

NEW OR LITTLE-KNOWN SPECIES OF EXOTIC TIPULIDAE
(DIPTERA).—IX

By CHARLES P. ALEXANDER

(University of Massachusetts, Amherst, Massachusetts)

THE preceding part in this series of papers was published in 1960 (*Proc. R. ent. Soc. Lond.* (B) 29:160-4). The species discussed at this time are from the western Himalayas, in Kumaon, Uttar Pradesh, India, where they were collected by Dr. Fernand Schmid, to whom my sincere thanks are extended.

In this paper I am considering species of the tribe Pediciini, all belonging to the subgenus *Rhaphidolabis* Osten Sacken in the extensive genus *Dicranota* Zetterstedt. Types of the new species are preserved in my collection.

Dicranota (*Rhaphidolabis*) *lacteipennis* sp. n.

Size medium (wing about 6 mm.); general coloration of praescutum brownish-yellow, with 3 brownish-grey stripes, pleura yellow; antennae apparently only 12-segmented; halteres and legs yellow; wings milky-white, unmarked, veins pale; male hypopygium with the central area of posterior border of tergite depressed, provided with setae; basistyle with 2 apical lobes, both provided with spinoid setae; interbase bent at a right angle at near mid-length, thence extended into a strong spine; dististyle a flattened yellow blade.

Male: length about 4.5 mm.; wing 5.8-6 mm.

Female: length about 5 mm.; wing 6.2 mm.

Rostrum and palpi brownish-black, mouthparts pale. Antennae short, apparently only 12-segmented; flagellar segments oval, exceeding the verticils. Head light grey.

Pronotum obscure yellow. Mesonotal praescutum brownish-yellow, with 3 brownish-grey stripes, the sublateral pair short and ill-defined; posterior sclerites of notum light pruinose on central part, paling to yellow laterally, pleurotergite yellow. Pleura yellow, the sternopleurite passing into brown. Halteres pale yellow. Legs with coxae and trochanters yellow; remainder of legs obscure yellow, the outer tarsal segments somewhat darker. Wings (fig. 1) milky-white unmarked; veins pale, scarcely differentiated from the ground. Veins beyond level of cord with abundant short macrotrichia, including a few on R_2 ; basal of cord with very sparse trichia on R_3 , more numerous on outer ends of both anal veins. Venation: Sc long, Sc_1 ending some distance beyond fork of the short R_{2+3+4} ; R_3 angulated at near mid-length; R_2 slightly oblique, R_{1+2} very short; $m-cu$ about three-fourths its length beyond the fork of M .

Abdomen dark brown, hypopygium brownish-yellow. Ovipositor very long and slender, horn yellow. Male hypopygium (fig. 4) with the posterior border of tergite (t) sinuously truncate, the central portion depressed, with a concentration of long setae, the lateral shoulders low and obtuse; lateral margins of ventral tergal plate terminating in slender incurved rods. Basistyle (b) terminating in two lobes that are densely provided with spinoid setae, the longer outer lobe emarginate on its inner apical part, inner lobe low but extensive; interbase (i) a slender sclerotised rod, at near mid-length bent at a right angle into an acute spine. Dististyle (d) subequal in area to outer lobe of basistyle, appearing as a flattened yellow blade, dilated beyond base, thence narrowed to the obtuse tip. Phallosome (p) with the apophyses appearing as flattened, dusky blades that subtend the capitata aedeagus.

Holotype ♂, INDIA: Kulara, Pauri Garhwal, 12,000 feet, 3. viii. 1958 (*F. Schmid*).

Allotopotype ♀, pinned with type. *Paratopotype* ♂, pinned with type.

Dicranota (*Rhaphidolabis*) *lacteipennis* is readily distinguished from the now numerous members of the subgenus in the region by the milky colour of the wings and by the details of structure of the male hypopygium, particularly the tergite, basistyle and interbase.

***Dicranota (Rhaphidolabis) balarama* sp. n.**

Size relatively large (wing of male 7.5 mm.); thorax buffy-yellow, praescutum with 3 light brown stripes; antennae black throughout; legs brownish-black to black; wings tinged with light brown, stigma very pale brown; male hypopygium large; interbase distinctive, very large, appearing as a flattened yellow plate, the margin bifid into a slender rod and a pendant acute spine.

