

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

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SYNOPSIS

All species considered belong to the tribe Pediciini. Descriptions are given of one new species of *Pedicia* from Assam, and of one from Sikkim. Two species of *Dicranota* (*Rhaphidolabis*) from Assam and four from Sikkim are described.

THE preceding part in this series of papers was published in 1965 (*Proc. R. ent. Soc. Lond.* (B) 34: 98–104). In this report, still further species in the tribe Pediciini are discussed, including two novelties in *Pedicia* (*Tricyphona*) from Assam and Sikkim and six in *Dicranota* (*Rhaphidolabis*) from the same regions. All materials were taken by Dr. Fernand Schmid, to whom I express my thanks for the opportunity to study this outstanding series of crane-flies. The types are preserved in my personal collection.

In the present paper, and in more than a score of others previously published that were based on Dr. Schmid's collections in India, I have made frequent references to the so-called *Rhododendron* associations found at the higher altitudes of the Himalayas to provide habitats for many species of Tipulidae. Attention may be called to one of these papers (Alexander, 1964), in which this subject has been discussed in greater detail.

Pedicia (*Tricyphona*) *ericarum* sp. n.

Allied to *flavipennis* (Brunetti); wings yellowed with a conspicuous brown pattern, the areas solidly darkened; no dark cloud in cell *Cu*.

Male: length, about 11 mm.; wing, 12 mm.; antenna, about 1.5 mm.

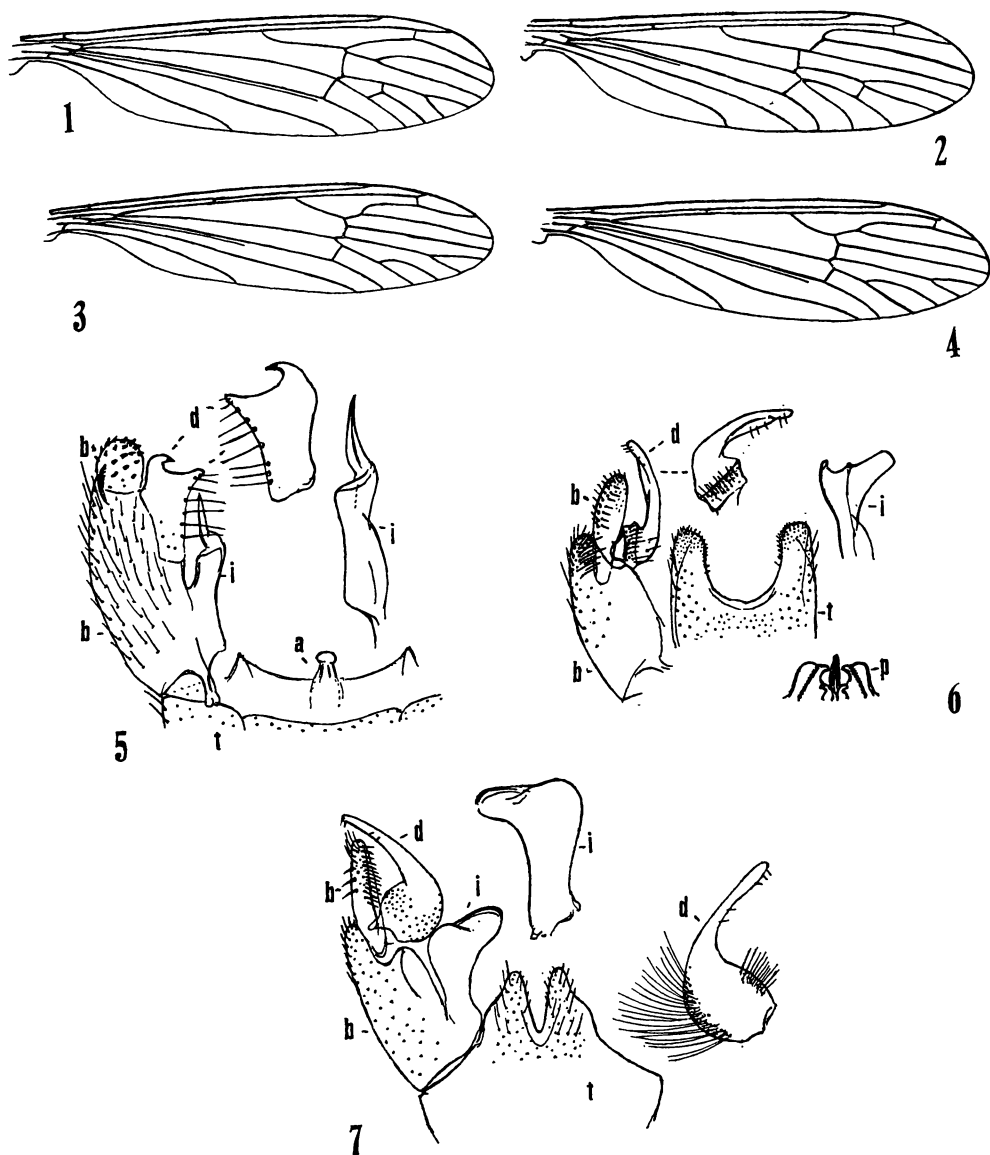
Female: length, about 12 mm.; wing, 11 mm.

