

*From the ANNALS AND MAGAZINE OF NATURAL HISTORY,*  
Ser. 12, vol. vi, p. 897, *December, 1953.*

---

XCV.—NEW OR LITTLE-KNOWN TIPULIDAE (DIPTERA).

XCVI. ORIENTAL-AUSTRALASIAN SPECIES.

By CHARLES P. ALEXANDER, Ph.D., F.R.E.S.

University of Massachusetts, Amherst, Massachusetts, U.S.A.

MOST of the crane-flies characterized as new in the present report are from Assam, taken by Mr. S. Sircar, and from north-western Thailand, secured by Dr. Deed C. Thurman and Mrs. Ernestine B. Thurman, aided by various students in Chiangmai. The relatively few further species are mentioned in the text. Except where noted to the contrary the types of the various novelties are preserved in my personal collection of these flies. My sincere thanks are extended to all persons who have so aided in continuing this study of the almost unlimited Tipulid fauna of the Oriental-Australasian Region.

*Otenacroscelis mara*, sp. n.

Belongs to the *brobdignagius* group, allied to *majesticus*; mesonotal præscutum yellowed on margins, with four brownish-grey stripes that are bordered by brown; pleura and pleurotergite yellow with a conspicuous brown dorsal stripe; femora obscure yellow, the tips narrowly dark brown; wings narrow, infuscated, restrictedly patterned with darker brown and more extensive cream-coloured areas; cell  $M_4$  broad; male hypopygium with long conspicuous setæ on sides of tergite; setæ of outer face of inner dististyle sparse but long; eighth sternite with central area of posterior border produced, its margin gently emarginate, the small lateral lobes with long yellow setæ.

*Male*.—Length about 33 mm.; wing 36 mm.; antenna about 4.1 mm.

Frontal prolongation of head obscure yellow above and beneath, infuscated on sides; nasus long and slender; palpi brownish black, the terminal segment still darker. Antennæ yellowish brown, the outer segments darker; flagellar segments cylindrical, the lower faces of the intermediate flagellar segments a little produced. Head buffy; vertical tubercle entire.

Pronotum yellow, weakly darkened medially and more strongly so on sides. Mesonotal præscutum yellow, the colour virtually restricted to the lateral borders, the disk with four dark brownish-grey stripes, bordered by brown and thus obscuring the interspaces; immediate region of suture behind the intermediate stripes a little more brightened; central portion of scutum obscure brownish yellow, the lobes dark grey, the slightly differentiated centres vaguely ringed with brown; scutellum light brown, more yellowed at apex; mediotergite brownish grey, the posterior third more yellowed. Pleura and pleurotergite yellow, the dorsal edge of the latter darkened; a narrow but conspicuous brown longitudinal stripe extending from the cervical region to the mediotergite, involving the lower half of the dorsopleural region, the upper half abruptly light

yellow. Halteres dark brown, the base of stem narrowly more yellowed. Legs with the coxæ and trochanters yellow; femora obscure yellow, the tips rather narrowly but conspicuously dark brown; tibiæ brownish yellow, not or scarcely darkened at tips; tarsi brownish yellow, passing into black; claws (male) toothed. Wings narrower than in *majesticus*, the ground infuscated, more strongly so in the prearcular field and outwardly into the bases of cells *R* and *M*; the broad bases of the cubital and anal cells and the outer half of cell *M* more yellowed; a narrow but conspicuous brown seam on *m-cu*, widened behind; obliterative area at anterior cord narrow but conspicuous; stigma faintly indicated, more yellowed than the ground; veins brown, those in the outer radial field paler. Venation: Petiole of cell  $M_1$  subequal to *m*; cell 1st  $M_2$  narrower than in *majesticus*, its outer end more pointed; cell  $M_4$  broader, especially at base.

Abdominal tergites chiefly dark brown, the lateral borders restrictedly paler; basal sternites obscure brownish yellow; subterminal segments dark brown, the styli slightly more brightened. Male hypopygium with the ninth tergite elongate, narrowed outwardly, the posterior third yellowed, emarginate by a narrow notch; lateral lobes short, their tips obliquely truncated; vestiture of apices of lobes very short; setæ on sides near base very long, extending to beyond the tips of the lobes, yellow, not forming brushes. Outer dististyle flattened, about twice as long as the greatest width, the apex broadly rounded. Inner dististyle with the outer third dilated into a head; outer face of stem near base with about a dozen long yellow setæ, well scattered, the opposite lower margin produced into a lobe with about the same number of shorter and stouter setæ. Eighth sternite transverse, the posterior third more narrowed, the central area more produced, its border gently emarginate; lateral lobes low with a concentration of long yellow setæ; median line of sternite glabrous.

