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NEW EXOTIC CRANE-FLIES (TIPULIDAE: DIPTERA) PART XXIII¹

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The preceding part under this general title was published in Entomological News, vol. 83: 1-9. Of the five species described as new, three are from Assam, India, where they were collected by Fernand Schmid, the others being from Java where they were taken by the late Mrs. M. E. Walsh. I express my indebtedness to the collectors for their assistance in making known the vastly rich crane-fly fauna of these countries. Additional to the novelties I am providing figures of the male hypopygia and venation of various species of the genus *Cheilotrichia* from the Oriental region not previously illustrated and based on type materials preserved in the Alexander Collection.

Tipula (*Sinotipula*) *delfinadoae*, NEW SPECIES

Size large (wing of female 24 mm); general coloration of head and thoracic dorsum brownish yellow or light brown; vertical tubercle very slender, erect; thoracic pleura orange yellow; femora and tibiae brownish orange, tarsi brownish black; wings with proximal half and outer radial field chiefly orange yellow, posterior portions more darkened, variegated by yellow marginal areas; very small dark brown spots at arculus and on *Rs*, with a small paler brown area at midlength of cell *Cu*, veins light yellow, cell *1st M*₂ small; abdominal tergites yellowed, first segment and posterior borders of tergites two to six broadly brownish black, seventh and eighth segments orange.

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FEMALE—Length about 31 mm; wing 24 mm; antenna about 6 mm.

Frontal prolongation of head brownish orange; nasus elongate, pointed; palpi brownish yellow, terminal segment dark brown. Antennae with scape and pedicel light brown, flagellum more brownish orange; verticils very long. Head light brown; vertical tubercle very slender, erect.

Thoracic dorsum chiefly brownish yellow, the central praescutal stripes clearer yellow, humeral and lateral borders medium brown; scutum extensively yellowed, with a central darkening behind the suture, sides similarly darkened, scutellum and mediotergite more orange yellow; scutellum and anterior mediotergite with long delicate yellow setae; pleurotergite with lower cephalic portion elevated, light golden yellow pollinose. Pleura orange yellow, slightly infuscated on dorsal margin and below midlength of the sternopleurite, the latter extending posteriorly to the abdomen; dorsopleural membrane brownish yellow. Halteres obscure yellow. Legs with coxae brownish yellow, with long conspicuous yellow setae; trochanters brownish yellow; femora and tibiae brownish orange, the former with a vague clearer yellow subterminal ring; tarsi brownish black; claws long, simple. Wings (Fig. 1) with proximal half and outer radial field chiefly orange yellow, posterior portion more darkened, variegated by yellow marginal areas; very small dark brown spots at arculus, base and apex of *Rs*, and a very small area at midlength of cell *Cu*; broader paler brown markings include the wing apex and posterior margin, interrupted by yellow pattern in cells R_3 and R_5 and as small marginal brightenings in cells M_1 to M_3 , with two further such areas in cell *1st A*; cells M_4 , *Cu* and *2nd A* more uniformly darkened apically; conspicuous brown seams at *m-cu* and adjoining veins, including the basal section of M_3 and vein *Cu* in cells *M* and M_4 ; prearcular field uniformly bright yellow; veins conspicuously light yellow, including those in the darkened areas. Small trichia on radial veins, including *R*, R_1 , *Rs*, R_{2+3} , and R_3 except at outer end, other outer veins glabrous; a few longer trichia on outer fourth of vein *M* before the fork, posterior prearcular veins with comparable trichia; squamal setae conspicuous. Venation: *Rs* gently curved; cell *1st M*₂ small; *m-cu* on M_4 shortly beyond fork.

Abdominal tergites chiefly yellowed, first segment and posterior borders of tergites two to six broadly brownish black medially, sides yellowed; seventh and eighth tergites chiefly yellow; sternites more uniformly brownish yellow. Ovipositor with cerci long and nearly straight, dark orange.