Male: length about 6.5 mm.; wing 7.5 mm.; antenna about 1 mm.

Rostrum and palpi dark brown. Antennae broken beyond the twelfth segment, black throughout; flagellar segments oval, exceeding the verticils. Head light grey.

Pronotum buffy-yellow. Mesonotal praescutum greyish-buffy, with 3 light brown stripes, the lateral pair crossing the suture on to the scutal lobes; remainder of notum buffy-yellow, mediotergite slightly more darkened. Pleura buffy. Halteres with stem obscure yellow, knob infuscated. Legs with all coxae and trochanters yellow; femora brownish-black, bases obscure yellow; tibiae dark brown; tarsi black. Wings (fig. 2) tinged with light brown, extreme base more yellowed; stigma oval, very pale brown, proximal parts of costal region vaguely more darkened than the remainder of ground; veins brown, yellowed at wing base. Veins of about the outer three-fourths of wing with numerous relatively long macrotrichia. Venation: *Sc* long, *Sc*₁ ending some distance beyond the fork of *R*₂₊₃₊₄, the latter long, about 3 times the basal section of *R*₅; *R*₂ transverse, about twice *R*₁₊₂; *m-cu* more than one-half its length beyond the fork of *M*.

Abdomen, including hypopygium, brown. Male hypopygium (fig. 5) entirely distinctive, particularly as regards the interbase. Ninth tergite (*t*) transverse, the central area depressed, the margin with 2 small tubercles (lateral parts of tergite more or less damaged and the presence of armature cannot be determined). Basistyle (*b*) large, on proximal half swollen into a low darkened lobe that bears long setae; mesal apical end set with abundant spinoid setae, with a further cylindrical lobe that bears a few very long setae, including a powerful fasciulate bristle; interbase (*i*) very large, its area on a microscope slide being nearly one-half the remainder of the basistyle, appearing as a flattened yellow plate shaped about as shown, the margin bifid into a slender outer arm and a lower pendant spine; apical margin of interbase with a dense linear group of reddish setae. Dististyle (*d*) single, unusually small, its area about one-fourth that of the interbase, the lower margin dilated near base. Phallosome (*p*) with the aedeagus cylindrical, not capitate, the subtending apophyses dark coloured.

Holotype ♂, INDIA: Binaik Cahatti, Pauri Garhwal, 7000–7500 feet, 16.vi.1958 (*F. Schmid*).

The most similar species in the region is *Dicranota (Rhaphidolabis) shushna* sp. n., which, while similar in general appearance, differs strikingly in the structure of the male hypopygium, especially the tergite, interbase and dististyles.

***Dicranota (Rhaphidolabis) shushna* sp. n.**

Size relatively large (wing of male 7 mm. or more); thorax buffy, praescutum with 3 barely indicated darker brown stripes; legs light brown, tarsi more blackened; wings weakly tinted, stigma scarcely darker than the ground; male hypopygium with apical margin of tergite decurved; interbase a relatively narrow rod bearing a lateral spine; two dististyles; phallosome with the apophyses broadly expanded.

Male: length about 6.2–6.5 mm.; wing 7–7.5 mm.; antenna about 1–1.1 mm.

