

Undescribed Species of Crane Flies from the Himalaya Mountains (Diptera: Tipulidae), XVIII¹

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Abstract: Seven new species of eriopterine crane flies from Nepal, Sikkim, and Assam are described, all belonging to the genus *Cheilotrichia* Rossi, subgenus *Empeda* Osten Sacken. These are *Cheilotrichia (Empeda) apemon*, *C. (E.) cheloma*, *C. (E.) fuscoapicalis*, *C. (E.) fuscostigmata*, *C. (E.) melanostyla*, *C. (E.) nigristyla*, and *C. (E.) tumidistyla*.

Part XVII of this series of papers was published in the Journal of the New York Entomological Society, **77**: 61–65, 1969. In the present paper I am describing further new species belonging to the genus *Cheilotrichia* Rossi, subgenus *Empeda* Osten Sacken, from Nepal, Sikkim, and Assam, collected by Dr. Fernand Schmid and Dr. Edward I. Coher. I wish to express my deepest thanks to the collectors for these materials.

Cheilotrichia (Empeda) apemon, n. sp.

Size medium (wing of male 4 mm); general coloration gray; antennae black throughout; halteres yellow; legs brown, without scales; wings weakly tinged with brown, very restrictively patterned with darker; vein *Sc* long, *Sc*₁ ending opposite midlength of the long *Rs*, *Sc*₂ not apparent; cell *M*₂ open by atrophy of *m*; male hypopygium with both dististyles pale, outer style deeply forked.

MALE: Length about 3 mm; wing 4 mm.

Rostrum dark gray, palpi black. Antennae black, proximal segments more pruinose; pedicel large, first flagellar segment subglobular, succeeding ones more oval, outermost elongate, verticils of more basal segments exceedingly long, pale. Head light gray.

Pronotum brown, obscure yellow behind, the narrow pretergites clearer yellow. Mesonotal praescutum dark gray with a vague brownish central area, scutal lobes similarly darkened, pseudosutural foveae black; posterior sclerites of notum dark gray, scutellum narrowly reddened behind. Pleura dark gray, posterior sclerites somewhat paler, dorsopleural region dusky. Halteres pale yellow. Legs with fore coxae infuscated, remaining coxae and all trochanters brownish yellow; remainder of legs brown, femoral bases obscure yellow, outer tarsal segments blackened; legs without scales. Wings weakly tinged with brown, prearcular and costal fields pale yellow, stigma narrow, vaguely darkened; bases of anal cells weakly suffused; veins yellowish brown, clearer yellow in costal region. Venation: *Sc* long, *Sc*₁ ending opposite midlength of the long *Rs*, *Sc*₂ not evident; *R*₂₊₃₊₄ about one-half longer than *R*₂; veins *R*₃ and *R*₄ moderately divergent, cell *R*₃ at margin about twice cell *R*₂; cell *M*₂ open by atrophy of *m*; *m-cu* close to fork of *M*.

Abdomen dark brown, hypopygium yellow. Male hypopygium with the basistyle relatively long, outer lobe with very long setae, the longest exceeding the dististyles, inner

¹ Contribution from the Entomological Laboratory, University of Massachusetts.

apical lobes with fewer setae but with abundant delicate setulae. Both dististyles pale throughout, outer style deeply forked, stem subequal to the longer or outer branch, inner branch microscopically roughened at apex; inner style a simple pale blade that widens gently outwardly, tip obtuse. Gonapophyses appearing as broadly flattened plates.

HOLOTYPE: ♂, Simbhangang Pass, Mahabharat Range, Nepal, 8,197 feet, June 24, 1957 (Coher).

The most similar species is *Cheilotrichia (Empeda) microdonta* Alexander, of Kashmir, which has the hypopygial details distinct. Two other allied species, *C. (E.) accomoda* Alexander, and *C. (E.) simplicior* Alexander, both of South India, differ in venation and in hypopygial structure, as the heavily blackened outer dististyles.

Cheilotrichia (Empeda) cheloma, n. sp.