HABITAT—India. Holotype ♀, Chug, Kameng, North East Frontier Agency, Assam, 6,800 - 7,300 feet, July 29, 1961 (Fernand Schmid).

This attractive fly is named for Dr. Mercedes Delfinado, accomplished student of the Oriental Diptera. We are greatly indebted to Miss Delfinado for her critical editing of the Alexander and Alexander sections of the forthcoming Oriental Catalogue of the Diptera covering the Tipulidae and certain smaller groups. Among the more than 30 regional species of the subgenus *Sinotipula* Alexander presently known the present fly is most similar to *Tipula (Sinotipula) hobsoni* Edwards, *T. (S.) krishna* Alexander and *T. (S.) rondaniana* Alexander, differing in various details of coloration of the body and especially the wings, as well as the venation.

Tipula (Vestiplex) schizophallus, NEW SPECIES

Size medium (wing of male 17 mm); general coloration of mesonotum yellow, praescutum with four brownish gray stripes that are partially margined with darker brown; femora brown, bases very narrowly yellowed; wings light brown, variegated by darker brown and whitened areas; abdomen with proximal four segments obscure orange yellow, outer segments uniformly brownish black; male hypopygium with apex of basistyle bispinous; outer dististyle unusually large, flattened, beak long and slender; phallosome with aedeagus depressed-flattened, apex deeply divided into two long parallel spines, penis unusually long and slender.

MALE—Length about 15 mm; wing 17 mm; antenna about 2.9 mm.

Frontal prolongation of head obscure yellow, nasus concolorous, tufted with long yellow setae, upper surface with smaller black setae; palpi brownish black, incisures vaguely paler. Antennae short; scape brown, pedicel light yellow, flagellum brown, first segment slightly paler; segments nearly cylindrical, subequal in length to their longest verticils, basal enlargements scarcely indicated, terminal segment small, globular. Head yellowed anteriorly, posterior vertex more pruinose; vertex with a narrow dark brown central stripe extending from between the antennal fossae to the occiput.

Pronotum yellow pollinose, laterally patterned with brown. Mesonotal praescutum yellow, with four brownish gray stripes that are narrowly margined with brown, most evident on inner borders; scutum yellow, each lobe with two brown confluent areas; scutellum yellow with a central brown line that ends some distance before posterior end, parascutella yellowed; postnotum yellow, anterior half of mediotergite more darkened, clear yellow posteriorly, with a narrow central line that widens behind. Pleura light yellow, vaguely patterned with darker anteriorly, dorsopleural membrane obscure brownish orange. Halteres with stem yellow, knob brown. Legs with coxae and trochanters yellow; femora brown, bases very narrowly yellowed, tips darker brown; tibiae dark brown; tarsi black, claws of male small, with a subbasal spine. Wings light brown, variegated by the darker brown stigma and more whitened areas; prearcular and costal fields darker yellow, wing apex uniformly of the ground color; veins darker brown. Venation: *Rs* about twice R_{2+3} ; *m* about twice the petiole of cell M_1 .

Abdomen with proximal four segments obscure orange yellow, with three diffuse brown stripes, basal sternites orange, basal tergite pruinose, outer segments uniformly brownish black. Male hypopygium (Fig. 7) with upper lobe of ninth tergite, *t*, low, obtuse, their mesal part with long black setae, lower tergal lobes near midline produced into a blackened rod, inner margin microscopically roughened. Ninth sternite, *9s*, with the appendage a short stout lobe, apex obtuse, with long yellow setae. Basistyle, *b*, bispinous at apex, outer spine large, the inner a small point. Outer dististyle, *d*, unusually large, flattened, beak long and slender, blackened, lower beak small obtuse to truncate; inner style a long-oval lobe with very abundant black setae from conspicuous punctures. Phallosome, *p*, with the distinctive aedeagus appearing as a depressed-flattened plate, the median structure more heavily sclerotized, apex profoundly divided into two long parallel spines; penis unusually long and slender.

