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NEW AND LITTLE-KNOWN INDIAN CRANEFLIES (DIPTERA : TIPULIDAE) II

By Charles P. Alexander

39 Old Town Road, Amherst, Massachusetts, U.S.A.

ABSTRACT. Five new Indian species of the subfamily Tipulinae are described, belonging to the genera *Holorusia*, *Nephrotoma* and *Dolichozeza*. These are: *Holorusia mitra*, *H. yama*, *Nephrotoma bellula*, *N. unisicata* and *Dolichozeza (Nesozeza) seticristata*. In addition the male hypopygia of eight species in the genera *Holorusia* and *Nephrotoma* that had not been figured previously are shown. A preoccupied name in *Nephrotoma* is renamed.

The first part under this general title appeared in *Oriental Insects*, 1 : 197-209, December 1967. At this time I am continuing the study of the rich collections of these flies, made in various parts of India by Dr. Fernand Schmid, as discussed in the preceding paper. In addition to describing five new species, I am figuring the male hypopygia of various earlier species that had not been illustrated and am renaming a preoccupied name in the genus *Nephrotoma*.

Genus *Holorusia* Loew

Holorusia Loew, 1863, *Diptera Americae septentrionalis indigena*, 7 : 277.

Ctenacrosceles Enderlein, 1912, *Zool. Jahrb., Syst.*, 32 : 1.

Ctenacrosceles Edwards, 1932, *Stylops*, 1 : 145-150.

Holorusia Vane-Wright, 1967, *J. Nat. Hist.*, 1 : 511-547, 46 figs.

The Oriental members of this genus had been referred to *Ctenacrosceles* until 1967, when they were removed to the prior genus *Holorusia* Loew by Vane-Wright. This outstanding paper should be consulted by all workers on the family Tipulidae.

1. *Holorusia japvoensis* (Alexander) (Fig. 1)

Ctenacrosceles japvoensis Alexander, 1953, *Ann. Mag. Nat. Hist.*, (12) 6 : 742.

Described from Mount Japvo, Naga Hills, Assam. Male hypopygium (Fig. 1).

2. *Holorusia mara* (Alexander) (Fig. 2)

Ctenacrosceles mara Alexander, 1953, *Ann. Mag. Nat. Hist.*, (12) 6 : 898.

Described from Cherrapunji, Khasi Hills, Assam. Male hypopygium (Fig. 2).

3. *Holorusia flava melanopus* (Alexander) (Fig. 3)

Ctenacroscelis flavus melanopus Alexander, 1957, *Ann. Mag. Nat. Hist.*, (12) 10 : 100.

Described from Cherrapunji, Khasi Hills, Assam. Male hypopygium (Fig. 3).

4. *Holorusia mitra*, sp. nov. (Fig. 4)

Belongs to the *brobdignagia* group; size large (wing of male to 40 mm); mesonotal prescutum dark cinnamon-brown, disk with four relatively narrow dark gray stripes that are bordered by darker brown, pleura yellow with a narrow brownish-black dorsal stripe; antennal flagellar segments strongly produced to appear subserrate; legs brownish-yellow; wings strongly infuscated, restrictedly patterned with darker; male hypopygium with tergite deeply emarginate, all setae yellow, not forming brushes; inner dististyle with the dilated apex elongate, stem with a basal setiferous lobe; penis very stout, darkened; eighth sternite with posterior border evenly convex, without lobes, all setae yellow, very small on disk, longer toward margin but not forming tufts or brushes.

Male and Female: Frontal prolongation of head dark chestnut brown; nasus distinct but in some cases small; palpi dark brown outer segments black. Antennae light to darker brown, terminal segment black, intermediate flagellar segments strongly produced to appear subserrate. Head above dark brown, front orange, orbits narrowly paler brown.

Pronotum dark brown above, sides yellowed. Mesonotal prescutum with ground dark cinnamon-brown, disk with four relatively narrow dark gray stripes that are conspicuously bordered by darker brown; scutum dark cinnamon-brown, each lobe with two disconnected dark gray areas that are narrowly bordered by darker brown, point of suture conspicuously depressed, dark gray; scutellum brown; mediotergite brown, vaguely yellow pollinose, posterior declivity and most of pleurotergite brownish-yellow, the latter yellowed ventrally; mesonotal vestiture pale, abundant but relatively short. Pleura with a narrow very distinct brownish-black dorsal stripe immediately beneath the light yellow dorsopleural region, below the stripe the pleura chestnut orange, beneath paling to yellow, ventral sternopleurite weakly darkened. Halteres dark brown, base of stem narrowly orange. Legs with coxae orange yellow, fore pair darker basally; trochanters yellow; femora brownish-yellow, tips not darkened; tibiae and tarsi brownish-yellow, fourth tarsal segment and apex of third blackened, last segment with epicondyle; claw of male with basal tooth an acute spine, outer protuberance very low and obtuse. Wings strongly infuscated, with a slightly darker brownish-yellow costal pattern, stigma scarcely differentiated; narrow light brown seams over basal section of M_3 , *m-cu* and adjoining veins, and more broadly along vein *2nd A* in cell *1st A*; outer veins yellowed, the basal ones slightly darker. Venation: M_{3+4} short, with *m-cu* far distad, in cases at near four-fifths the length.

