

New or little-known species of exotic Tipulidae (Diptera). XI

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SYNOPSIS

A new species of *Malaisemyia* is described from material from Manipur. One species of *Dicranota* (*Rhaphidolabina*) from Assam and two species of the same subgenus from Sikkim are described as new. Four new species of *Dicranota* (*Rhaphidolabis*) are described from material from Sikkim.

THE preceding part in this series of papers was published in 1963 (*Proc. R. Ent. Soc. Lond.* (B) 32 : 25–31). At this time I am describing still further Pediciine crane-flies from the Sikkimese Himalayas and from Manipur, which were taken by Dr. Fernand Schmid. One further species is from the Khasi Hills, Assam, and was collected by Mr. S. Sircar. Types of the species are preserved in my personal collection.

Malaisemyia manipurensis sp. n.

Male: length, about 23–27 mm.; wing, 23–25 mm.; antenna, about 2.1–2.3 mm.

Female: length, about 32–33 mm.; wing, 25–26 mm.; antenna, about 2.3–2.4 mm.

Similar to the type of the genus, *Malaisemyia ornaticissima* Alexander, from north-eastern Burma, but differing conspicuously in the much larger size and in slight details of arrangement of the wing pattern (in *ornaticissima*, male, length about 20–21 mm.; wing 16–16.5 mm.). Structure of male hypopygium very similar in both species.

Antennae (which were broken in the types of *ornaticissima*) short, 14–15 segmented; scape and pedicel fulvous, flagellum light yellow, outer 2 segments dark brown; proximal flagellar segments short-cylindrical, outer ones smaller but more elongate; longest verticils single, unilaterally arranged, exceeding the segments in length. Mesonotal praescutum buffy-yellow with 2 approximated intermediate brown stripes, the lateral pair less distinct. Legs almost uniformly light yellowish-brown, tips of femora and tibiae inconspicuously darkened. Wing pattern arranged almost as in *ornaticissima*, darkened areas at ends of supernumerary crossvein in cell *1st A* and tip of *2nd A* broadly confluent along margin (in *ornaticissima* the areas separated and with vein *2nd A* shorter and curved more strongly into the border); cell *M*₁ with petiole commonly punctiform or lacking. Margins of wing bands darker and more evident, in females the bands narrower and almost uniformly dark brown, ground areas thus slightly larger. Abdomen of female dark brown, sides with silvery triangles, their points directed cephalad, including borders of both tergites and sternites. In the male these silvery lateral areas much less conspicuous.

Holotype ♂, INDIA: Hkayam Boum, Manipur, 8500 feet, 21. vi. 1960 (*F. Schmid*).

Paratypes: ♀ (*allotopotype*), 23. vi. 1960; (*paratopotypes*), ♂♂, 20–23. vi. 1960; ♂♂, ♀, Sirhoi Kashong, Manipur, 6000–7500 feet, 6–9. vi. 1960, 12. vii. 1960 (*F. Schmid*).

Dicranota (*Rhaphidolabina*) *asignata* sp. n.

General coloration of body (including also the palpi, antennae, halteres and legs) yellowish-white, unpatterned; wings whitish-subhyaline, with slight darkenings at origin of *Rs*, cord and outer end of cell *1st M*₂; *R*₂₊₃₊₄ present, cell *1st M*₂ elongate.

Female

Length, about 5 mm.; wing, 5.5 mm.

