb., Abt. Anat. Ontol. Tiere 101 (3): 271-392.
- PLASSMANN, E. 1972. Morphologisch-taxonomische Untersuchungen an Fungivoridenlarven. Deut. Entomol. Zts. 19 (1/3): 73-99.
- RODENDORF, B.B. 1946. Evolution of the wing and phylogenetics of Nematocera Oligoneura (Diptera). Tr. Paleontol. Inst. 13 (2): 1-108. (In Russ.).
- RODENDORF, B.B. 1957. Paleontological research in the USSR. Tr. Paleontomol. Inst. 66: 1-102. (In Russ.).
- RODENDORF, B.B. 1964. Historical development of two-winged flies. Tr. Paleontol. Inst. 101: 1-311. (In Russ.).
- SHAW, F.R. and M.M. SHAW. 1951. Relationships of certain genera of fungus gnats of the family Mycetophilidae. Smithson. Misc. Coll. 117 (3): 1-23.
- STUCKENBERG, B.R. 1960. Records and descriptions of Diptera from Madagascar. Part 1. Anisopodidae and Mycetophilidae, genus *Allactoneura* de Meijere. Natur. Malgache 12 (1): 123-132.
- TUOMIKOSKI, R. 1966. On the subfamily Manotinae Edw. Ann. Entomol. Fenn. 32 (3): 211-223.
- WALKER, F. 1865. Descriptions of some new species of Dipterous insects from the island of Salwatty, near New Guinea. J. Linn. Soc. London (Zool.) 8: 130-136.
- ZAYTSEV, A.I. 1979. Xylophilous larvae of two-winged flies of the subfamily Sciophilinae (Diptera, Mycetophilidae). Entomol. Obozr. 58 (4): 861-869. (In Russ.).

A.N. Severtsov Institute of Evolutionary Morphology
and Ecology of Animals
Academy of Sciences of the USSR
Moscow