HABITAT—India. Holotype ♂, Chug, Kameng, North East Frontier Agency, Assam, 6,800 - 7,300 feet, July 28, 1961 (Fernand Schmid).

There presently are known more than 40 regional members of the subgenus *Vestiplex* Bezzi, all differing from the present fly in details of hypopygial structure. The single most distinctive such feature in the present fly is the conformation of the aedeagus.

Pedicia (*Tricyphona*) *nigrocupis*, NEW SPECIES

General coloration of thorax light gray, praescutum with four dark brown stripes; legs light brown; wings brownish yellow, prearcular and costal fields clear light yellow, stigmal area not or scarcely darkened, cell 1st M_2 closed; abdomen black, male hypopygium with apex of lateral tergal arm narrowed at a right angle; dististyle compact; phallosome with inner mesal spines or gonapophyses small, decussate near tips, outer arms as figured, the posterior pair blackened.

MALE—Length about 7 mm; wing 7 mm; antenna about 1 mm.

Rostrum and palpi dark brown, terminal segment of latter shorter than the penultimate. Antennae short, 16-segmented, dark brown; proximal five flagellar segments crowded, ends truncated, remaining segments more oval, slightly shorter than their verticils. Head dark brown.

Pronotum gray. Mesonotal praescutum light gray with four dark brown stripes, the intermediate pair confluent anteriorly; posterior sclerites of notum light gray, each scutal lobe with two confluent brown areas. Pleura clear light gray. Halteres with stem yellow, knob infuscated. Legs with coxae gray to brownish gray; femora light brown, bases yellowed, remainder of legs, including tarsi, light brown. Wings brownish yellow, prearcular and costal fields clear light yellow, including the veins, remaining veins light brown; stigmal area not or scarcely indicated as a small pale suffusion. Longitudinal veins with trichia basad almost to the arculus. Venation: R_{1+2} slightly more than twice R_2 ; $r-m$ long, on R_{4+5} shortly beyond its origin; cell M_1 shorter than its petiole; cell 1st M_2 closed.

Abdominal tergites black, basal sternites dark brown. Male hypopygium (Fig. 8) generally as in the subgenotype (*immaculipennis* Zetterstedt). Ninth tergite, t , with lateral arms straight, apically bent at a right angle into a small point, outer margin of stem microscopically roughened. Dististyle, d , terminal, compact, suboval, the rostral portion only slightly produced, with long setae, two being much longer; body of style with abundant short blackened spinoid setae. Phallosome, p , with apex strongly emarginate; gonapophysis with inner or mesal spines small, decussate near tips, the outer lateral arms longer and stouter, the posterior one distinctly blackened.

HABITAT—India. Holotype: ♂, Chug, Kameng, North East Frontier Agency, Assam, 6,800 - 7,300 feet, July 29, 1961 (Fernand Schmid).

The most similar regional species is *Pedicia* (*Tricyphona*) *glabripennis* (Brunetti) which differs in details of coloration and in hypopygial structure, especially the phallosome. The conformation and coloration of the gonapophyses in the present fly appear to be distinctive.

Cheilotrichia (*Empeda*) *crassistyla*, NEW SPECIES

Size relatively large (wing of male about 4 mm); general coloration of thorax plumbeous gray, pleura variegated with yellow; legs brown; halteres with knob clear light yellow; wings very slightly tinted, prearcular field and costal border clearer yellow; male hypopygium with outer dististyle Y-shaped, darkened, both arms simple, the outer at apex dilated into a subcircular head.

MALE—Length about 4 mm; wing 4 mm.