Abdomen with basal segments reddish-brown, outer segments darker brown, sternites and hypopygium more yellowed to fulvous. Male hypopygium (Fig. 4) with the tergite, *t*, long, posterior border with a narrow V-shaped emargination, lobes conspicuous; all setae yellow, the more basal ones small, progressively longer outwardly but not forming brushes or tufts. Basistyle with tip obtuse, with very long yellow setae. Outer dististyle, *d*, obtuse at apex, all setae yellow; inner style with the dilated outer end very long, nearly equal to the base, inner margin near base with a rounded lobe bearing relatively few scattered black setae, the outer margin of style with abundant yellow setae. Penis very large and thick, dark colored. Eighth sternite, δ_s , with posterior border evenly convex, without lobes; all setae yellow, very small on disk, longer toward margin.

Length: ♂, about 25-30 mm, wing 35-40 mm, antenna about 4.3-4.4 mm; ♀, about 40 mm, wing 40 mm.

Holotype ♂, INDIA: Bomdi La, Kameng in NEFA, Assam, 2682 m, 19. vi. 1961, Coll. Schmid. *Allotype* ♀, Shergaon, Kameng, 1950 m, 8. v. 1961. *Paratopotypes* ♂ ♂, with type. *Paratypes* ♂ ♂, with allotype, 8-9. v. 1961, all Coll. Schmid.

Distribution: India: Assam.

Several other regional species of *Holorusia* have the outer margin of the eighth sternite of the male hypopygium evenly convex, as in the present fly, including *H. bitruncata* (Alexander), *H. cerbereana* (Alexander), *H. cressida* (Alexander), *H. dives* (Brunetti), *H. flavoides* (Brunetti), *H. fulvolateralis* (Brunetti), *H. globosa* (Alexander), *H. impictipleura* (Alexander), *H. japvoensis* (Alexander), *H. lacunosa* (Alexander), *H. leptostyla* (Alexander), *H. flava melanopus* (Alexander), *H. nagan* (Alexander), *H. nigrofemorata* (Alexander), *H. siva* (Alexander), and *H. vishnu* (Alexander). The most similar of these is *vishnu*, which has the flagellar segments similarly produced, but differs in all details of the male hypopygium, including the tergite, both dististyles, phallosome, especially the penis, and the eighth sternite. The very stout darkened penis of the present fly is noteworthy. The ventrally produced flagellar segments in this and some other species might indicate that these belong to the *serrata* group of the genus, but the coloration, especially of the thorax, would seem to place such species in the *brobdignagia* group.

5. *Holorusia nagan* (Alexander) (Fig. 5)

Ctenacroscelis nagan Alexander, 1953, *Ann. Mag. Nat. Hist.*, (12) 6: 741.

Described from Mount Japvo, Naga Hills, Assam. Male hypopygium (Fig. 5).

6. *Holorusia yama*, sp. nov. (Fig. 6)

Belongs to the *brobdignagia* group; size large (wing of male 40 mm or more); mesoprescutum with four slate-gray stripes, pleura orange with

a narrow dark brown longitudinal stripe; tips of femora broadly brownish-black; wings relatively narrow, strongly tinged with light brown; male hypopygium with margins of tergal lobes with very long yellow setae, apex of basistyle with several long black setae; inner dististyle with a large darkened lobe on margin near base; eighth sternite with posterior border conspicuously emarginate, the broad low lobes with exceedingly long yellow setae.

Male: Frontal prolongation of head slightly longer than the remainder, dark fulvous-brown, including the stout nasus; proximal three palpal segments light brown, terminal segment black. Antennae with scape and pedicel yellow, flagellum light brown, terminal segment brownish-black to black; proximal two flagellar segments cylindrical, intermediate ones with lower face slightly produced, lower verticils relatively long, nearly equal to the diameter of segment. Head brown above, sparsely gray pruinose on sides, vertical tubercle impressed medially, lighter brown, front and sides of vertex light yellow.

Pronotum brown, sides light yellow, anterior margin narrowly blackened. Mesoprescutum with humeral and lateral borders yellow, disk with four slate-gray stripes, the lateral pair narrowly margined with darker, median vitta similarly darkened; scutum reddish-brown, each lobe with a single slate gray area; scutellum fulvous-brown, more yellowed posteriorly; mediotergite gray, sides and posterior declivity brownish-yellow; pleurotergite yellowed, posterior end of anapleurotergite slightly darker; pale vestiture of posterior sclerites long and conspicuous. Pleura orange, more yellowed below; a narrow dark brown longitudinal stripe, including the cervical region, sides of propleura and extreme dorsal margin of anepisternum, more extensively paler brown on the adjoining dorsopleural membrane. Halteres with stem brown, base narrowly reddened, knob slightly paler yellow. Legs with coxae and trochanters yellow; femora obscure yellow, tips rather broadly brownish-black, tibiae and basitarsi slightly more brownish-yellow, outer tarsal segments darker, their tips narrowly blackened. Wings relatively narrow, strongly tinged with light brown, stigma slightly darker; a vague darkened cloud over posterior part of *m-cu*; veins bright fulvous brown in type, slightly darker in paratypes.