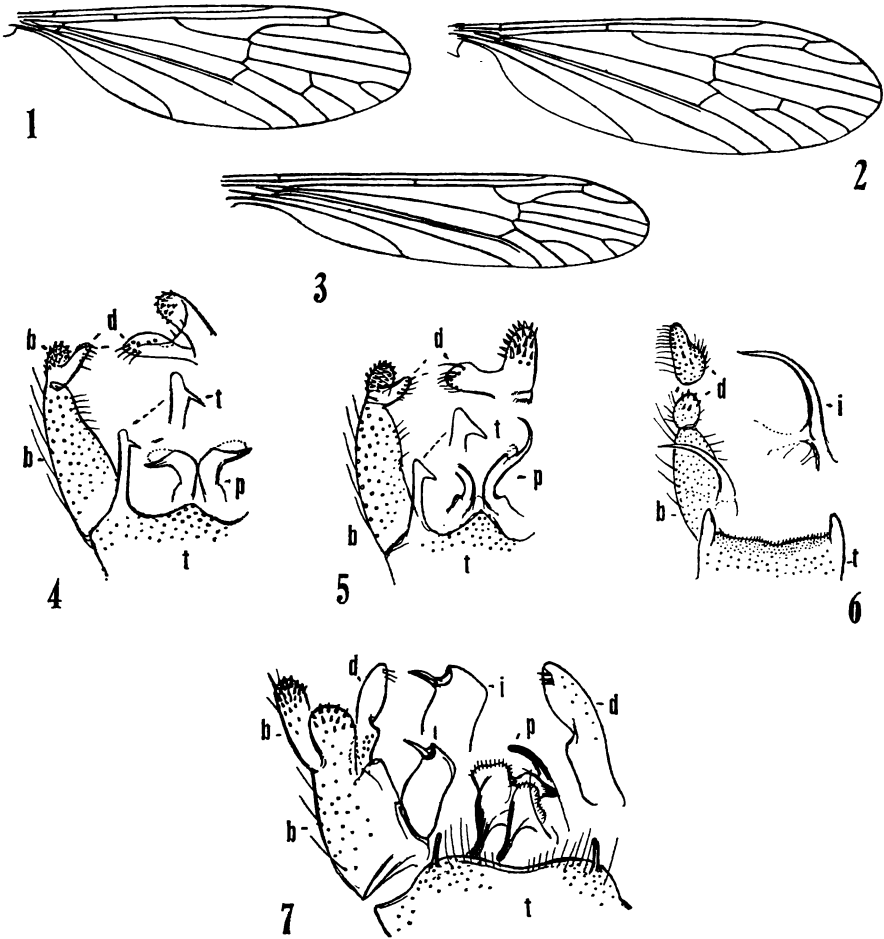
Rostrum, palpi and antennae yellowish-white. Head pale yellow, contrasting with the black eyes.

Thorax uniformly yellowish-white. Halteres and legs white, outer two tarsal segments slightly darkened, especially the last. Wings (fig. 1) whitish-subhyaline, with slight darkenings at origin of *Rs*, *R*₂, cord and outer end of cell *1st M*₂, indicated by the light brown veins, which elsewhere are pale yellow and poorly delimited against the ground. Macrotrichia of veins pale and scattered, on outer ends of veins beyond cord, as well as anal veins; lacking on veins basad of cord excepting a few very small trichia on *R*; costal fringe long but sparse. Venation: *Sc*₁ ending beyond fork of *R*₂₊₃₊₄, latter longer than *R*₂; cell *1st M*₂ long, widened outwardly; cell *M*₁ shorter than its petiole; *m-cu* oblique, about one-fourth its length beyond fork of *M*.

Abdomen yellowish-white. Ovipositor with cerci appearing as large flattened horn-yellow blades, the tips acute.

Holotype ♀, INDIA: Lachung, Sikkim, 8610 feet, 9. vii. 1959 (F. Schmid).

Dicranota (Rhaphidolabina) asignata is distinct from the other species allied to *spectralis* in having unpatterned legs. These other species, *D. (R.) spectralis* (Brunetti) and *D. (R.) paraspectralis* sp. n., have the tips of the femora and tibiae blackened.



FIGS. 1-7.—(1-3) Venation of: (1) *Dicranota (Rhaphidolabina) asignata* sp. n.; (2) *Dicranota (Rhaphidolabina) subreticularis* sp. n.; (3) *Dicranota (Rhaphidolabis) arjuna* sp. n. (4-7) Male hypopygium of: (4) *Dicranota (Rhaphidolabina) paraspectralis* sp. n.; (5) *Dicranota (Rhaphidolabina) spectralis* (Brunetti); (6) *Dicranota (Rhaphidolabina) subreticularis* sp. n.; (7) *Dicranota (Rhaphidolabis) arjuna* sp. n. (*b*, basistyle; *d*, dististyle; *i*, interbase; *p*, phallosome; *t*, tergite.)