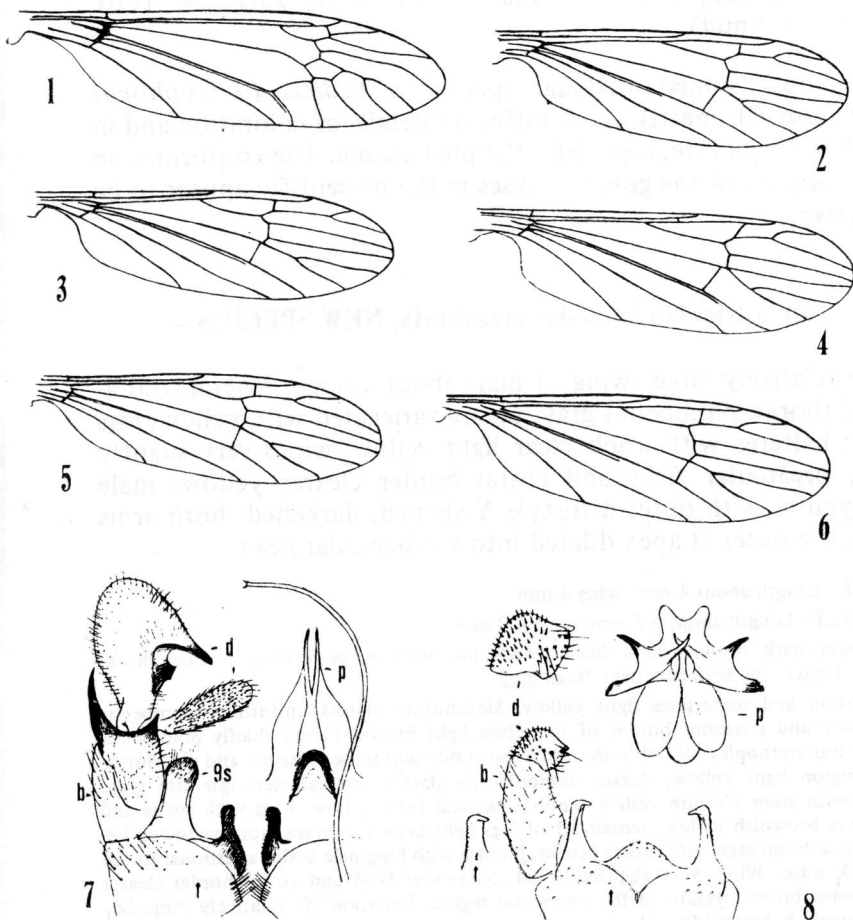
FEMALE—Length about 4.5 mm; wing 4.2 mm.

Rostrum dark brown, palpi black. Antennae with scape brown, pedicel black, flagellum brown, the segments oval. Head gray.

Pronotum and pretergites light yellow. Mesonotum almost uniformly plumbeous gray, suture and posterior border of scutellum light brown. Pleura chiefly plumbeous gray, central sternopleurite with the more posterior adjoining sclerites and the dorso-pleural region light yellow, dorsal sternopleurite darker, ventral sternopleurite gray. Halteres with stem obscure yellow, knob clear and light yellow. Legs with coxae and trochanters brownish yellow, remainder of legs light brown, femora more yellowed beneath, outer tarsal segments darker brown; femora with long pale scales additional to the long black setae. Wings very slightly tinted, prearcular field and costal border clearer yellow; veins brown, yellow in the prearcular region. Venation: Sc relatively long, Sc_1 ending shortly before midlength of R_s ; veins R_3 and R_4 generally parallel to one another throughout most of their length; $m-cu$ at fork of M .

Abdomen brown above, sternites and hypopygium more yellowed. Male hypopygium (Fig. 11) with the outer dististyle a Y-shaped rod, the outer arm shorter, at apex dilated into a subcircular head, inner arm narrowed gradually to the obtuse tip; no spur on outer arm as in *brevior* and *gracilis*.

HABITAT—Java. Holotype: ♂, Soember Brantas, East Java, 6,000 feet, January 14 - 25, 1936 (M. E. Walsh). Allotopotype, ♀, pinned with type.