Size medium (wing of male 4 mm); general coloration of mesonotum brown, posterior sclerites and pleura gray; legs brown, vestiture including flattened scales as well as setae; wings with Sc_1 ending about one-third the length of R_s ; veins R_3 and R_4 long, generally parallel to one another; male hypopygium with outer dististyle heavily blackened, deeply forked, the narrower outer arm divided at near midlength into two slender slightly unequal rods, inner arm dilated into a spatula; inned dististyle unusually broad.

MALE: Length about 4 mm; wing 4 mm; antenna about 1 mm.

FEMALE: Length about 5 mm; wing 5 mm.

Rostrum and palpi brownish black. Antennae with scape and pedicel brownish black, flagellum dark brown. Head light gray.

Pronotum obscure yellow, disk weakly more darkened. Petergites, with extreme border of praescutum, light yellow. Mesonotal praescutum with four nearly confluent brown stripes, humeral and lateral regions gray; posterior sclerites of notum light gray, scutal lobes brown. Pleura gray, dorsopleural membrane yellowed. Halteres with stem dull yellow, knob clear light yellow. Legs with fore coxae and trochanters dark brown, remaining coxae and all trochanters yellow; remainder of legs brown, femoral bases narrowly yellowed; legs with flattened appressed scales additional to delicate setae. Wings weakly darkened, prearcular and costal regions light yellow; veins light brown. Venation: Sc long, Sc_1 ending about opposite one-third the straight R_s ; veins R_3 and R_4 long, generally parallel to one another.

Abdominal tergites dark brown, sternites obscure yellow, hypopygium yellow. Male hypopygium with outer dististyle heavily blackened, deeply forked, outer arm narrow, at near midlength divided into two slender, slightly unequal rods, inner arm dilated into a spatula, tip obtuse; inner style unusually broad, appearing as a yellow cleaverlike blade, the tip obtuse.

HOLOTYPE: ♂, Sirhoi Kashong, Manipur, Assam, 7,500 feet, June 10, 1960 (Schmid). Allotopotype, ♂, with type. Paratopotype, ♂.

The present fly is readily distinguished from other regional species by the structure of the male hypopygium, including both dististyles. Other regional species having the dististyles heavily blackened include *Cheilotrichia (Empeda) accomoda* Alexander and *C. (E.) melanostyla*, n. sp., these being smaller species with vein Sc shorter and with the hypopygial details quite different, especially the dististyles.

Cheilotrichia (Empeda) fuscoapicalis, n. sp.

Size medium (wing about 4 mm); general coloration yellow, mesonotal praescutum and scutum with large polished black areas; femora yellow, tips narrowly but conspicuously black; wings yellowish gray, stigma not indicated; vein Sc_1 ending about opposite one-fourth R_s , vein R_{3+4} longer than R_1 .

SEX ? : Wing 4 mm.

Rostrum yellow, palpi brownish yellow, terminal segment slightly darker. Antennae with basal segments brownish black, flagellum slightly paler, especially outwardly; basal flagellar segments subglobular, slightly larger than the pedicel, densely covered with short stiff setulae, verticils subequal in length to the segments. Head dark brown.

Pronotum yellow. Mesonotal praescutum yellow, with three major polished black areas, including a broad central mark on anterior half of sclerite that narrows behind into a delicate line; lateral borders before suture with a slightly smaller similar area; scutum brownish yellow, each lobe largely covered by a polished black mark; scutellum obscure yellow; mediotergite infuscated, pleurotergite more yellowed. Pleura yellow, ventral pteropleurite gray pruinose. Halteres destroyed by fungi. Legs with fore coxae infuscated, remaining coxae and all trochanters yellow; femora yellow, tips narrowly but conspicuously blackened, involving about the outer fifteenth of the segment; tibiae and basitarsi yellow, tips more narrowly infuscated, remainder of tarsi black; no scales on legs, femoral setae large but sparse. Wings faintly tinged with yellowish gray, costal region light yellow, stigma not indicated; veins light brown, more yellowed in costal field, especially Sc . Macrotrichia on most longitudinal veins beyond level of origin of R_s , lacking on Sc and 1st A , present on all but the proximal fifth on 2nd A . Venation: Sc moderately long, Sc_1 ending about opposite one-fourth R_s , Sc_2 not evident; R_{2+3+4} and R_{1+2} long, nearly twice R_3 ; R_{3+4} long and straight, exceeding vein R_1 ; cell M_3 about twice its petiole, $m-cu$ close to fork of M .

