Reprinted from ENTOMOLOGICAL NEWS, Vol. LXXVIII, No. 7, July 1967
Printed in U. S. A.

New Exotic Crane-Flies (Tipulidae: Diptera). Part XIV

CHARLES P. ALEXANDER, Amherst, Massachusetts [1]

The preceding part under this title was published in ENTOMOLOGICAL NEWS, Vol. 77 (8): 217–225. The present paper continues the discussion of the Hexatomine crane-flies that were collected in various parts of India by Dr. Fernand Schmid to whom I extend my sincere thanks for these materials.

TAIWANOMYIA Alexander

Taiwanomyia Alexander; Philippine Jour. Sci., 22: 476–477; 1923 (type *fragilicornis*) (Riedel, 1916); Archiv für Naturgeschichte, Jahrg. 82, Abt. A, Heft 5: 112–113; 1916 (as *Taseocera*)—Formosa.

Troglophila Brunetti; Rec. Indian Mus., 26: 99–100; 1924 Type *cavernicola* Brunetti, 1924). India: Assam.

Esakiomyia Alexander; Ann. Mag. Nat. Hist., (9) 15: 73–75; 1924. (type *filicornis* Alexander, 1925). Japan: Honshu.

Taiwanomyia is a genus of moderate size with the greatest concentration of species in the Oriental region. The most important characters for the separation of species are to be found in the venation and in the length and structure of the male antennae.

Taiwanomyia brevicornis, new species

General coloration of thorax yellowed, pleura with a conspicuous dark brown dorsal stripe; antennae of male short, about one-third the wing; wings pale brown, R_{2+3} about twice R_2 cell M_1 present but small.

♂. Length about 4.5 mm; wing 4.8–5 mm.; antenna about 1.5–1.8 mm.

Rostrum yellow; palpi light brown. Antennae of male short, as shown by the measurements, about one-third the wing, dark

[1] Contribution from the Entomological Laboratory, University of Massachusetts.

brown; flagellar segments becoming progressively shorter outwardly, verticils appressed, very reduced, the longest about one-third to one-half the segments, the remaining vestiture very small to microscopic. Head brownish gray.

Pronotum obscure yellow, weakly darkened laterally; pretergites light yellow. Mesonotal praescutum with the very reduced ground pale brown, more evident anteriorly, behind indicated by pale brown interspaces, the disk with four virtually confluent reddish brown stripes; posterior sclerites brownish yellow. Pleura yellow, with a conspicuous dark brown dorsal stripe extending caudad from the propleura, becoming obsolete on the pteropleurite. Halteres pale brown, base of stem narrowly yellowed. Legs with coxae and trochanters light yellow, the remainder yellowish brown to pale brown. Wings pale brown, unpatterned, prearcular and costal fields slightly more yellowed; veins pale brown. Venation: Sc_1 ending just beyond fork of Rs; R_{2+3} about twice R_2; cell M_1 small, about one-fourth its petiole; *m-cu* at or shortly before the fork of M.

Abdomen dark brown, hypopygium more brightened.

Habitat. INDIA (Assam, Kumaon). *Holotype:* ♂, Sirhoi Kashong, Manipur, Assam, 7,500 feet, June 9, 1960 (Fernand Schmid). *Paratype*: ♂, Simra, Pauri Garhwal, Kumaon, 5,800 feet, October 2, 1958 (Fernand Schmid).

Taiwanomyia perpendicularis (Alexander) of northern Thailand has the male antennae slightly longer and with the vestiture, including both the verticils and the normal setulae, much longer and with the darkened pleural stripe scarcely indicated. The paratype of the present species has the antennae slightly longer but appears to be conspecific.

Taiwanomyia brevissima, new species

General coloration of thorax reddish brown, the pleura with a dorsal longitudinal blackened stripe; antennae of male very short, less than one-third the wing, vestiture of segments long and coarse; wings faintly yellowed, the stigma and a vague cloud over the anterior cord very pale brown, trichia of wing veins long and conspicuous; R_{2+3} oblique, subequal to the pale

transverse R_2; cell M_1 lacking, *1st* M_2 unusually long, M_{3+4} longer than M_4, *m-cu* close to the fork of M; male hypopygium with dististyles light brown.

♂. Length about 4 mm; wing 4.6 mm; antenna about 1.4 mm.

Rostrum and palpi light brown, remaining mouthparts more yellowed. Antennae unusually short, less than one-third the wing, dark brown; flagellar segments elongate-cylindrical, the terminal one longer than the penultimate, slightly enlarged, the vestiture much shorter than that of the more proximal segments where the coarse longer verticils are about one-third the segment. Head gray.