Abdominal tergites reddish-brown, the first and outer segments slightly darker, lateral borders of segments two to seven broadly more yellowed; basal sternites yellowed; fifth and succeeding tergites and outer three sternites darker brownish-gray. Male hypopygium (Fig. 6) with the tergite, *t*, elongate, posterior end with a deep, narrow U-shaped emargination, the lobes much broader, with abundant relatively short dark colored setae, lacking on the median furrow; sides of tergite about to base of lobes with very long yellow setae, the longest surpassing the tips of the lobes. Basistyle having the thickened inner apical margin with several long black setae. Outer dististyle, *d*, relatively broad, tip obtuse, the length nearly three times the breadth, margins smooth, surface of outer part with long dark setae that become very small at apex; inner style with apical enlarged portion of head nearly one-half the entire style, mesal

margin near base with a large darkened lobe that is provided with several coarse black setae. Phallosome, *p*, with gonapophyses divergent. Eighth sternite, *8s*, very large, broadest at near two-thirds the length from base, posterior border with two low very broad lobes separated by a shallow emargination, lobes with abundant very long yellow setae that are directed caudad, those near base more toward the median region; setae restricted to lobes and extreme outer part of tergal plate.

Length : ♂, about 30-35 mm, wing 40-44 mm, antenna about 5-5.3 mm; ♀, about 42 mm, wing 43 mm.

Holotype ♂, INDIA : Nizong, Kameng in NEFA, Assam, 1463 m, 27.vi.1961, Coll. Schmid. *Allotype* ♀, Keland, Kameng, 1828 m, 1.vii.1961. *Paratopotype* ♂, with type. *Paratype* ♂, with allotype.

Distribution : India : Assam.

The most similar regional species include *Holorusia dorsopleuralis* (Alexander) and *H. mara* (Alexander), which have the hypopygial structure generally as in the present fly, differing in the tergite, inner dististyle and eighth sternite, including the somewhat striking vestiture of the last.

Genus *Nephrotoma* Meigen

Nephrotoma Meigen, 1803, *Illiger's Mag.*, 3 : 262.

Nephrotoma Alexander, 1965, *Philippine J. Sci.*, 94 : 543-564, Figs. 7, 8, 12-33, 36-39. (Discussion of Indian species).

7. *Nephrotoma bellula*, sp. nov. (Figs. 7, 8)

General coloration yellow, conspicuously patterned with black; male antennae relatively long, basal four segments yellow; head yellow, vertex with a complete black crossband behind the vertical tubercle; knobs of halteres yellow; femora yellowed; wings relatively narrow, weakly brownish-yellow, stigma darker; cell 1st *M*₂ very small, *M*₁ narrowly sessile, cell *M*₄ long and narrow; abdominal tergites orange-yellow, conspicuously patterned with black; male hypopygium with tergite modified, inner dististyle with beak very slender, dorsal crest elevated, rounded.

Male and Female : Frontal prologation of head light yellow, dorsally with a pale brown U-shaped mark; nasus long, black, with unusually long black setae; palpi light brown. Antennae of male long; proximal four segments yellow, the scape more intensely so, succeeding segments more bicolored, light brown, the basal enlargement a little darker, outer segments uniformly brownish-black. Head clear light yellow, behind the vertical tubercle with a brownish-black crossband extending from eye to eye; occipital band broad, blackened.

Pronotum light yellow, sides of scutum extensively blackened, including also the propleura. Mesoprescutum with three polished nacreous blackened

stripes, the lateral pair with dull black margins, posterior interspaces paling to obscure yellow, humeral and lateral borders narrowly light yellow; scutal lobes polished nacreous, median area narrowly yellow; scutellum with basal half light yellow, posterior parts of both scutellum and parascutella brownish-black; mediotergite light yellow, with nearly the posterior half of mediotergite brownish-black, the color extended over the anapleurotergite, katepaleurotergite clear yellow. Pleura light yellow, patterned with dark brown on anepisternum and cephalic pteropleurite, ventral sternopleurite more reddened. Halteres with stem brown, base obscure yellow, knob chiefly light yellow. Legs with coxae yellow, fore pair with anterior face weakly darkened; trochanters yellow; femora and tibiae yellowed, tips of latter narrowly darkened, tarsi brownish-black. Wings (Fig. 7) relatively narrow, weakly tinged with brownish-yellow, stigma darker brown; veins brownish-black, prearcular and costal veins more brownish-yellow. Venation: Cell 1st M_2 very small, cell M_1 narrowly sessile, *m-cu* joining basal section of M_4 shortly beyond base; cell M_4 long and narrow, in type nearly three times as long as width at base, outer medial veins long.