***Dicranota (Rhaphidolabina) paraspectralis* sp. n.**

Male: length, about 5.5 mm.; wing, 6.5 mm.; antenna, about 0.7 mm.

Very similar to *Dicranota (Rhaphidolabina) spectralis* (Brunetti), but differing especially in the structure of the male hypopygium. Male hypopygium (fig. 4) with posterior margin of tergite (*t*) moderately produced, provided with long pale setae; lateral tergal arms darkened, spine acute. Basistyle (*b*) long and slender, without an interbase; at apex constricted and produced into a small bilobed structure that is interpreted as representing an outer lobe of basistyle and a slightly smaller dististyle; lobe of basistyle with numerous pale spiculate points, with interspersed short setulae; dististyle with a few long setae. Phallosome (*p*) with apical horns unusually short, ending about opposite or shortly beyond termination of pale membrane. I am describing and figuring the hypopygium of *spectralis* for comparison (fig. 5); lateral tergal arms (*t*) pale and difficult to see in balsam slide mounts. Outer lobe of basistyle (*b*) with the spiculate points more elongate. Phallosome (*p*) with horns long and slender, extended noticeably beyond lateral membrane.

In these two species, and in some others that are allied, both terminal styli or lobes are unusually small when compared with the unusually long basistyle and both are delimited by a pale ring or partial constriction. Despite this latter condition, it would appear that one of these lobes is actually an extension of the basistyle, the other being the dististyle. An alternative interpretation would be to term the entire apical armature a bilobed dististyle. A similarity in structure of the hypopygium in the subgenus *Tricyphona* Zetterstedt should be noted.

Holotype ♂, INDIA: Cherrapunji, Khasi Hills, Assam, 4000 feet, v. 1936 (*S. Sircar*).

Brunetti's unique type of *spectralis* was from Darjiling, West Bengal. I have seen specimens from Manu, Sikkim, 4920 feet, 10.v.1959 and from Singbeng, Sikkim, 4900 feet, 14.x.1959 (*F. Schmid*).

Dicranota (Rhaphidolabina) subreticularis sp. n.

Size small (wing about 6 mm.); antennae 11-segmented; general coloration of thorax dark brown; halteres yellow; legs brownish-yellow, outer tarsal segments dark brown; wings pale yellow, with a restricted pale brown subreticulated pattern; male hypopygium with interbase a long slender pale blade; dististyle oval, without a basal spine.

Male: length, about 5 mm.; wing, 6.4 mm.; antenna, about 0.9 mm.

Female: length, about 5 mm.; wing, 6 mm.

Rostrum and palpi brown. Antennae brown, short, 11-segmented; flagellar segments oval, exceeding the verticils; terminal segment elongate, constricted at near midlength. Head brown.

Pronotum dark brown. Mesonotal praescutum with three very broad dark brown stripes, interspaces narrow, lateral stripes reaching the margin; scutal lobes dark brown, remainder of mesonotum somewhat paler brown, parascutella yellowed. Pleura dark brown. Halteres yellow. Legs with coxae yellowed, middle pair darker basally; trochanters yellow; remainder of legs brownish-yellow, outer tarsal segments dark brown. Wings (fig. 2) pale yellow, the prearcular and costal fields clearer yellow; a pale brown pattern that is only slightly reticulate, more sparse than in *reticularis*; darker areas at tip of R_1 , origin of R_s , and as a narrow band extending from stigma backward over the cord; paler reticulations include about 3 or 4 areas in cell R_3 and in cases in the outer radial cells, faint to lacking in cells R_4 and R_5 in the allotype; pale bands appear as transverse lines, not anastomosing; veins yellow, darker in patterned areas. Venation: R_{2+3+4} subequal to $r-m$; cell M_1 subequal to or longer than its petiole; $m-cu$ more than one-half its length beyond fork of M .

Abdomen, including hypopygium, dark brown. Ovipositor with valves broad, light yellow. Male hypopygium (fig. 6) with the tergite (t) large, transverse, posterior border very slightly emarginate, with abundant very small delicate setulae; lateral tergal arms appearing as relatively short flattened blades. Basistyle (b) slender; interbase a long narrow pale blade, curving to the acute tip. Dististyle (d) simple, slightly asymmetrical on the two sides of the type, one being a regular oval, the other more produced outwardly and provided with long erect setae, the smaller style with sparse spinoid setae and relatively few longer ones.