Rostrum and palpi dark brown. Antennae short, 15-segmented, dark brown. Head dark brownish-grey.

Pronotum dark brown, the sides restrictedly yellowed. Mesonotal praescutum with the restricted ground light yellow pollinose; disk with 3 dark brown stripes that restrict the interspaces to narrow lines, the central stripe extended on to the pretergal region above the anterior spiracle; scutum yellow pollinose medially, each lobe with a large brown area; scutellum yellowed; postnotum more yellowish-grey, pleurotergite variegated with brown. Pleura yellowish-grey, darker grey on sutures and the ventral sternopleurite; dorsopleural region buffy. Halteres yellow. Legs with coxae yellowed, trochanters slightly darker; remainder of legs black, femoral bases very narrowly yellowed, slightly more extensive on fore legs. Wings (fig. 2) yellowed, with a conspicuous brown pattern, the areas solidly darkened, not ringed or ocelliform as in *flavipennis*, only the area at origin of *Rs* distinctly pale on central part; dark markings over cord, outer end of cell 1st *M*₂, origin of *Rs* and ends of all longitudinal veins with the exception of *Rs*; continuous dark seams over veins *M* and the anals, lacking on basal section of *Cu*₁; no darkened cloud in cell *Cu* as in *flavipennis*; veins light brown in the darkened parts, yellow in the ground. Venation: *r-m* before fork of *Rs*, *R*₂₊₃₊₄ suberect, *Rs* in alignment with vein *R*₅; cell 1st *M*₂ long, *m* beyond the upper fork of *M*₁₊₂ on vein *M*₂; *M*₃₊₄ short, about one-half to two-thirds *m-cu*, the latter at the fork or on vein *M*₄.

Abdomen brown, darker outwardly, including the hypopygium. Ovipositor with cerci very long and straight, tips nearly acute. Male hypopygium (fig. 5) with apical lobe of basistyle (*b*) subcircular, with relatively sparse small black spicules; interbase (*i*) appressed to mesal face of style, its basal two-thirds stouter, outer end produced into a twisted yellow spine. Dististyle (*d*) a flattened plate, the outer apical angle with a short curved projection that terminates in a short blackened spinoid bristle; inner apical angle produced into a slender lobe; mesal margin of style with about 8 strong setae.

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FIGS. 1-7.—(1-4) Venation of: (1) *Pedicia (Tricyphona) xanthoptera* sp. n.; (2) *Pedicia (Tricyphona) ericarum* sp. n.; (3) *Dicranota (Rhaphidolabis) festa* sp. n.; (4) *Dicranota (Rhaphidolabis) luteibasis* sp. n. (5-7) Male hypopygium of: (5) *Pedicia (Tricyphona) ericarum* sp. n.; (6) *Dicranota (Rhaphidolabis) perlongiseta* sp. n.; (7) *Dicranota (Rhaphidolabis) festa* sp. n. (a, aedeagus; b, basistyle; d, dististyle; i, interbase; p, phallosome; t, tergite.)