Pronotum light brown. Mesonotum almost uniform reddish brown to chestnut brown; pleura similar, with a blackened dorsal longitudinal stripe. Halteres obscure yellow. Legs with coxae and trochanters reddish brown; remainder of legs light brown, the vestiture very short and inconspicuous. Wings faintly yellowed, the stigma and a vague cloud over the anterior cord very pale brown; veins brown, their trichia long and conspicuous, black. Venation: R_{2+3} and R_2 subequal in length, the former oblique, the latter transverse, pale; cell *1st* M_2 unusually long, M_{3+4} longer than M_4; cell M_1 lacking; *m-cu* at or just before the fork of M.

Abdomen dark brown. Male hypopygium with the dististyles light brown, much paler than in *perpendicularis.*

Habitat. INDIA (Sikkim). *Holotype*: ♂, Yoksam, 5,600 feet, April 10, 1959 (Fernand Schmid).

The most similar species is *Taiwanomyia perpendicularis* (Alexander), of Thailand, which differs in details of length and structure of the male antennae, and in the venation. The male antennae are the shortest of any of the regional species, including *T. brevicornis,* new species, which has cell M_1 of the wings preserved.

Taiwanomyia hispivena, new species

General coloration of thoracic dorsum medium brown, the pleura more yellowish brown; wings light brown, macrotrichia of veins beyond cord long and conspicuous; *Rs* and R_{2+3+4} long, subequal; cell M_1 lacking; *m-cu* at fork of M.

♀. Length about 4.5 mm; wing 5 mm; antenna about 1.5 mm.

Rostrum light yellow: palpi brown. Antennae with scape and pedicel light yellow. flagellum black; flagellar segments of female cylindrical, setae conspicuous, including a single very long bristle on each segment, on the intermediate ones being nearly equal to the segment. Head with front and anterior vertex pale yellow, posterior part of head gray.

Pronotum brown above, yellow on sides. Mesonotum almost uniform medium brown, the pleura more yellowish brown. Halteres brown, base of stem narrowly pale. Legs with coxae and trochanters pale yellow; remainder brown, the tarsi slightly paler. Wings light brown, the prearcular and costal regions somewhat more yellowed; veins brown. Macrotrichia of veins beyond cord very long and conspicuous, nearly one-half the diameter of the adjoining cells; basad of cord with trichia on *M* and *Cu,* becoming smaller and finally lacking near origin. Venation: Sc_1 ending beyond level of *r-m,* Sc_2 near its tip; R_{2+3+4} long, subequal to *Rs*; R_{2+3} and R_{1+2} subequal; cell M_1 lacking; cell *1st* M_2 long-subrectangular, gradually widened outwardly; *m-cu* at fork of *M*.

Abdominal tergites brownish black, sternites paler. Ovipositor with cerci appearing as slender styletlike points.

Habitat. INDIA (Assam). *Holotype*: ♀, Kongai, Manipur, 3,900 feet, July 7, 1960 (Fernand Schmid).

Taiwanomyia hispivena is distinguished from most other regional species by the unusually long coarse macrotrichia of the wing veins, in conjunction with the loss of cell M_1. The only other regional species without this cell is *Taiwanomyia cavernicola* (Brunetti), still known only from the unique type male taken in the Siju Cave, Garo Hills, Assam, at 3,600 feet from the cave entrance. This likewise has the wing trichia coarse, differing in the venation, with *Sc* much shorter, Sc_1 ending at midlength of the wing instead of at near two-thirds the length as in the present fly, and with *m-cu* at some distance before the fork of *M*. Other venational details indicated by Brunetti for this species include vein R_{1+2} ending at three-fourths the wing, *Sc* shorter, and the more basal position of vein R_2.

Taiwanomyia pollosta, new species

General coloration of mesonotum dark brown, pleura with a broad brownish black dorsal stripe, yellowed ventrally; antennae of male very long, about one-half longer than the wing, flagellar segments long-cylindrical, the delicate vestiture shorter, much less than the stouter verticils; wings light brown, stigmal region vaguely more darkened, cell M_1 very small; male hypopygium with lateral apophyses appearing as small blades with acute tips.

♂. Length about 3.8–4 mm; wing 4.8–5.2 mm; antenna about 8–8.5 mm.

Rostrum brownish yellow; palpi brown. Antennae of male very long, about one-half longer than the wing and nearly twice the body, dark brown; flagellar segments long-cylindrical, setae appressed, setulae very short to virtually lacking. Head dull brown, the center of vertex slightly more pruinose.

Cervical region brownish black, pretergites light yellow. Mesonotum almost uniformly dark brown, without pattern. Pleura with a broad brownish black dorsal stripe from the cervical region to the postnotum, ventrally brownish yellow, the metapleura and adjoining areas light yellow. Halteres dusky. Legs with coxae and trochanters obscure yellow to brownish yellow, the remainder dark brown to brownish black. Wings light brown, the prearcular and costal regions more yellowed; stigmal region vaguely more darkened; veins brown. Veins with macrotrichia except near region of the arculus, basal section of Cu_1 glabrous except at outer end; macrotrichia much shorter than in *perretracta* and *perpendicularis*. Venation: *Sc* long, Sc_1 ending shortly beyond fork of *Rs*, Sc_2 near its tip; R_{2+3} oblique, about twice R_2; cell M_1 very small; *m-cu* at or shortly before fork of *M*, the extreme distance nearly one-half *m-cu*.