Abdominal tergites orange-yellow, conspicuously patterned with black, including the broad posterior borders, second segment with additional basal and lateral marks, sternites yellow. In female the lateral tergal borders of the more proximal segments conspicuously blackened, behind connected with the posterior darkening; sixth and succeeding segments with dark markings obsolete or virtually so, outer segments uniformly dull orange or yellow. Ovipositor with apices of cerci obtuse. Male hypopygium (Fig. 8) with tergite, *t*, conspicuously modified, lateral lobes narrowed gradually to a blackened knob, surface with numerous blackened spicules; lower surface of lobe with a flattened blade, the free outer end extended into a long pale lobe, its apex with abundant setulae; lateral border of tergal plate with a few slightly larger, more pointed spicules. Outer dististyle, *d*, long and narrow, especially the outer half; inner style distinctive, beak very slender, dorsal crest elevated, rounded, lower beak small, blackened, tip subacute; region of outer basal lobe with a very inconspicuous darkened flange. Phallosome, *p*, with apophyses complex, as figured. Eighth sternite, δs , with median incision of posterior border filled with pale membrane, the low lateral lobes with relatively short setae, central region with more abundant shorter bristles and fewer long delicate hairs.

Length: ♂, about 9 mm, wing 10 mm; ♀, about 13-14 mm, wing 13-14 mm.

Holotype ♂, INDIA: Cinchona, Anamalai Hills, South India, 1067 m, v.1965, Coll. Susai Nathan. *Allotopotype* ♀, iv.1956. *Paratopotypes* 2 ♀♀, v.1956.

Distribution: India.

There are an unusual number of species of *Nephrotoma* in South India, especially in the Anamalai and Nilgiri Hills, many of these with distinctive male

hypopygia. These include *Nephrotoma dodabettiae* Alexander, *N. globata* Alexander, *N. kodaikanalensis* Alexander, *N. megascapha* Alexander, *N. quadrilata* Alexander, *N. rajah* Alexander, *N. semicineta* Alexander, *N. toda* Alexander, and some others. Based on the hypopygial structure, the most similar of these is *N. semicineta*, which differs evidently in body coloration and in hypopygial details, especially the inner dististyle.

8. *Nephrotoma concolorithorax* (Brunetti) (Fig. 9)

Pachyrhina concolorithorax Brunetti, 1912, *Fauna British India, Diptera Nematocera*, p. 346.

Nephrotoma concolorithorax, Alexander, 1961, *Rec. Indian Mus.*, 59 : 21.

Types from the Khasi Hills, Assam. Additional record : Sirohi, Manipur, Assam, 1250 m, 9.vii.1960, Coll. Schmid.

Male hypopygium (Fig. 9) with tergite, *t*, transverse, posterior border with four lobes, lateral pair short and compact, with relatively few very stout marginal spicules ; inner pair of lobes larger and more flattened, nearly contiguous at the midline, with numerous spicules, the marginal series larger, forming an outer row, discal spicules small, with microscopic hairlike points. Outer dististyle, *d*, very long and attenuated, especially the outer fourth ; inner style with beak yellow, slender, lower beak very low and obtuse ; dorsal crest very high and conspicuous, its posterior outer angle farther extended, outer margin with conspicuous points to appear serrulate ; region of outer basal lobe a flattened blade, the margin with long setae ; face of disk of style below the dorsal crest with a single slender recurved spine. Phallosome, *p*, with aedeagus broad, apex obtuse ; gonapophyses short and broad. Eighth sternite, *8s*, blackened, large, broadly transverse, posterior border convexly rounded ; median area membranous, bearing a slender heavily blackened rod extending cephalad from the margin ; lateral lobes scarcely produced, with long coarse black setae adjoining the membranous area, directed caudad and slightly mesad.

9. *Nephrotoma consimilis* (Brunetti) (Fig. 10)

Pachyrhina consimilis Brunetti, 1911, *Rec. Indian Mus.*, 6 : 266-267.

Nephrotoma consimilis, Alexander 1961, *Rec. Indian Mus.*, 59 : 21.

A common and widely distributed species, especially throughout the Himalayas. The types were from Darjeeling. Male hypopygium (Fig. 10).

10. *Nephrotoma hypocrites* (Brunetti) (Fig. 11)

Pachyrhina hypocrites Brunetti, 1918, *Rec. Indian Mus.*, 15 : 276.

Eriocera nigroapicalis Brunetti, 1918, *Rec. Indian Mus.*, 15 : 335-336.

Nephrotoma nigroapicalis, Edwards, 1924, *Rec. Indian Mus.*, 26 : 304.

Nephrotoma hypocrites, Alexander, 1961, *Rec. Indian Mus.*, 59 : 21.