Abdomen with proximal five segments yellow; outer segments destroyed by fungi.

HOLOTYPE: Sex ? Nanga, Sikkim, 5,000 feet, August 3, 1959 (Schmid).

Cheilotrichia (Empeda) fuscoapicalis is distinct from all described regional members of the subgenus in the coloration of the thorax and legs. It most nearly resembles species such as *C. (E.) minuscula* Alexander and *C. (E.) nigroapicalis* Alexander, of Formosa and southern Japan, which differ in the details of coloration including the broad blackened femoral tips.

Cheilotrichia (Empeda) fuscostigmata, n. sp.

General coloration of head and thorax clear blue-gray, without pattern; halteres pale yellow; legs light brown; wings entirely light yellow, including the veins, only the long-oval stigma and its included veins dark brown; Sc long, R_2 very oblique, exceeding R_{2+3+4} . MALE: Length about 3.5 mm; wing 4 mm.

Rostrum and palpi black. Antennae black; pedicel greatly enlarged; proximal flagellar segments of male with very long verticils. Head light gray.

Thorax almost uniformly clear blue-gray, without pattern; pretergites and dorsopleural region more testaceous; pseudosutural foveae more darkened, very small. Halteres pale yellow. Legs with coxae and trochanters obscure yellow; femora light brown, terminal tarsal segments slightly darker. Wings entirely light yellow, including the veins, only the long-oval stigma and its included veins dark brown. Venation: Sc long, Sc_1 ending about opposite two-thirds R_s ; R_2 very oblique, exceeding R_{2+3+4} .

Abdomen broken.

HOLOTYPE: ♂, Rongne, Sikkim, 6,200 feet, August 21, 1959 (Schmid).

The present fly is very distinct in the coloration of the wings, the most similar regional species being *Cheilotrichia (Empeda) vamanta* Alexander which has the coloration and wing pattern quite different.

Cheilotrichia (Empeda) melanostyla, n. sp.

Size small (wing of male less than 3 mm); mesonotum medium brown, posterior sclerites and pleura more yellowed; femora brownish yellow; wings brownish yellow, prearcular and costal fields more yellowed; Sc_1 ending about opposite one-fourth to one-fifth R_s ; male hypopygium with outer dististyle heavily blackened, large and complex in structure, outer arm of outer style extended into a slender point.

MALE: Length about 2.5 mm; wing 2.7 mm.

Rostrum, palpi and antennae black. Head darkened.

Pronotum and pretergites yellowed. Mesonotal praescutum and scutal lobes medium brown; scutellum light brown, posterior border yellow; mediotergite brownish yellow. Pleura and pleurotergite chiefly yellow, restrictedly patterned with brown, dorsopleural membrane light yellow. Halteres with stem yellow, knob brown. Legs with coxae and trochanters yellow; femora brownish yellow, the darkened color produced by setae and abundant appressed scales; tibiae brownish yellow, tarsi darker brown. Wings brownish yellow, prearcular and costal regions light yellow; veins pale brown. Venation: Sc_1 ending about opposite one-fourth to one-fifth R_s ; R_{2+3+4} and R_2 subequal; cell R_3 at margin about one-half more extensive than cell R_2 .

Abdominal tergites brown, sternites and hypopygium yellow. Male hypopygium with outer dististyle heavily blackened, large and complex in structure, outer arm flattened, its inner apical angle extended into a slender point, inner arm unequally bifid into obtuse lobes.

HOLOTYPE: ♂, Thingsat, Mizo District, Lushai Hills, Assam, 2,000 feet, September 9, 1960 (Schmid).