Abdomen brownish black. Male hypopygium with dististyles terminal; outer style nearly straight, bifid at apex, outer point a slender spine, lower blade broader. Phallosome pale, lateral gonapophyses appearing as small blades with acute tips.

Habitat. INDIA (Assam). *Holotype*: ♂, Ninghti, Manipur,

2,500 feet, July 30, 1960 (Fernand Schmid). *Paratopotypes*: 5 ♂♂, with the type.

The most similar species include *Taiwanomyia perpendicularis* (Alexander) and *T. sicula,* new species, which differ in details of coloration, venation and vein trichiation, and in hypopygial structure.

Taiwanomyia setulosa, new species

General coloration of thoracic notum brownish yellow, the posterior sclerites and pleura more yellowed; antennae of male short, a little less than the wing, flagellar segments with conspicuous outspreading delicate setae.

♂. Length about 4.5 mm; wing 5.2 mm; antenna about 4.8 mm.

Rostrum yellow; palpi brown. Antennae of male a little less than the wing; scape and pedicel testaceous yellow, flagellum brownish black; flagellar segments elongate-cylindrical, with abundant erect setae over the entire length, these longer than the stouter verticils or the diameter of the segment itself. Head brownish, slightly pruinose.

Pronotum brownish yellow. Mesonotal praescutum brownish yellow, with a vaguely indicated median darkening; posterior sclerites of notum and the pleura more yellowed. Halteres whitened, knob vaguely more darkened. Legs with coxae and trochanters yellow, the remainder brown. Wings light brown, prearcular and costal region more yellowed; veins light brown, more yellowed in the brightened fields. Venation: Sc_1 ending just beyond fork of *Rs*, Sc_2 slightly removed; R_{2+3} gently arcuated, about twice R_2; cell M_1 small; *m-cu* shortly before fork of *M*.

Abdominal tergites dark brown, paler outwardly, hypopygium more yellowed. Male hypopygium with dististyles terminal, outer style more slender than in related species.

Habitat. INDIA (Assam). *Holotype*: ♂, Phaiphengmun, Manipur, 2,157 feet, August 29, 1960 (Fernand Schmid).

Taiwanomyia setulosa is most similar to species such as *T. pollosta,* new species, and *T. sicula,* new species, differing evidently in the length and vestiture of the male antennae.

Taiwanomyia sicula, new species

Mesonotal praescutum dark brown, posterior sclerites variegated with yellow, pleura dark brown; antennae of male about one-half longer than the wing, vestiture of flagellar segments short; wings with vein R_{2+3} oblique to longitudinal in position; cell M_1 of moderate length.

♂. Length about 4.5–5 mm; wing 5–5.5 mm; antenna about 7–7.5 mm.

♀. Length about 5 mm; wing 5.5 mm.

Rostrum light brown, palpi slightly darker. Antennae of male very long, about one-half longer than the body or wing, dark brown; flagellar segments very long-cylindrical; major setae or verticils conspicuous, the abundant more delicate setae very small, almost microscopic, only a fraction of the size of the major setae. Head brownish gray.

Pronotum and mesonotal praescutum almost uniform dark brown; scutal lobes darkened, median area yellowed; scutellum dark brown, posterior border and parascutella brownish yellow; mediotergite brownish yellow on central portion, the remainder dark brown. Pleura dark brown, the meron and metapleura yellowed. Halteres light brown, base of stem narrowly yellow. Legs with fore coxae light brown, remaining coxae and all trochanters yellow; remainder of legs medium brown. Wings medium brown, stigma slightly darker; veins brown. Venation: R_{2+3+4} about three-fourths *Rs;* R_{2+3} oblique to longitudinal in position, from two to three times R_2; cell M_1 relatively small; *m-cu* at or just before fork of *M*.

Abdomen brownish black. Male hypopygium with dististyles terminal; outer style unequally bidentate at apex, the upper spine slender. Lateral gonapophyses appearing as narrow straight blades.

Habitat. INDIA (Kumaon, Sikkum). *Holotype*: ♂, Khumyara, Pauri Garhwal, Kumaon, 4,300–5,000 feet, May 4, 1958 (Fernand Schmid). Allotopotype: ♀, pinned with type. *Paratopotypes*: ♂♂, May 3 and 28, 1958. *Paratypes*: Dhar, Pauri Garhwal, 7,220 feet, August 17, 1958; ♂♂, Chumtang, Sikkim, 5,120 feet, July 18–23, 1959 (Fernand Schmid).

Taiwanomyia sicula is most similar to *T. pallosta,* new species, differing especially in the details of body coloration and venation.