Figures 1-8 - Fig. 1, *Tipula (Sinotipula) delfinadoae*, new species, venation. Fig. 2, *Cheilotrichia (Empeda) cheloma* Alexander; venation. Fig. 3, *Cheilotrichia (Empeda) fuscoapicalis* Alexander; venation. Fig. 4, *Cheilotrichia (Empeda) fuscostigmata* Alexander; venation. Fig. 5, *Cheilotrichia (Empeda) melanostyla* Alexander; venation. Fig. 6, *Cheilotrichia (Empeda) tumidostyla* Alexander; venation. Fig. 7, *Tipula (Vestiplex) schizophallus*, new species; male hypopygium. Fig. 8, *Pedicia (Tricyphona) nigrocuspis*, new species; male hypopygium. (Symbols: b, basistyle; d, dististyle; p, phallosome; s, sternite; t, 9th tergite.)

The present fly differs from *Cheilotrichia (Empeda) gracilis* (de Meijere) and other regional species in body coloration and in hypopygial structure, including the simple arms of the outer dististyle.

Cheilotrichia (Empeda) perscitula, NEW SPECIES

Allied to *scitula*; mesonotal praescutum polished chestnut brown, the anterior and lateral parts more blackened, scutellum, pleurotergite and pleura yellow, the anepisternum slightly darker; legs yellow, tips of femora broadly blackened, base and apex of tibia more narrowly black; wings yellow, veins pale brown, veins R_3 and R_4 strongly divergent, cell R_4 at margin about twice R_3 ; male hypopygium with outer dististyle blackened, simply bifid, inner arm very slender.

MALE—Length about 3 - 3.5 mm; wing 4 - 4.5 mm.

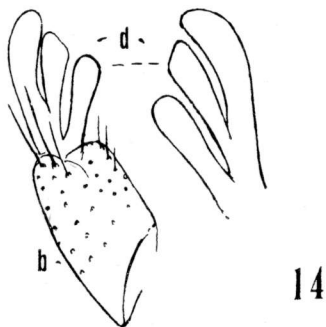
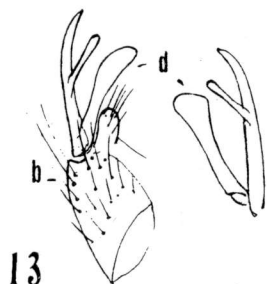
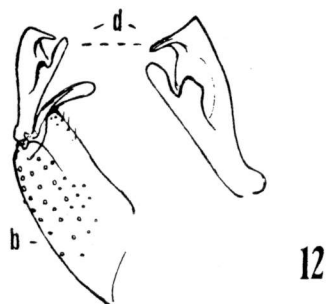
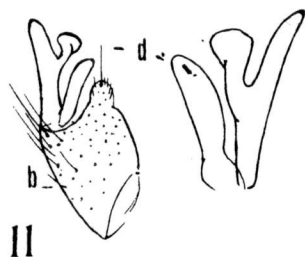
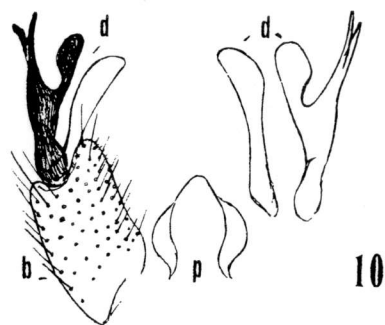
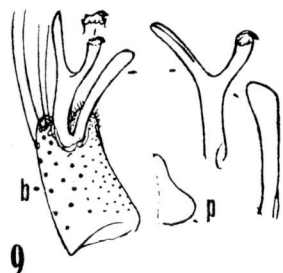
Rostrum obscure yellow, darker dorsally; palpi dark brown. Antennae with scape and pedicel dark brown, flagellum pale brown; proximal flagellar segments subglobular to short-oval, the outer ones more elongate. Head clear light gray; anterior vertex broad.