Holotype ♂, INDIA: Tsomgo, Sikkim, 9900 feet, in *Rhododendron* association, 26.viii.1959 (F. Schmid). *Paratype (allotype)* ♀, Karponang, Sikkim, 9900 feet, 23.viii.1959 (F. Schmid).

Pedicia (Tricyphona) flavipennis is readily distinguished from the present fly by the handsome ocelliform brown pattern of the wings. The species was described as a *Limnophila* but is a typical member of *Pedicia*. Brunetti's types were from the Darjeeling District in the eastern Himalayas, at altitudes of 4000-5000 feet. I have seen further specimens from Kumaon: Hilang, Pauri Garhwal, 5000-7500 feet,

14.vi.1958; Trijugi, Pauri Garhwal, 7000 feet, 26.v.1958; and Khati, Almora, 7700–8000 feet, 11.xi.1958 and from Sikkim: Yugang, 5700 feet, 14.v.1959; all specimens taken by Schmid.

Attempts have been made to maintain *Amalopsis* Haliday, *Crunobia* Kolenati and *Tricyphona* Zetterstedt as subgenera in *Pedicia*, but it appears to me that neither *Crunobia* nor *Amalopsis* are sufficiently different to be used. *Crunobia* typically has vein M_{3+4} present, subequal to $m-cu$, the latter at or close to the fork of M ; *Amalopsis* has M_{3+4} very short to punctiform, with $m-cu$ near the base of M_4 . The present fly and *flavipennis* vary considerably in the relative length of vein M_{3+4} , and different specimens might be referred to either of the above groups. The extreme plasticity in venation in the Pediciini, especially as regards the veins at the forking of Rs , has been discussed by Edwards (1938) and in a number of papers by the writer, some of which were listed in the preceding article under this general title (Alexander, 1965).

In a recently published posthumous paper by Lackschewitz (1964), a generic name *Trifurcaria* is proposed for a new Palaearctic species, *T. arctica*. Here again the supposed genus is based on wing venation, with cell M_2 open by the atrophy of cross-vein m and vein R_{4+5} present as a long petiole of cell R_4 , the whole effect being three outer forks by cells R_4 , M_1 and M_3 . Again, I do not believe that the group is sufficiently distinct from *Tricyphona* Zetterstedt to be maintained. The venational characters used are highly variable, particularly the open cell M_2 . The long petiole of cell R_4 is found in various Arctic species of *Tricyphona* in North America, including *Pedicia* (*Tricyphona*) *brevifurcata* (Alexander), *P. (T.) cascadiensis* Alexander, *P. (T.) hannai* (Alexander), and others.

Pedicia (Tricyphona) xanthoptera sp. n.

Mesonotal praescutum buffy-yellow to grey with 4 dark brown stripes; halteres light yellow; legs yellow, tips of femora brownish-black, of the tibiae more narrowly so; wings light yellow, veins yellow, inconspicuous against the ground, cell 1st M_2 closed.

Male: length, about 7.5–8.5 mm.; wing, 8–9.5 mm.; antenna, about 1.1–1.2 mm.

Female: length, about 8–9 mm.; wing, 8.5–10 mm.

Rostrum dark brown; palpi black. Antennae short, scape brown, flagellum brownish-black, outer segments longer and paler, with longer verticils. Head grey.

Pronotal scutum brown, yellowed on sides, scutellum yellow. Mesonotal praescutum buffy-yellow to grey with 4 dark brown stripes, sometimes the intermediate pair closely approximated; posterior sclerites of notum chiefly dark brown, parascutella and pleurotergite yellowed. Pleura buffy to light brown, ventral sternopleurite and meron narrowly brown, dorsopleural membrane more yellowed. Halteres light yellow. Legs with coxae and trochanters yellow; remainder of legs light yellow, tips of femora narrowly brownish-black, the amount subequal on all legs, tips of tibiae more narrowly darkened, outer tarsal segments infuscated. Wings (fig. 1) clear light yellow; veins yellow, inconspicuous against the ground. Venation: R_{4+5} present, subequal to $r-m$, which is beyond the fork of Rs ; cell 1st M_2 small, $m-cu$ close to the fork of M .