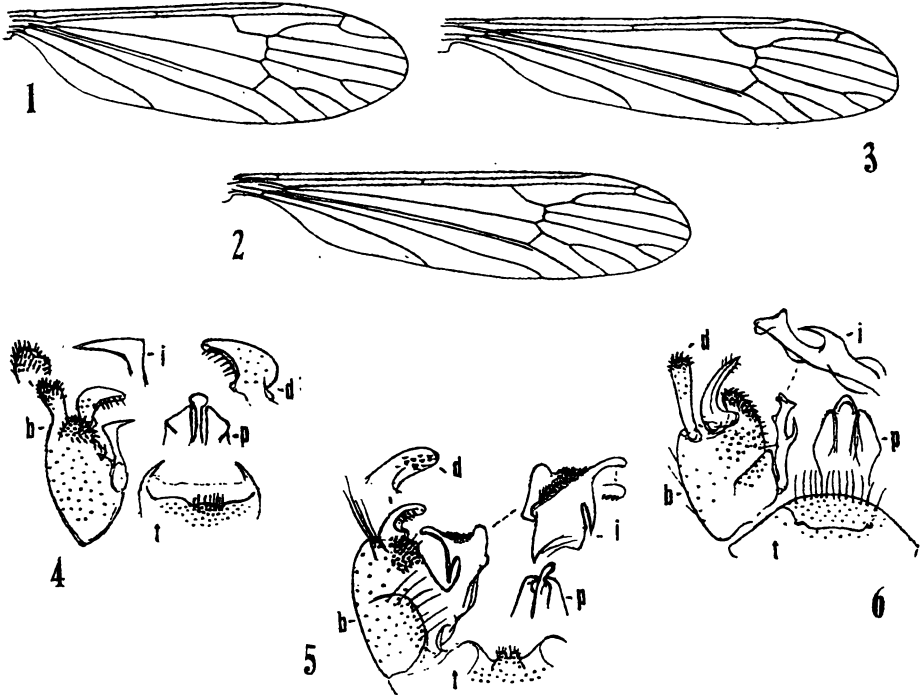
Female: length about 7.5 mm.; wing 8–5 mm.

Rostrum light brown; palpi small, brown; mouthparts enlarged, yellow. Antennae 15-segmented; scape and pedicel light brown, flagellum black; flagellar segments oval, exceeding their verticils in length. Head clear light grey.

Pronotum light buffy. Mesonotal praescutum buffy, with barely indicated darker brown stripes, scutal lobes similarly patterned; posterior sclerites of notum and the pleura buffy-yellow. Halteres with stem pale, especially at base, knob infuscated. Legs with coxae and trochanters yellow; remainder of legs light brown, tips of tibiae and tarsi excepting the proximal ends of basitarsi more blackened. Wings (fig. 3) weakly tinted, the extreme base more yellowed; stigma scarcely darker than the ground; veins brown. Macrotrichia on veins of about the outer three-fourths of wing. Venation: *Sc* long, *Sc*₁ ending beyond fork of *R*₂₊₃₊₄, the latter relatively short, scarcely exceeding twice the basal section of *R*₅; *R*₅ weakly angulated at near mid-length.

Abdominal tergites medium brown, basal sternites more brownish-yellow; hypopygium darkened. Male hypopygium (fig. 6) relatively large; tergite (*t*) massive, its apex decurved so

that in slide mounts the posterior border is hidden, the actual margin gently notched, with small lateral projections; surface of outer end of tergite with abundant, unusually long setae. Basistyle (*b*) with a subconical darkened lobe on mesal face of proximal end; apical lobe large, with abundant retrorse black spinoid setae on mesal face; interbase (*i*) distinctive, shaped about as shown, appearing as a relatively narrow rod, at near mid-length with a large spine; outer half of style slender, expanded at apex. Two dististyles (*d*), the outer clavate, with spinoid setae on outer third; inner style gently curved, expanded at base. Phallosome (*p*) with the head of the aedeagus long-oval, the subtending apophyses appearing as broadly expanded plates, their surface microscopically roughened.



FIGS. 1-6.—(1-3) Venation of: (1) *Dicranota (Rhaphidolabis) lacteipennis* sp. n.; (2) *Dicranota (Rhaphidolabis) balarama* sp. n.; (3) *Dicranota (Rhaphidolabis) shushna* sp. n. (4-6) Male hypopygium of: (4) *Dicranota (Rhaphidolabis) lacteipennis* sp. n.; (5) *Dicranota (Rhaphidolabis) balarama* sp. n.; (6) *Dicranota (Rhaphidolabis) shushna* sp. n. (*b*, basistyle; *d*, dististyle; *i*, interbase; *p*, phallosome; *t*, tergite.)

Holotype ♂, INDIA: Timarsen, Pauri Garhwal, 11,172 feet, 12.vii.1958 (*F. Schmid*). *Allotopotype* ♀, pinned with type. *Paratopotypes*, 2 ♂.