The types of *hypocrites* were from Darjeeling District, Eastern Himalaya, 1524 m., of *nigroapicalis* likewise from Darjeeling District. Additional specimens are from Nampong, Sikkim, 1000 m, 8.v.1959, and Singbeng, Sikkim, 1500 m, 8.x.1959, taken by Schmid.

Male hypopygium (Fig. 11) with tergite, *t*, transverse, posterior third on either side with a blackened plate, bearing a group of blackened spicules near midline and a further marginal series of stouter blackened points. Ninth sternite very large and tumid on either side, with long coarse setae, at base of emargination with a transverse blackened plate, the apical angle with a concentration of small spines. Outer dististyle, *d*, unusually broad opposite basal third, the length only about one-half greater than the width at this point; inner style with beak obtuse, lower beak very extensive, blackened; dorsal crest small, pale, margin smooth; region of outer basal lobe with a small double tubercle, each half with a seta. Phallosome, *p*, including the very small triangular aedeagus and large two-horned gonapophyses, as figured. Eighth sternite, *8s*, large, posterior border gently emarginate, with abundant long black setae, at midline with a smaller lobe bearing a group of shorter black setae.

11. *Nephrotoma serricornis* (Brunetti) (Fig. 12)

Pachyrhina serricornis Brunetti, 1912, *Fauna British India, Diptera Nematocera*, p. 341-343.

Nephrotoma serricornis, Alexander, 1961, *Rec. Indian Mus.*, 59 : 21.

The type was from Kurseong, Darjeeling District. The species is common and widespread throughout the Himalaya. Male hypopygium (Fig. 12).

12. *Nephrotoma unisicata*, sp. nov. (Fig. 13)

Allied to *muktesarensis*; mesoprescutum light yellow, with three polished black nacreous stripes that are narrowly bordered by opaque black, lateral stripes and ends of suture with a blackened area; pleura orange, weakly patterned with yellow; wings weakly darkened, cell *Sc* and stigma darker brown, the latter with numerous trichia; basal abdominal tergites orange, patterned with black, outer segments blackened; male hypopygium with lateral tergal lobes incurved, with one to three spicules at or close to tip; ninth sternite with a stout fingerlike lobe; inner dististyle with dorsal crest fully colored; phallosome with aedeagus broad; eighth sternite with posterior border convexly rounded, with sparse dark colored setae.

Male: Frontal prolongation of head clear light yellow, dorsally from midlength outwardly dark brown including the long nasus, setae of lateral long, black; palpi dark brown, terminal segment brownish-black, the extreme tip pale. Antennae with scape obscure yellow, pedicel brownish-black, flagellum black; first flagellar segment cylindrical, second and third strongly incised, the basal enlargement and outer swelling subequal, succeeding segments less incised,

segments subequal to their longest verticils. Front and vertical tubercle clear light yellow, the latter feebly emarginate anteriorly; posterior vertex orange, with a conspicuous dark brown T-shaped mark, the stem including the more nacreous brand, the bar a more opaque band crossing the head behind the tubercle; genae pale yellow.

Prescutum clear light yellow, sides and propleura dark brown, scutellum brownish-yellow. Mesoprescutum light yellow, with three polished blackened nacreous stripes, the central one broad in front, reaching the suture behind, very narrowly bordered by dull black, at anterior end with a major dull black area that almost reaches the margin, the suture and anterior end of scutal lobe similarly black; scutum light yellow, with a single major nacreous center bordered by dull black, very narrow mesally and behind, extensively so in front and on sides; scutellum dark brown, base and parascutella yellowed, mediotergite light yellow, posterior third more fulvous, pleurotergite orange, the tumid katapleurotergite light yellow; notum glabrous anteriorly, scutellum with sparse short setae, those of mediotergite longer but pale and inconspicuous. The teneral paratype has the mesonotal stripes paler, reddish-brown. Pleura orange, patterned with yellow on dorsal sternopleurite, meron and metapleura, dorsopleural membrane light yellow. Halteres brown, base of stem vaguely light brown. Legs with all coxae and trochanters light yellow; fore leg with femora and tibiae light brown, tips vaguely darker; tarsi brownish-black; claw of male with a long erect spine; middle and posterior legs broken. Wings weakly darkened, cell Sc and stigma dark brown, the latter with numerous trichia in cell R_1 ; veins brown. Venation: Sc_1 distinctly preserved, Sc_2 ending opposite origin of Rs , the latter shorter than R_{2+3} ; cell M_1 short-sessile; veins M_{1+2+3} and base of M_4 almost punctiform; $m-cu$ on M_4 just beyond the fork of M .