Holotype ♀, INDIA: Lachen, Sikkim, 8900 feet, 13.vi.1959 (*F. Schmid*). *Paratype* ♂ (*allotype*), Chumzomoi Choka, Sikkim, 11,800 feet, in *Rhododendron* association, 8.vii.1959 (*F. Schmid*).

Dicranota (Rhaphidolabina) subreticularis is most similar to *D. (R.) reticularis* Alexander, differing in the structure of the antennae, pattern of the wings and structure of the male hypopygium, particularly the interbase and dististyle.

Dicranota (Rhaphidolabis) arjuna sp. n.

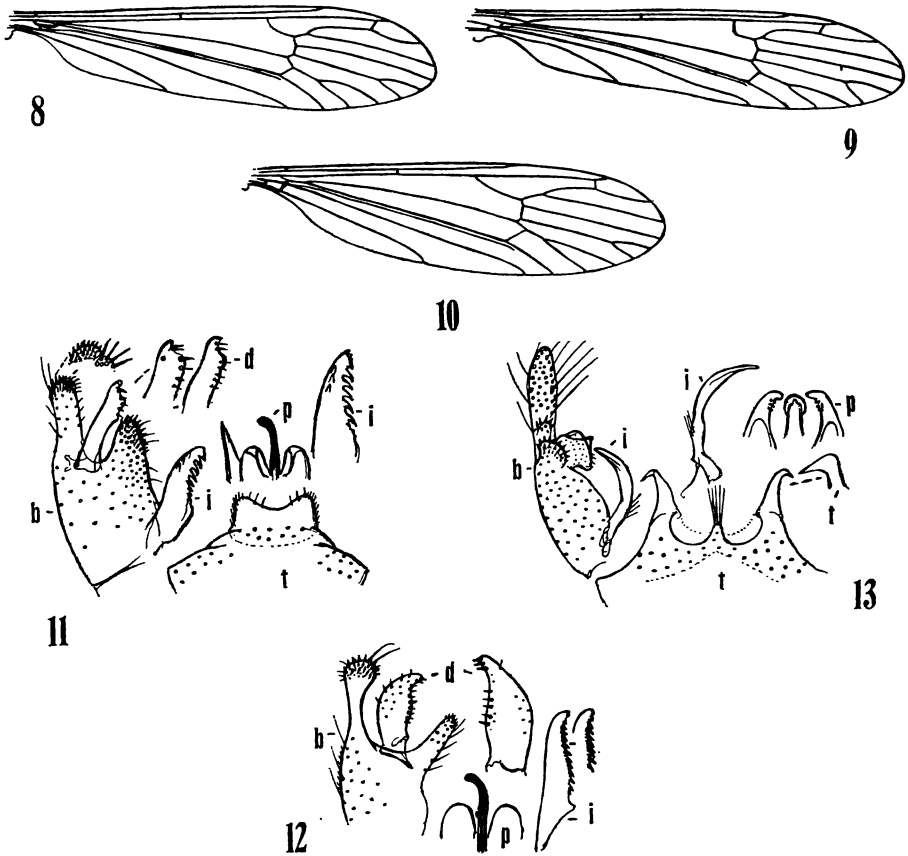
Size large (wing of male about 8.5 mm.); general coloration of thorax brown, praescutum with 4 brownish-black stripes; antennae 15-segmented, black throughout; legs black, femoral bases narrowly brownish-yellow; wings narrow, strongly suffused with brownish-yellow, patterned with brown; R_{2+3+4} about twice basal section of R_5 ; male hypopygium with tergite produced into a lateral rod; interbase a broad yellow plate, inner margin before apex produced into a slender spine; inner margin of dististyle strongly incised; phallosome including slender aedeagus and very extensive convoluted apophyses, surface densely setuliferous.

Male: length, about 7.5-7.6 mm.; wing, 8.5-8.6 mm.; antenna, about 1.3-1.4 mm.

Female: length, about 7-8 mm.; wing, 8.5-9.5 mm.