The most similar species in the region is *Dicranota (Rhaphidolabis) balarama* sp. n. which, while superficially rather similar, is entirely distinct in the structure of the male hypopygium, involving all parts.

Dicranota (Rhaphidolabis) indra sp. n.

Size relatively large (wing of male about 7 mm.); general coloration of mesonotum grey, with 3 poorly indicated brown stripes, posterior sclerites of notum and the pleura more yellowed; wings subhyaline; strongly iridescent; *Sc* long; male hypopygium with the posterior border of tergite with two low submedian lobes; interbase a broad yellow blade, on outer margin with a small acute spine; dististyle single, gently curved, apex obtuse.

Male: length about 6 mm.; wing 6.8-7 mm.; antenna about 0.9-1 mm.

Female: length about 7 mm.; wing 7.5-8 mm.

Rostrum grey; palpi black. Antennae short, 14- or 15-segmented; scape brown, remainder of organ black; flagellar segments oval, slightly exceeding the longest verticils. Head light grey, posterior vertex with a linear darkened median vitta.

Pronotum brownish-grey. Mesonotal praescutum grey, with 3 poorly indicated brown stripes, scutal lobes similarly darkened; posterior sclerites of notum much paler, more yellowed. Pleura brownish-yellow. Halteres with stem pale, knob infuscated. Legs with coxae and trochanters testaceous; remainder of legs brown, outwardly passing into dark brown or brownish-black. Wings (fig. 7) subhyaline, with iridescent tints, stigma very pale brown; veins dark brown. Numerous macrotrichia on veins of about the outer three-fourths of wing. Venation: *Sc* long, *Sc*₁ ending some distance beyond fork of *R*₂₊₃₊₄; *R*₂ slightly oblique, in cases more transverse, longer than *R*₁₊₂; *Rs* short, strongly arcuated to weakly angulated.

Abdomen brownish-grey, pleural membrane paler; hypopygium darkened. Male hypopygium (fig. 10) with the tergite (*t*) transverse, the posterior border slightly produced, the central part with two low rounded lobes separated by a slightly wider and more shallow emargination; lateral arms indicated by ill-delimited projections; in a paratopotype, dorsal surface immediately behind each submedian lobe with a smaller darkened projection. Basistyle (*b*) stout, the outer apical part produced into a short-oval lobe set with spinoid setae, the inner apical part produced into a much more extensive but lower lobe with abundant blackened spinoid setae; mesal face of style both at base and apex with groups of long pale setae; interbase (*i*) a broad flattened yellow blade, apex obtuse, on outer margin produced into a small acute spine. Dististyle (*d*) single, gently curved, apex obtuse. Phallosome (*p*) with aedeagus elongate, not capitate, the broad apophyses darkened.

Holotype ♂, INDIA: Kulara, Pauri Garhwal, 12,000 feet, 4.viii.1958 (*F. Schmid*).

Allotype ♀, INDIA: Tapoban, Pauri Garhwal, 7300 feet, 2.viii.1958 (*F. Schmid*).

Paratopotypes, 3 ♂, with the type. *Paratypes*, 3 ♂ 1 ♀, Dakwani, Pauri Garhwal, 9300–11,000 feet, 5.viii.1958; ♂♀, Ramni, Pauri Garhwal, 8200 feet, 15.viii.1958; ♂♀, Kanol, Pauri Garhwal, 8530 feet, 19.viii.1958 (all *F. Schmid*).

Dicranota (Rhaphidolabis) indra is quite distinct from the now numerous species of the subgenus in the Himalayas, particularly in the structure of the male hypopygium, e.g. the tergite, basistyle, interbase and phallosome.

Dicranota (Rhaphidolabis) vajra sp. n.

Size medium (wing of male 6 mm. or more); general coloration light grey, the praescutum with a conspicuous brown central stripe, the lateral stripes much less evident; antennae short, 12-segmented, black throughout; legs brown; wings faintly tinged with milky, stigma scarcely evident, veins very pale brown; male hypopygium with the posterior border of tergite convexly rounded medially; interbase a pale simple crook, the lower margin of the head crenulate.