Abdomen, including hypopygium, dark brown to brownish-black. Male hypopygium with lateral tergal arms stout, especially their bases, before apex on inner margin produced into a short point.

Holotype ♂, INDIA: Sirhoi Kashong, Manipur, Assam, 6000 feet, 6.vi.1960 (*F. Schmid*). *Paratypes*: 1 ♀ (*allotype*), pinned with type; *paratopotypes* 4 ♀, with the types; 1 ♂, Hkayam Boum, Manipur, 8500 feet, 23.vi.1960.

There are several allied species in the Himalayan fauna, including *Pedicia (Tricyphona) boettigeri* Alexander, *P. (T.) fuscostigmata* Alexander and *P. (T.) glabri-pennis* (Brunetti), with cell 1st M_2 closed as in the present fly, and *P. (T.) ailingia* Alexander and *P. (T.) perpallens* Alexander with the venation of the medial field pectinate by the atrophy of the basal section of M_3 . All these have the coloration of legs and wings distinct from the present fly.

Dicranota (Rhaphidolabis) festa sp. n.

General coloration grey, praescutum with 3 dark brown stripes; halteres yellow; wings whitened, restrictedly patterned with brown, basad of cord with larger dark areas at Sc_2 and the tip of 2nd A ;

male hypopygium with tergal lobes narrow, the emargination broad, U-shaped; interbase very large; inner dististyle slender, from an enlarged base.

Male: length, about 5.5 mm.; wing, 6 mm.; antenna, about 0.8 mm.

Antennae brownish-black; palpi black. Antennae short, 15-segmented, black, the pedicel a little paler; flagellar segments short-oval, subequal to the longest verticils. Head brownish-grey.

Pronotum brownish-grey. Mesonotal praescutum light grey with 3 dark brown stripes, the lateral pair narrower; posterior sclerites of notum grey, each scutal lobe with a single triangular brown area. Pleura brownish-grey, dorsopleural membrane dusky. Halteres yellow. Legs with coxae brownish-grey, trochanters obscure yellow; femora yellow, vaguely darker outwardly; tibiae yellow, tarsi pale brown, darker outwardly. Wings (fig. 3) whitened, restrictedly patterned with brown, the base more yellowed; the dark pattern includes 2 larger areas lying basad of the cord at Sc_2 and the tip of $2nd\ A$; a conspicuous band at cord, confluent with the elongate slightly darker stigma; a series of marginal spots on veins R_3 , M_1 through Cu_1 , and $2nd\ A$, lacking on R_4 , R_5 and $1st\ A$; very small brown spots at origin of Rs and fork of M_{1+2} ; veins light yellow, brown in the patterned areas. Venation: R_2 perpendicular, subequal to R_{1+2} ; R_{2+3+4} more than twice the basal section of R_5 .

Abdomen brown, the outer segments dark brown. Male hypopygium (fig. 6) with the tergite (t) large, the lateral lobes narrow, separated by a deep and broad U-shaped emargination. Basistyle (b) with the outer apical lobe small, with normal setae; inner lobe elongate-oval, likewise with normal setae only, none spinoid; interbase (i) very large, the apex as figured, including a small slightly curved point at the inner apical angle, the outer part larger, its apex subtruncate. Dististyle (d) longer, slender, base enlarged, with a collar-like ring that is provided with numerous long yellow setae, beyond the base narrowed and curved to the obtuse tip.

Holotype ♂, INDIA: Namnasa, Sikkim, 10,000 feet, 1.vii.1959 (*F. Schmid*).

The nearest relative is *Dicranota* (*Rhaphidolabis*) *fascipennis* (Brunetti), a larger fly with the darkened wing pattern heavier and with the hypopygial structure distinct, especially the tergite, interbase and dististyle (fig. 13).