Rostrum and palpi black. Antennae relatively short, 15-segmented; all flagellar segments short-oval, terminal segment smaller than penultimate. Head yellowish-brown.

Pronotum brown. Mesonotal praescutum light brown with 4 brownish-black stripes, intermediate pair barely separated by a paler brown capillary line; posterior sclerites of notum brown, scutal lobes extensively darker brown. Pleura yellowish-grey, variegated by darker grey, especially on dorsal and ventral sternopleurite and meron, dorsopleural region more buffy. Halteres with stem buffy, knob dark brown. Legs with coxae and trochanters brownish-grey; remainder of legs black, femoral bases narrowly brownish-yellow. Wings (fig. 3) narrow, strongly suffused with brownish-yellow, prearcular and costal regions somewhat clearer yellow; brown clouds over cord and adjoining veins, including also much of cell R_3 , and as narrow seams over veins R_5 , Cu and $2nd A$; stigma



FIGS. 8-13.—(8-10) Venation of: (8) *Dicranota (Rhaphidolabis) diprion* sp. n.; (9) *Dicranota (Rhaphidolabis) pristis* sp. n.; (10) *Dicranota (Rhaphidolabis) unilobata* sp. n. (11-13) Male hypopygium of: (11) *Dicranota (Rhaphidolabis) diprion* sp. n.; (12) *Dicranota (Rhaphidolabis) pristis* sp. n.; (13) *Dicranota (Rhaphidolabis) unilobata* sp. n.
(b, basistyle; d, dististyle; i, interbase; p, phallosome; t, tergite.)

elongate, brown; veins yellow in ground areas, darker in patterned parts, Sc and prearcular veins clearer yellow. Venation: R_2 longer than R_{1+2} ; R_{2+3+4} about twice basal section of R_5 ; $m-cu$ oblique, about one-half its length beyond fork of M ; vein $2nd A$ long, curved gently to the margin.

Abdomen of male light brown, outer segments darker; in female, abdomen yellowed, subterminal segments darkened. Ovipositor with cerci yellowish horn colour. Male hypopygium (fig. 7) with the tergite (t) broad, posterior border gently emarginate to form low lobes provided with long setae; each outer angle with a small slender sclerotised rod. Basistyle (b) produced apically into 2 lobes, outer longer and narrower, inner short and broad, suboval, both lobes with apical blackened spinoid setae and long delicate bristles; interbase (i) a broad yellowed plate, tip truncate, inner margin before apex produced laterad into a slender spine. Dististyle about equal in length to longest lobe of basistyle, strongly incised on inner or lower margin, apex with few setae. Phallosome (p) large and complex, including extensive apophyses that appear as flattened convoluted plates, densely setuliferous; aedeagus very slender, blackened.

Holotype ♂, INDIA: Yagtang, Sikkim, 11,200 feet, in *Rhododendron* association, 28. v. 1959 (F. Schmid). *Paratypes*: 1 ♀ (*allotype*), Yabuk, Sikkim, 13,050 feet, in *Rhododendron* association, 27. v. 1959; 1 ♂, Theuchung, Sikkim, 14,100 feet, 30. v. 1959; 1 ♀, Gey, Sikkim, 12,000 feet, in *Rhododendron* association, 20. v. 1959 (F. Schmid).

This conspicuous fly is most nearly allied to species such as *Dicranota (Rhaphidolabis) kaliya* Alexander and *D. (R.) vishnu* Alexander, differing evidently in the coloration and pattern of the wings and in the structure of the male hypopygium, especially the interbase, dististyle and phallosome.

Dicranota (Rhaphidolabis) diprion sp. n.

Allied to *serrulifera*; general coloration dark brownish-grey, praescutum with 3 dark brown stripes; antennae relatively long; wings faintly greyish, base more yellowed; macrotrichia on veins beyond cord, more basally sparse or lacking; R_{2+3+4} preserved; male hypopygium with tergite produced into a broad lobe, its outer margin gently emarginate; margin of interbase coarsely serrate.

Male: length, about 5.5-5.3 mm.; wing, 6-6.5 mm.; antenna, about 1.2-1.4 mm.