Basal two abdominal tergites of type orange, conspicuously patterned with brownish-black, on second segment at base broadly expanded, almost reaching the broad brownish-black lateral border, isolating a posterior ground area on either side; segments three and four chiefly black, segments two to four with a narrow irregular obscure yellow pattern bordering the black, subterminal segments black to form a broad ring; basal sternites reddish-yellow; hypopygium, including the dististyles, extensively yellow. The teneral paratype has the pattern of the tergites somewhat different and may represent the normal condition, proximal six tergites obscure yellow with a broad brown central stripe and narrower laterals, the subterminal blackened ring as in holotype. Male hypopygium (Fig. 13) with tergite, t , transverse, posterior border with four lobes, including an intermediate pair of flattened disklike blades that are densely set with blackened spicules over most of the surface and slightly laterad on a sclerotized bar; lateral arms directed mesad, each tipped with a single black spicule (in holotype) or with three such spinoid setae (paratype). Ninth sternite with a median fingerlike lobe that is stouter than in *muktesarensis*.

Outer dististyle, *d*, relatively broad across basal two-fifths, the length about two and one-half times the greatest breadth, inner style with beak stout, lower beak broad and low; dorsal crest conspicuous, fully colored. Phallosome with aedeagus unusually broad; gonapophyses folded to appear smaller than actually is the case. Eighth sternite, δ_8 , with posterior border convexly rounded, with relatively sparse short dark-colored setae, central area with a small whitened area but without a fingerlike lobe as in *muktesarensis*.

Length : ♂, about 11.5-12 mm, wing 11-11.3 mm, antenna about 4 mm.

Holotype ♂, SIKKIM : Nanga, 1524 m, 11.v.1959, Coll. Schmid. *Paratopotype*, teneral ♂.

Distribution : Sikkim.

Nephrotoma unisicata is allied to *N. muktesarensis* Alexander from Uttar Pradesh, India, being generally similar in coloration and structure of the antennae, differing in important details of hypopygial structure, including especially the tergite, dististyles, phallosome and eighth sternite.

13. *Nephrotoma subeuryglossa*, nom. nov.

Nephrotoma euryglossa Alexander, 1967, *Philippine J. Sci.*, **95** : 550, Figs. 7, 21, 22; preoccupied by *Nephrotoma quincunx euryglossa*; Alexander, 1962, *Ann. Mus. Roy. Afr. Centr., Zool.*, **110** : 350, Figs. 4, 5.

Genus *Dolichozepe* Curtis

Dolichozepe Curtis, 1825, *British Ent.*, **62** : 1825.

Dolichozepe Alexander, 1965, *Philippine J. Sci.*, **94** : 564-580, Figs. 34, 35, 40-61 (Discussion of Indian species).

14. *Dolichozepe (Nesopeza) seticristata*, sp. nov. (Fig. 14)

Size medium (wing to 12 mm); general coloration of body dark brown; antennae short, nearly equal in length in both sexes; legs dark brown, outer tarsal segments paling to dirty white; wings pale brown, stigma darker, medial forks deep, especially cell M_1 which is from two to two and one-half times its petiole; male hypopygium with tergal border blackened, trilobed; outer dististyle about four times as long as broad, inner style with both beaks obtuse, especially the lower one; dorsal crest produced, terminating in a tuft of long black setae; eighth sternite with the convex posterior border emarginate, the lobes small, with blackened setae.

Male and Female : Rostrum light brown; palpi dark brown, elongate, subequal to the antennae. Antennae shorter than in *setilobata*, scape and pedicel yellowish-brown, flagellum black; first flagellar segment longer than the scape; intermediate segments subequal to their longest verticils; antennae nearly equal in both sexes. Front and anterior vertex brownish-yellow, posterior parts of head dark brown.

Thoracic dorsum almost uniformly dark brown, the prescutal stripes slightly darker than the interspaces, central region of scutum paler. Pleura lighter brown. Halteres dark brown, base of stem narrowly yellowed. Legs with coxae brownish-yellow, trochanters clearer yellow; femora dark brown, bases narrowly paler; tibiae and most of basitarsi dark brown, outer tarsal segments paling to dirty white. Wings almost uniformly pale brown, stigma dark brown; a vague brown seam in cell *M* adjoining vein *Cu*; veins dark brown. Venation: *Rs* subequal to or slightly longer than *m-cu*, the latter a short distance before fork of *M*, in cases to one-third its length; medial forks deep, especially cell *M*₁ which is from two to two and one-half times its petiole; outer end of cell *2nd A* narrowed.