Pronotum and pretergites yellow. Mesonotal praescutum polished chestnut brown, anterior and lateral parts more blackened; scutum chestnut brown, lobes blackened laterally, scutellum yellow; mediotergite dark brown, pleurotergite yellow. Pleura almost uniformly yellow, anepisternum very slightly darker. Halteres yellow. Legs with coxae and trochanters yellow; femora yellow, tips broadly blackened, more extensive on fore pair where about one-fourth is included; tibiae yellow, base and apex conspicuously black, broadest on fore pair; basitarsi light yellow, tips and remainder of tarsi black. Wings tinged with yellow, prearcular and costal regions clearer yellow; veins pale brown. Longitudinal veins beyond general level of origin of R_s with abundant short trichia, including also most of $2nd A$, lacking or with very few on $1st A$. Venation: Sc_1 ending opposite one-fourth the length of R_s , vein R_2 perpendicular; veins R_3 and R_4 strongly divergent, cell R_4 triangular in outline, at margin about twice as extensive as R_3 .

Abdominal tergites dark brown, sternites and hypopygium yellow. Male hypopygium (Fig. 13) with the outer dististyle, d , blackened, simply bifid, inner arm very slender, outer arm stouter; inner style slender on basal third, outwardly gradually expanded to the subtruncated apex.

HABITAT—Java. Holotype: ♂, Soember Brantas, East Java, 6,000 feet, January 14 - 25, 1936 (M. E. Walsh). Paratopotypes, 5 ♂♂.

The most similar regional species is *Cheilotrichia (Empeda) scitula* Alexander, of Sumatra and Java, differing especially in the coloration of the legs, venation and trichiation of the veins, and in structure of the male hypopygium, especially the dististyles.



Figures 9-14 - Fig. 9, *Cheilotrichia (Empeda) apemon* Alexander; male hypopygium. Fig. 10, *Cheilotrichia (Empeda) cheloma* Alexander; male hypopygium. Fig. 11, *Cheilotrichia (Empeda) crassistyla*, new species; male hypopygium. Fig. 12, *Cheilotrichia (Empeda) melanostyla* Alexander; male hypopygium. Fig. 13, *Cheilotrichia (Empeda) perscutila*, new species; male hypopygium. Fig. 14, *Cheilotrichia (Empeda) tumidostyla* Alexander; male hypopygium. (Symbols: *b*, basistyle; *d*, dististyle; *p*, phallosome.)

Cheilotrichia (Empeda) apemon Alexander

Cheilotrichia (Empeda) apemon Alexander; Jour. New York Ent. Soc., 77: 199; 1969.

Type from Simbhangang Pass, Mahabharet Range, Nepal. Fig. 9 (male hypopygium).

Cheilotrichia (Empeda) cheloma Alexander

Cheilotrichia (Empeda) cheloma Alexander; Jour. New York Ent. Soc., 77: 200; 1969.

Type from Sirhoi Kashong, Manipur, Assam, India. Fig. 2 (venation); Fig. 10 (male hypopygium).

Cheilotrichia (Empeda) fuscoapicalis Alexander

Cheilotrichia (Empeda) fuscoapicalis Alexander; Jour. New York Ent. Soc., 77: 201; 1969.

Type from Nanga, Sikkim. Fig. 3 (venation).

Cheilotrichia (Empeda) fuscostigmata Alexander

Cheilotrichia (Empeda) fuscostigmata Alexander; Jour. New York Ent. Soc., 77: 201; 1969.

Type from Rongne, Sikkim. Fig. 4 (venation).

Cheilotrichia (Empeda) melanostyla Alexander

Cheilotrichia (Empeda) melanostyla Alexander; Jour. New York Ent. Soc., 77: 202; 1969.

Type from Thingsat, Mizo District, Lushai Hills, Assam, India. Fig. 5 (venation); Fig. 12 (male hypopygium).

Cheilotrichia (Empeda) tumidostyla Alexander

Cheilotrichia (Empeda) tumidostyla Alexander; Jour. New York Ent. Soc., 77: 203; 1969.

Type from Thingsat, Mizo District, Lushai Hills, Assam, India. Fig. 6 (venation); Fig. 14 (Male hypopygium).