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

Rostrum grey; palpi black. Antennae 15-segmented, black throughout, relatively long; flagellar segments long-oval, progressively shorter outwardly, terminal segment about two-thirds as long as penultimate. Head dark brownish-grey, anterior vertex darker.

Pronotum dark brownish-grey. Mesonotal praescutum dark brownish-grey with 3 dark brown stripes that are not conspicuous against the ground; remainder of notum dark grey, scutal lobes darker brown. Pleura dark grey, somewhat darker on anepisternum and ventral sternopleurite, dorsopleural membrane dark. Halteres infuscated, base of stem narrowly yellowed. Legs with coxae dark brown, slightly pruinose; trochanters brown; remainder of legs dark brown to brownish-black, femoral bases somewhat paler brown. Wings (fig. 8) faintly greyish, base more yellowed; stigma pale brown; veins brown. Relatively short macrotrichia on veins beyond cord, lacking on R_s , R_{2+3+4} , M and basal section of Cu_1 , a few on outer ends of anal veins and distal section of Cu_1 . Venation: R_{2+3+4} subequal to or slightly longer than basal section of R_5 ; $m-cu$ about one-half to two-thirds its length beyond fork of M .

Abdomen, including hypopygium, black, sparsely pruinose to appear dark grey. Male hypopygium large (fig. 11), the posterior border of tergite (t) produced into a broad darkened lobe, its outer margin very gently concave, provided with delicate setulae; no apparent tergal arms. Basistyle (b) with both outer and inner apical lobes prominent, outer one more elongate, slightly notched at tip, the 2 parts with slightly different spinoid setae and spicules, additional to longer setae; inner lobe lower and broader, apex obtuse, with abundant spinoid setae; interbase (i) distinctive, appearing as a flattened blade, its lower margin with from 5 to 7 coarse recurved teeth, towards the base becoming smaller, more crowded and finally obsolete, in cases the number of such major teeth reduced to 2 or 3; outer face of structure with about 3 appressed spines. Dististyle (d) moderately broad, outer end irregular in outline, extreme apex a small knob that is margined with a few stout spinoid setae. Phallosome (p) with aedeagus darkened, unusually long and slender, apex slightly dilated; gonapophyses appearing as broad subcylindrical plates, with further conspicuous long-triangular arms that extend into acute points.

Holotype ♂, INDIA: Namnasa, Sikkim, 9500 feet, 12. vii. 1959 (F. Schmid). *Paratypes*: ♀ (*allotype*), Lachung, Sikkim, 8610 feet, 9. vii. 1959; ♂♂ (*paratopotypes*), 12-13. vii. 1959; ♂♂, with the allotype.

Dicranota (Rhaphidolabis) diprion is readily told from allied regional species, such as *D. (R.) pristis* sp. n. and *D. (R.) stenostyla* Alexander, by the structure of the male hypopygium. All these species have the antennae markedly longer than is usual in the subgenus.

Dicranota (Rhaphidolabis) pristis sp. n.

Allied to *serrulifera*; general coloration dark brown, the 3 praescutal stripes still darker; antennae of male elongate; wings narrow, strongly suffused; R_s short, almost squarely bent at origin, R_{2+3+4} shorter than basal section of R_5 ; male hypopygium with apical lobes of basistyle strongly developed, outer clavate; interbase a straight flattened blade, margin with about 15 small recurved teeth.

Male: length, about 5.3-5.5 mm.; wing, 6-6.5 mm.; antenna, about 2-2.1 mm.

Rostrum dark brown; palpi black. Antennae 15-segmented, brownish-black, unusually long, flagellar segments correspondingly lengthened, subcylindrical; segments clothed with long erect pale setae, more than one-half as long as verticils. Head dark brown.

Thorax almost uniformly dark brown, the 3 praescutal stripes still darker. Halteres destroyed by

insect pests. Legs brownish-black to black. Wings (fig. 9) narrow, strongly suffused, the stigma slightly darker; veins brown. Short macrotrichia on veins beyond cord, basad of this with few on outer ends of Rs , Cu_1 and $1st A$, more numerous on $2nd A$, lacking on M . Venation: Sc long, Sc_1 ending about opposite one-third length of R_{2+3} ; R_{2+3+4} shorter than basal section of R_5 ; Rs short, almost squarely angulated at near midlength; $m-cu$ nearly its own length beyond the fork of M .