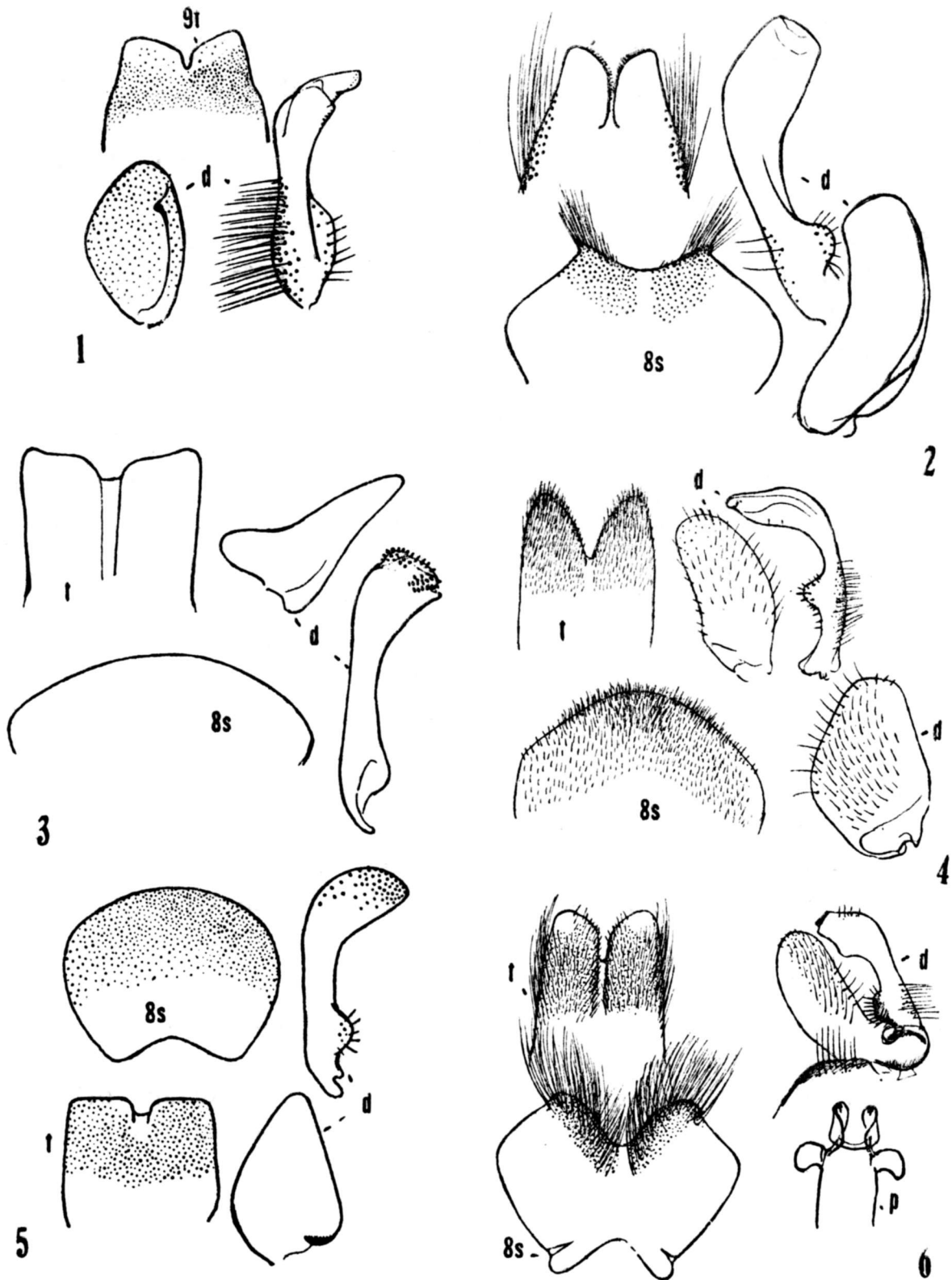
Abdominal tergites brownish-black, basal sternites yellowed, intermediate sternites obscure yellow with darkened rings, outer segments uniformly brownish-black. Male hypopygium (Fig. 14) with tergal armature, *t*, heavily blackened, trilobed, central projection truncate at apex, the smaller lower laterals weakly bilobed; anterior extensions narrower, microscopically roughened. Outer dististyle, *d*, about four times as long as breadth at midlength, widest near base, apex obtuse, surface with conspicuous black setae, those at apex longest; inner style with beak obtuse, dorsal crest produced, terminating in a tuft of long black setae; lower beak very low and obtuse; region of outer basal lobe with abundant short setulae and scattered long setae. Eighth sternite, *8s*, with posterior border convexly rounded with a small central emargination, the small lateral lobes with numerous incurved blackened setae.

Length: ♂, about 10 mm, wing 11-12 mm, antenna about 2.4-2.5 mm; ♀, about 11-12 mm, wing 11.5-12 mm.

Holotype ♂, INDIA: Cinchona, Anamalai Hills, South India, 1067 m, v.1967, Coll. Susai Nathan. *Allotopotype* ♀, pinned with type. *Paratopotypes* 1 ♂, 3 ♀♀.

Distribution: India.

Dolichozeza (Nesopeza) seticristata is generally similar to *D. (N.) himalayae* Alexander, and some others, being most similar to *D. (N.) setilobata* Alexander, of Manipur. It differs especially in the shorter antennae, details of venation, and in hypopygial structure, including the tergite, inner dististyle and eighth sternite.