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

Allied to *kaliya* Alexander; general coloration of body grey, praescutum with 3 brownish-black stripes; knobs of halteres dark brown; legs dark brown; wings brownish-yellow with a pale brown pattern, nearly the basal half, including the veins, bright yellow, stigmal area obscure yellow; R_{2+3+4} long, nearly one-half R_2 .

Female: length, about 7 mm.; wing, 8 mm.; antenna, about 1 mm.

Rostrum dark grey; palpi black. Antennae black throughout, 15-segmented; first flagellar segment elongate, one-half longer than the second, outer segments oval, slightly exceeding the longest verticils. Head above brown, orbits broadly light grey.

Pronotum dark grey. Mesonotal praescutum dark grey with 3 brownish-black stripes, the broad central area narrowly divided on posterior third; posterior sclerites of notum blackened, grey pruinose, central area of scutum grey; scutellum with long erect pale setae, praescutal interspaces with sparse shorter similar bristles. Halteres with stem pale yellow, the large knob dark brown on outer half. Legs with coxae dark grey; trochanters brownish-yellow; remainder of legs dark brown, the tarsi scarcely darker. Wings (fig. 4) brownish-yellow with about the proximal third bright yellow, especially the veins which involve all of C and Sc , basal section of Cu_1 and extensive bases of the anals, remaining veins light brown, darker brown in the clouded parts; broad conspicuous pale brown clouds at origin of Rs , cord, R_2 and all outer forks, as well as a large darkening at end of $2nd\ A$; stigmal area between tip of Sc_1 and R_2 obscure yellow. Venation: Sc long, Sc_1 ending some distance beyond fork of R_{2+3+4} , the latter nearly one-half Rs ; R_{1+2} short, about one-third R_2 ; $m-cu$ about one-third its length beyond fork of M .

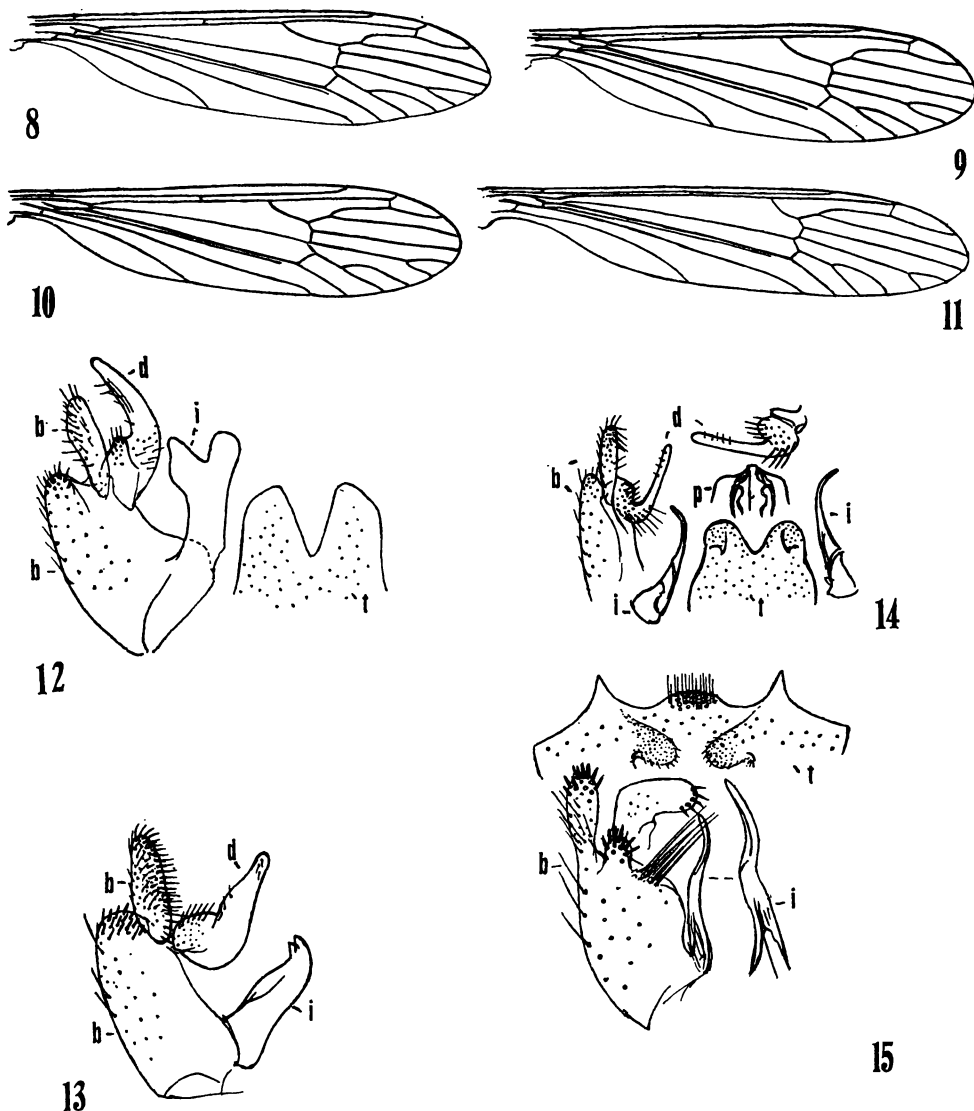
Abdomen dark grey, the long powerful cerci brown, their upcurved tips paling to horn yellow.