Male: length about 5.3–5.5 mm.; wing 6–6.5 mm.; antenna about 0.8 mm.

Rostrum grey, palpi black, remaining mouthparts yellow. Antennae black throughout, 12-segmented; basal flagellar segments long-oval, becoming smaller outwardly, the terminal segment shortest. Head light grey.

Pronotum and mesonotum light grey, praescutum with a conspicuous brown central stripe, the lateral pair narrow and much less evident; scutal lobes darkened. Pleura grey, the pteropleurite and metapleura paler; dorsopleural membrane dusky. Halteres with stem pale, knob infuscated. Legs with coxae brownish-grey, posterior pair paler basally; trochanters testaceous yellow; remainder of legs brown. Wings (fig. 8) with a faint milky tinge, stigma not or scarcely evident; veins very pale brown. Macrotrichia of veins beyond cord short and relatively sparse, basad of this few and scattered on *Rs* and on outer ends of *M*, *Cu* and *anals*. Venation: *Sc* long, *Sc*₁ ending some distance beyond fork of *R*₂₊₃₊₄, the latter short, subequal to or a little longer than the basal section of *R*₅; vein *R*₂ oblique, longer than *R*₁₊₂.

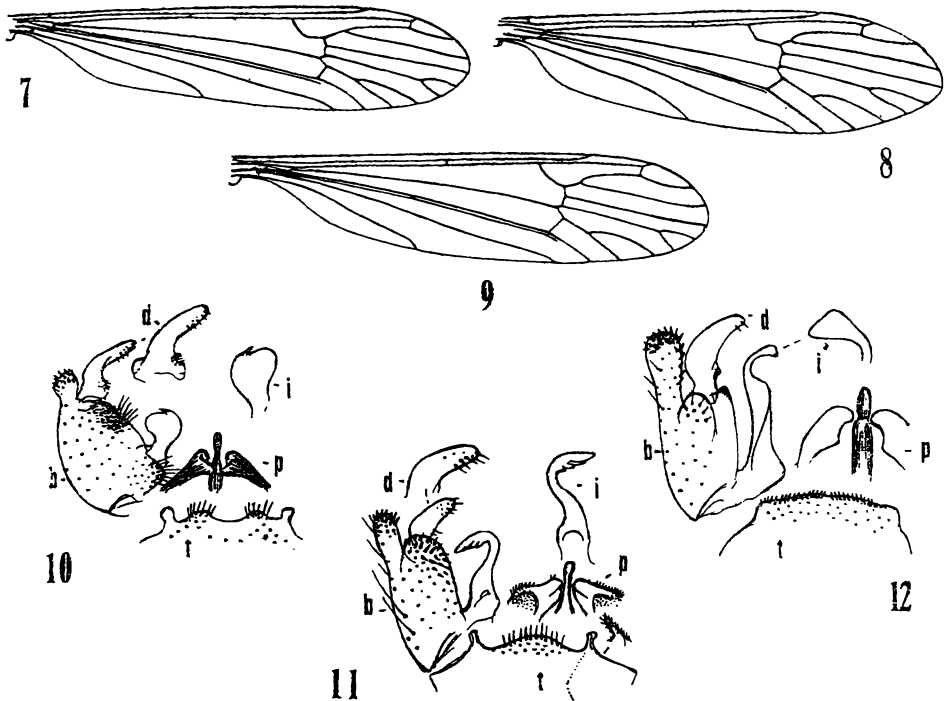
Abdomen, including hypopygium, greyish-brown, subterminal segments slightly darker brown, forming an inconspicuous ring. Male hypopygium (fig. 11) with the posterior border of tergite (*t*) broadly convexly rounded, with abundant long pale setae; lateral arms small and pale, slightly expanded at tip; lower tergal arms relatively small, densely setiferous. Basistyle (*b*) with 2 apical lobes, the clavate outer one with spinoid setae on outer half, the low inner lobe with setae more sparse; interbase (*i*) a pale simple rod, strongly curved beyond mid-length into a crook, the lower surface of the outer head weakly crenulate or shallowly lobed. Dististyle (*d*) a simple yellow plate, the lower margin at apex with a few setae. Phallosome (*p*) with the apophyses broad, densely setuliferous on lateral part; aedeagus darkened, apex oval, not capitate.