Cheilotrichia (Empeda) melanostyla is most readily told from other generally similar regional species by the hypopygial structure, particularly the outer dististyle. Other species that have this style heavily blackened but of different conformation include *C. (E.) accomoda* Alexander and *C. (E.) brevior* (Brunetti).

Cheilotrichia (Empeda) nigristyla, n. sp.

General coloration of thorax dark gray; halteres clear light yellow; legs brown; wings very faintly darkened, Sc_1 ending about opposite one-third R_s ; male hypopygium with outer dististyle heavily blackened, unequally bifid, the longer outer arm a simple rod, inner arm expanded into a flattened oval blade.

MALE: Length about 3.5 mm; wing 3.8 mm.

Rostrum dark gray, palpi black. Antennae black, scape more pruinose. Head light gray.

Pronotum brown, pretergites light yellow. Mesonotal praescutum and scutal lobes dark gray, sides of the former light gray; posterior sclerites of notum gray. Pleura dark brown, gray pruinose; dorsopleural membrane yellowed. Halteres clear light yellow. Legs with fore coxae dark brown, remaining coxae and all trochanters yellowed; femora and tibiae light brown, tarsi darker brown; leg vestiture including abundant black setae and dense paler scales. Wings very faintly darkened, stigma scarcely indicated; veins brown. Vena-

tion: Sc moderately long, Sc_1 ending about opposite one-third R_5 ; veins R_3 and R_5 slightly divergent, cells R_2 and R_3 at margin subequal in extent; $m-cu$ close to fork of M .

Abdomen dark brown, sternites and hypopygium somewhat more yellowed. Male hypopygium with outer dististyle heavily blackened, unequally bifid, outer arm a longer simple rod, tip narrowly obtuse; inner arm expanded at apex into a flattened oval blade; inner style yellowed, outer half more expanded, apex broadly obtuse.

HOLOTYPE: ♂, Chingsao, Manipur, Assam, 3,800 feet, June 13, 1960 (Schmid).

Cheilotrichia (Empeda) nigristyla differs from *C. (E.) brevior* (Brunetti) and some other generally similar regional species chiefly in hypopygial structure, especially the outer dististyle.

Cheilotrichia (Empeda) tumidistyla, n. sp.

Size small (wing of male about 3 mm); mesonotal praescutum and scutum brownish gray, scutellum, pleurotergite and pleura extensively yellowed; fore coxae dark brown; wings faintly tinged with brownish gray, costal field yellow; male hypopygium with the dististyles large, pale, unusually stout and tumid, their tips obtuse.

MALE: Length about 2.5 mm; wing 3 mm.

Rostrum brown, palpi brownish black. Antennae brownish black. Head dark gray; eyes large.

Pronotum and pretergites light yellow. Mesonotal praescutum and scutum brownish gray, without evident pattern; scutellum brownish gray, posterior border broadly obscure yellow; mediotergite gray, sides, together with the pleurotergite, yellow. Pleura yellowed, anepisternum more pruinose, sternopleurite slightly suffused with brownish black, dorso-pleural membrane light yellow. Halteres yellow. Legs with fore coxae dark brown, remaining coxae and all trochanters yellow; femora and tibiae obscure yellow, tarsi dark brown. Wings faintly tinged with brownish gray, prearcular and costal fields yellow; veins light brown, more brownish yellow in the brightened fields. Venation: Sc_1 ending about opposite one-third R_5 .

Abdomen brown, hypopygium light yellow. Male hypopygium with the dististyles distinctive, appearing as large fleshy pale lobes that are scarcely darker in color than the basistyle; outer style deeply bifid, both lobes stout, tips obtuse; inner style similarly stout, nearly as broad as the inner arm of outer style, tip obtuse.

HOLOTYPE: ♂, Thingsat, Mizo District, Lushai Hills, Assam, 2,000 feet, September 9, 1960 (Schmid).

Cheilotrichia (Empeda) tumidistyla is generally similar to *C. (E.) melanostyla*, n. sp., differing evidently in hypopygial structure.