Abdomen dark brown, the borders somewhat darker. Male hypopygium (fig. 12) with the tergal region destroyed by insect pests. Basistyle (b) with apical lobes very strongly developed, especially the longer outer lobe which is narrow on central half, apex dilated into an obtuse head that is provided with several weak spinoid setae and 2 elongate setae; inner apical lobe about two-thirds as long, slender, spinoid setae few and very small, normal setae more abundant; interbase (i) a straight flattened blade that narrows to a point outwardly, margin with about 15 small recurved teeth, smaller and less distinct at either end of the series, teeth smaller and more numerous than in *diprion*. Phallosome (p) with aedeagus slender, bent, apophyses broadly obtuse.

Holotype ♂, INDIA: Namnasa, Sikkim, 9500 feet, 13. vii. 1959 (*F. Schmid*). *Paratype*: one fragmentary ♂, mounted on microscope slide with the type.

Dicranota (Rhaphidolabis) pristis is readily told from its closest regional allies, *D. (R.) diprion* and *D. (R.) stenostyla*, by the structure of the male hypopygium, particularly the basistyle, dististyle and interbase. The male antennae are unusually long, representing the extreme so far made known in the local fauna.

Dicranota (Rhaphidolabis) unilobata sp. n.

Size small (wing 5 mm. or less); general coloration dark brown or brownish-black, praescutal stripes slightly differentiated; antennae 13-segmented, short, black throughout; legs black; wings strongly suffused, stigma still darker; Sc_1 ending about opposite two-thirds Rs ; R_{2+3+4} about one-third longer than $r-m$; male hypopygium with posterior border of tergite produced into a slender median lobe, lateral arms very powerful; basistyle with outer lobe elongate, interbase a slender simple blade.

Male: length, about 4.2 mm.; wing, 4.8 mm.; antenna, about 0.8 mm.

Female: length, about 4.5–4.7 mm.; wing, 4.5–5 mm.

Rostrum brownish-black. Antennae 13-segmented, short, black throughout; first flagellar segment longest, succeeding segments progressively smaller, terminal segment slightly smaller than the penultimate. Head dark brown.

Thorax almost uniformly dark brown to brownish-black, the 3 praescutal stripes scarcely differentiated from the ground, parascutella more yellowed. Halteres brownish-black, base of stem narrowly yellowed. Legs with coxae and trochanters dark brown; remainder of legs brownish-black. Wings (fig. 10) strongly suffused with brown, stigma still darker; veins dark brown. Macrotrichia on longitudinal veins virtually back to level of arculus. Venation: Sc moderately long, Sc_1 ending about opposite two-thirds Rs , Sc_2 far removed; R_{2+3+4} relatively long, about one-third longer than $r-m$; $m-cu$ oblique, about two-thirds its length beyond fork of M .

Abdomen, including hypopygium, brownish-black. Male hypopygium (fig. 13) with tergite (t) large, especially the powerful lateral arms that are narrowed on outer half, terminating in a right-angled point; median region of posterior border produced into a slender lobe that is tufted with 5 or 6 very long setae, subequal in length to lobe. Basistyle (b) with a low outer apical lobe provided with relatively few blackened spinoid setae; second lobe unusually lengthened, with long setae, near its base with a low lobule provided with a few spinoid setae; interbase (i) a slender blade, slightly dilated at near midlength, gently curved to the narrowly obtuse tip. Dististyle (d) a compact yellow structure covered with delicate setulae. Phallosome (p) with aedeagus capitate; gonapophyses narrowed and incurved at tips.

Holotype ♂, INDIA: Lingdok, Sikkim, 4600 feet, 7. v. 1959 (*F. Schmid*). *Paratypes*: 1 ♀ (*allotopotype*), pinned with type; 1 ♀ (*paratopotype*), pinned with type.

Dicranota (Rhaphidolabis) unilobata is most similar to species such as *D. (R.) brachyneura* Alexander, differing in the longer Sc and especially in the structure of the male hypopygium, including the single median tergal lobe, elongate outer lobe of the basistyle, and the structure of the interbase.

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