Figs. 1-6. Male hypopygium of 1, *Holorusia japvoensis* (Alexander); 2, *Holorusia mara* (Alexander); 3, *Holorusia flava melanopus* (Alexander); 4, *Holorusia mitra*, sp. nov.; 5, *Holorusia nagana* (Alexander); 6, *Holorusia yama*, sp. nov. (Symbols: *d*, dististyle; *p*, phallosome; *s*, sternite; *t*, tergite).

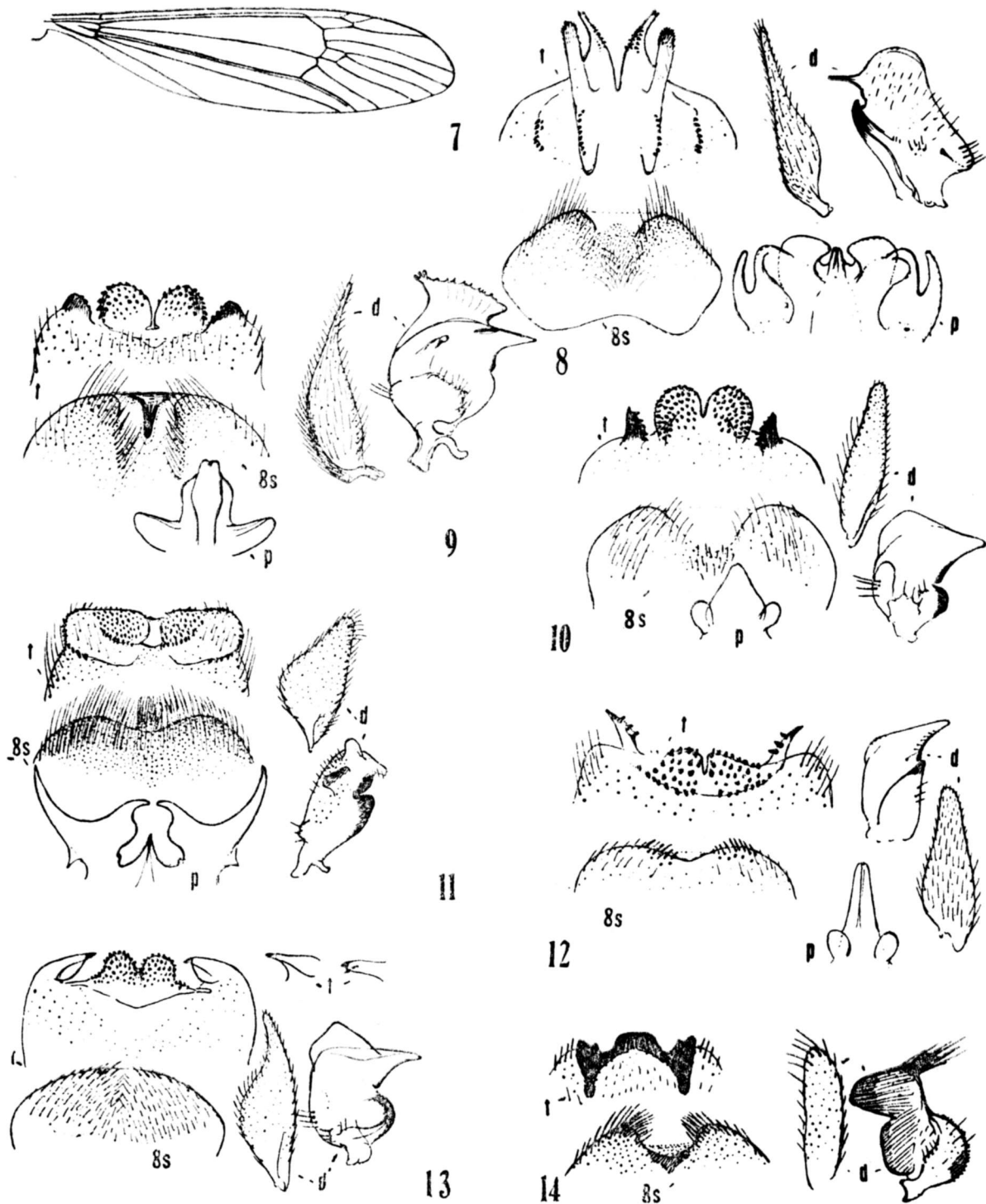


Fig. 7. Venation of *Nephrotoma bellula*, sp. nov. Figs. 8-14. Male hypopygium of 8, *Nephrotoma bellula*, sp. nov. ; 9, *Nephrotoma concolorithorax* (Brunetti) ; 10, *Nephrotoma consimilis* (Brunetti) ; 11, *Nephrotoma hypocrites* (Brunetti) ; 12, *Nephrotoma serricornis* (Brunetti) ; 13, *Nephrotoma unisicata*, sp. nov. ; 14, *Dolichopeza* (*Nesopeza*) *seticristata*, sp. nov. (Symbols : *d*, dististyle ; *p*, phallosome *s*, sternite ; *t*, tergite).