Holotype ♀, INDIA: Chateng, Sikkim, 8700 feet, 12.vi.1959 (*F. Schmid*).

The only other regional species having a comparable pale brown wing pattern is *Dicranota* (*Rhaphidolabis*) *kaliya*, which differs evidently in the coloration and venation of the wings. The present fly is unusually attractive in the intensely yellow bases of the wings, as described.

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

General coloration of thorax grey, praescutum with 3 very conspicuous dark brown stripes; legs brown; wings whitened, with a conspicuous brown pattern arranged much as in *fascipennis*; male hypopygium with tergite bilobed; interbase very large, its tip obtuse; dististyle with body oval, beak long and slender, outer margin of basal part with very long setae.



FIGS. 8-15.—(8-11) Venation of: (8) *Dicranota (Rhaphidolabis) perlongiseta* sp. n.; (9) *Dicranota (Rhaphidolabis) rhododendri* sp. n.; (10) *Dicranota (Rhaphidolabis) stenomera* sp. n.; (11) *Dicranota (Rhaphidolabis) tashepa* sp. n. (12-15) Male hypopygium of: (12) *Dicranota (Rhaphidolabis) rhododendri* sp. n.; (13) *Dicranota (Rhaphidolabis) fascipennis* (Brunetti); (14) *Dicranota (Rhaphidolabis) stenomera* sp. n.; (15) *Dicranota (Rhaphidolabis) tashepa* sp. n. (b, basistyle; d, dististyle; i, interbase; p, phallosome; t, tergite.)

Male: length, about 6.5 mm.; wing, 7 mm.; antenna, about 0.8 mm.

Rostrum grey; palpi black. Antennae short; scape brown, the remainder black; flagellar segments very short-oval, the more proximal ones broader than long; segments with short verticils and a dense white pubescence. Head brownish-grey.

Pronotal scutum grey with a large brown discal area. Mesonotal praescutum light grey with 3 very conspicuous dark brown stripes, the median one ending some distance before suture; posterior sclerites of notum grey, each scutal lobe with a brown area, parascutella pale. Pleura grey, ventral sternopleurite darker. Halteres with stem dirty white, restrictedly paler at base, the large knob weakly darkened. Legs with coxae grey; remainder of legs brown. Wings (fig. 8) whitened, with a conspicuous brown pattern that is arranged much as in *fascipennis*, with large costal areas beyond arculus, at Sc_2 and at origin of R_s ; further conspicuous seams over cord and at ends of outer veins,

the latter confluent in the radial and medial fields, largest at *Cu* and 2nd *A*, lacking on 1st *A*; stigma large, darker brown; veins light yellow, brown in the patterned areas. Venation: R_{2+3+4} longer than *m-cu*; R_2 slightly oblique, a little exceeding R_{1+2} .