Holotype ♂, INDIA: Gangrea, Pauri Garhwal, 7500–10,000 feet, 14.vi.1958 (F. Schmid). *Paratopotypes*, 2 ♂, pinned with type; 2 ♂, 13–15.vi.1958 (F. Schmid).

The closest ally of the present fly in the region is *Dicranota (Rhaphidolabis) vritra* sp. n., which has the structure of the interbase of the hypopygium somewhat the same, but all other parts quite distinct.

***Dicranota (Rhaphidolabis) vritra* sp. n.**

Size relatively large (wing of male 7 mm.); general coloration of thorax grey, the praescutum with 3 relatively inconspicuous brown stripes; antennae 15-segmented; legs dark brown; wings subhyaline, stigma pale brown, relatively distinct, veins brown; macrotrichia on outer two-



FIGS. 7–12.—(7–9) Venation of: (7) *Dicranota (Rhaphidolabis) indra* sp. n.; (8) *Dicranota (Rhaphidolabis) vajra* sp. n.; (9) *Dicranota (Rhaphidolabis) vritra* sp. n. (10–12) Male hypopygium of: (10) *Dicranota (Rhaphidolabis) indra* sp. n.; (11) *Dicranota (Rhaphidolabis) vajra* sp. n.; (12) *Dicranota (Rhaphidolabis) vritra* sp. n. (b, basistyle; d, dististyle; i, interbase; p, phallosome; t, tergite.)

thirds of veins *M*, 1st *A* and 2nd *A*; male hypopygium with the posterior border of tergite almost truncate, fringed with numerous short setae, lateral tergal arms very low; interbase a glabrous blade, the outer third narrowed and curved into a crook.

Male: length about 6.5 mm.; wing 7 mm.; antenna about 1 mm.

Rostrum and palpi brown. Antennae black, 15-segmented; flagellar segments oval, exceeding the verticils in length. Head grey.

Pronotum brownish-grey. Mesonotum grey, the praescutum with three relatively inconspicuous brown stripes, the lateral pair less evident; scutal lobes weakly infuscated. Pleura brownish-grey. Halteres with stem pale, knob weakly infuscated. Legs with coxae brownish-grey; trochanters yellow; remainder of legs dark brown, femoral bases narrowly obscure yellow. Wings (fig. 9) subhyaline, stigma pale brown, relatively distinct; veins brown. Macrotrichia of veins short but numerous, involving about the outer two-thirds of *M* and the anals. Venation: *Sc* long, *Sc*₁ ending some distance beyond fork of *R*₂₊₃₊₄, the latter about one-half longer than the basal section of *R*₅; *m-cu* from about two-fifths to one-half its length beyond the fork of *M*.

Abdomen brownish-grey, the lateral borders narrowly more yellowed. Male hypopygium (fig. 12) with the tergite (*t*) large, its posterior border produced, the margin subtruncate to almost straight, fringed with numerous short setae; lateral arms slightly produced into low lobes. Basistyle (*b*) with the outer apical lobe stout, narrowed basally, expanded into a flattened club, the apex and inner margin with short dark spinoid setae; inner apical lobe low, with sparse pale spinoid setae; interbase (*i*) distinctive, appearing as a relatively slender glabrous blade, the outer third narrowed and curved into a crook, the apex a little expanded; no crenulations, as in *vajra*. Dististyle (*d*) a flattened blade, broadest at near mid-length, narrowed to the obtuse tip; vestiture very sparse and inconspicuous. Phallosome (*p*) with the aedeagus elongate, not capitate, apophyses appearing as moderately broad blades, their tips obtuse.

Holotype ♂, INDIA: Gangrea, Pauri Garhwal, 7500–10,000 feet, 14.vi.1958 (*F. Schmid*).

Dicranota (Rhaphidolabis) vritra is most similar to *D. (R.) vajra* sp. n., among the known species of the region, differing in the structure of the antennae and male hypopygium, and in the details of coloration of the body and wings.