Abdomen dark brown. Male hypopygium (fig. 7) generally as in *fascipennis*, differing especially in the structure of the interbase and dististyle. Ninth tergite (*t*) conspicuously bilobed. Basistyle (*b*) with outer lobe only slightly produced, without spinoid setae; inner lobe long and narrow, inner row of setae erect and slightly retrorse; interbase (*i*) very large, flattened, yellow, with a posterior flange and lower folds along outer margin before the obtuse tip. Dististyle (*d*) with body oval, beak long and slender; 2 groups of setae on body of style, those of the convex outer part exceedingly long, those of the concave inner margin shorter.

Holotype ♂, INDIA: Sirhoi Kashong, Manipur, Assam, 7500 feet, 13.vii.1960 (*F. Schmid*).

The most similar species include *Dicranota* (*Rhaphidolabis*) *fascipennis* and two others described at this time, *D. (R.) festa* and *D. (R.) rhododendri*, all differing very evidently in the details of structure of the male hypopygium, particularly the interbase and dististyle. The male hypopygium of *fascipennis* is shown in figure 13.

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

Generally similar to *fascipennis*, differing in the wing pattern and in the structure of the male hypopygium.

Male: length, about 7–7.5 mm.; wing, 7.5–8 mm.; antenna, about 1 mm.

Antennae 15-segmented; flagellar segments short-oval, longer than their verticils; in *fascipennis* the basal segments are longer, with long conspicuous dark coloured setae. Wings (fig. 9) patterned much as in *fascipennis* but with the outer radial cells beyond the stigma unpatterned. Male hypopygium (fig. 12) with apical lobe of the basistyle (*b*) small, with relatively few spinoid setae; interbase (*i*) a flattened yellow blade, beyond mid-length forking into 2 arms, their tips obtuse. Dististyle (*d*) slender, gently curved beyond the slightly enlarged base.

In *fascipennis* (fig. 13), the arms of the interbase (*i*) are short, the tips subacute to narrowly obtuse. Dististyle (*d*) much stouter, especially on proximal half.

Holotype ♂ and *paratopotype* ♂ on slide, INDIA: Chumzomoi Choka, Sikkim, 11,800 feet, in *Rhododendron* association, 8.vii.1959 (*F. Schmid*).

In 1911, Brunetti first described *fascipennis* as representing a supposed new genus, *Claduroides*. In 1912, he redescribed it twice more, as *Gnophomyia longipennis* and as *Rhaphidolabis fascipennis*. It is certain that all three names apply to a single species, all the species having been figured and all showing the characteristic wing pattern of *fascipennis*. This synonymy was discussed by the present writer (Alexander, 1913).

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

Size medium (wing of male 6.5 mm.); general coloration of thorax grey, praescutum with 3 conspicuous dark brown stripes; legs black, bases of fore femora narrowly yellowed; wings whitish subhyaline, weakly patterned with brown at stigma and the anterior cord; male hypopygium with ninth tergite bilobed; interbase and outer end of dististyle long and slender, simple.

Male: length, about 6 mm.; wing, 6.5 mm.; antenna, about 9 mm.

Rostrum and palpi black. Antennae 15-segmented, black throughout; basal flagellar segments oval, becoming progressively smaller outwardly, the terminal 5 or 6 short-oval. Head grey, centre of vertex darker.

Pronotum brownish-grey. Mesonotal praescutum grey, with 3 conspicuous dark brown stripes, the median one broad; posterior sclerites of notum light grey, centres of scutal lobes dark brown. Pleura grey, dorsopleural region buffy-brown. Halteres with stem whitened, knob dark brown. Legs with coxae dark brown, pruinose, the fore pair yellowed posteriorly; trochanters brownish-yellow; remainder of legs black, bases of fore femora narrowly more yellowed. Wings (fig. 10) whitish subhyaline, base more whitened; stigma and a narrow seam on anterior cord pale brown; veins pale brown. Longitudinal veins of outer four-fifths of wing with macrotrichia. Venation: *Sc* long, *Sc*₁ ending some distance beyond fork of R_{2+3+4} , the latter nearly twice R_2 ; *m-cu* about two-thirds its length beyond the fork of *M*.

Abdomen, including hypopygium, brownish-black. Male hypopygium (fig. 14) with tergite (*t*) bilobed, the obtuse tips of lobes darkened and thickened. Basistyle (*b*) with interbase (*i*) a long slender simple rod, narrowed to the subacute tip; outer apical lobe of basistyle short, the longer lobe with conspicuous partly recurved setae. Dististyle (*d*) enlarged and setiferous at base, thence pro-

duced into a long slender yellow blade, the apex obtuse. Phallosome (*p*) transverse, aedeagus scarcely projecting beyond level of the apophyses.

Holotype ♂, INDIA: Hkayam Boum, Manipur, 8500 feet, 22.vi.1960 (*F. Schmid*).

There are relatively few regional species of the subgenus that have the tergite of the hypopygium bilobed as in the present fly; these include *Dicranota* (*Rhaphidolabis*) *biloba* Alexander and *D. (R.) fascipennis*. In all of these the hypopygial structure, including the interbase and dististyle, is distinct. It should be noted that the apical lobe of the basistyle has been variously interpreted as representing a second dististyle or an apical extension of the basistyle. As here interpreted, it appears that a single dististyle is present in the subgenus *Rhaphidolabis*.

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

General coloration of thorax brownish-grey, the praescutum with 3 darker brown stripes; antennae short, 12-segmented; legs brown; wings faintly tinted with brown, stigma pale brown, prearcular field light yellow; R_2 at extreme tip of R_1 , R_{2+3+4} slightly exceeding the basal section of R_5 ; male hypopygium with lateral tergal lobes acute-triangular; basistyle with 2 unequal apical lobes, both with spinoid setae, interbase a slender blade, sinuous and narrowed at near two-thirds the length, the tip acute; dististyle stout, strongly arcuated at near mid-length.

Male: length, about 5.5 mm.; wing, 6 mm.; antenna, about 0.8 mm.

Rostrum and palpi dark brown. Antennae 12-segmented, black throughout; flagellar segments oval, slightly exceeding the verticils. Head brownish-grey.

Thoracic dorsum brownish-grey, praescutum with 3 darker brown stripes, each scutal lobe with 2 areas of the same colour; posterior sclerites of notum more uniformly darkened. Pleura clearer grey, ventral sternopleurite slightly darker; dorsopleural membrane buffy. Halteres with stem pale, yellowed basally, the large knob dark brown. Legs with coxae grey, paling to yellow apically; trochanters yellow; remainder of legs brown. Wings (fig. 11) relatively narrow, very faintly tinted with brown, stigma pale brown; prearcular field light yellow, including the veins, remaining veins pale brown. Venation: *Sc* long, *Sc*₁ ending some distance beyond base of R_{2+3} , R_2 at extreme tip of R_1 ; R_{2+3+4} slightly exceeding the basal section of R_5 .

Abdomen, including hypopygium, dark brown. Male hypopygium (fig. 15) with the tergite (*t*) transverse, posterior border with a low truncated median lobe with numerous setae, margin on either side produced sublaterally into an acute triangular glabrous point; ventral surface with a pair of darkened setigerous lobes, their outlines showing through the chitin from above (as outlined in figure); basistyle (*b*) with a long outer and shorter oval inner apical lobe, both provided with stout black spinoid setae; interbase (*i*) a slender blade, sinuous and narrowed at near two-thirds the length, tip acute. Dististyle (*d*) stout, pale, strongly arcuated and slightly narrowed at near mid-length, the apex with about 5 setae. Phallosome including small obtuse gonapophyses and the slender darkened aedeagus, outer end of latter slightly enlarged.

Holotype ♂, INDIA: Zema, Sikkim, 8900 feet, 11.vi.1959 (*F. Schmid*).

The present fly is most similar to species such as *Dicranota* (*Rhaphidolabis*) *obesistyla* Alexander and *D. (R.) vajra* Alexander, especially the former, differing in the 12-segmented antennae and in the details of structure of the hypopygium, especially the tergite and interbase.

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