*Hab.* India (Assam).

*Holotype*, ♂, Cherrapunji, Khasi Hills, altitude 5,000 feet, April 1935 (*S. Sircar*).

The most similar regional species is *Ctenacroscelis majesticus* (Brunetti) which differs in the details of coloration of the body and wings and in the structure of the male hypopygium, particularly the tergite, inner dististyle and eighth sternite.

*Tipula (Formotipula) ishana*, sp. n.

Belongs to the *melanomera* group; size relatively large (wing, male, 19 mm.); thorax and basal seven segments of abdomen orange, head and terminal abdominal segments black; antennæ unusually long for a member of the subgenus, if bent backward extending about to the halteres, the flagellar segments weakly incised; wings moderately infuscated; outer end of vein  $R_{1+2}$  atrophied; male hypopygium with the posterior border of the ninth tergite notched, the broadly rounded lateral lobes with small insignificant setæ; dististyle with the beak and outer lobe

approximately similar in shape, narrowed outwardly, a slender spine lying in their axil, with a further broad-based gently curved spine on the face of the disk.

*Male*.—Length about 17 mm. ; wing 19 mm. ; antenna about 5.5 mm.

Frontal prolongation of head black ; nasus concolorous, long and slender ; palpi black. Antennæ unusually long for a member of the subgenus, black, if bent backward extending about to the root of the halteres ; flagellar segments weakly incised, a trifle longer than the verticils. Head dull black.

Thorax obscure orange, the posterior sclerites of mesonotum a trifle more yellowed. Halteres black, the base of stem narrowly orange. Legs with coxæ and trochanters orange ; remainder of legs black, the femoral bases scarcely brightened basally ; claws (male) toothed. Wings broad, moderately infuscated ; stigma oval, pale brown ; veins black. Venation : outer half to two-thirds of vein  $R_{1+2}$  atrophied ; cell  $M_1$  about one-half longer than its petiole.

Abdomen orange, the outer two segments black. Male hypopygium with the ninth tergite large, its posterior border with a moderately broad U-shaped notch, the lateral lobes flattened, obtusely rounded at tips, provided with small scattered setæ ; vestiture back from the margin longer and more abundant. Dististyle distinctive, including the slender beak and a somewhat similarly shaped outer lobe, with two black spines, the outermost lying in the axil, gradually narrowed to the acute tip, the lower spine shorter, upcurved, from a very broad extended base ; outer margin of style near base with a blunt lobe. Sternal lobes stout, a little expanded outwardly and here provided with long black setæ.

*Hab.* India (Assam).

*Holotype*, ♂, Foot of Mount Japvo, Naga Hills, altitude 5,000 feet, May 1952 (*S. Sircar*).

From other members of the *melanomera* group, the present fly differs especially in the longer antennæ of the male, the atrophied outer end of vein  $R_{1+2}$ , and especially in the structure of the male hypopygium, as the tergite and dististyle. It is most similar to species such as *Tipula* (*Formotipula*) *dikchuensis* Edwards and *T. (F.) melanomera* Walker.

*Tipula (Acutipula) sircari*, sp. n.

Allied to *robusta* ; general coloration of thorax brownish grey, the præscutal stripes poorly indicated ; antennæ short, flagellum bicoloured ; wings greyish brown, patterned with dark brown and whitish, the latter including a major area before the cord ; male hypopygium with the median lobe of the tergite bifid, the spicules of the compressed-flattened blades small and sparse ; inner dististyle with the beak deep, almost truncate at apex, outer lobe very reduced ; disk of style with a single long black spine ; eighth sternite with the posterior border gently convex, with a concentration of setæ at the mid-region.

*Male*.—Length about 20 mm. ; wing 21 mm. ; antenna about 3.8 mm.

Frontal prolongation of head brown ; nasus very long ; palpi with

basal three segments light brown, the terminal one brownish black, its extreme tip more reddened. Antennæ relatively short; scape and pedicel yellow, flagellum weakly bicoloured, the basal enlargements dark brown, the remainder brownish yellow; segments very weakly incised, a trifle shorter than the longest verticils. Head brownish grey in front, the posterior vertex dark grey, the front and anterior vertex narrowly lined with darker brown; anterior vertex relatively narrow, only about twice the diameter of scape at its outer end.

Pronotal scutum light brown, darker brown on sides, the scutellum light yellow. Mesonotum almost uniformly brownish grey, the præscutum with three scarcely indicated darker grey stripes, the extreme cephalic border and the posterior margin of the scutellum dark brown; mediotergite, lighter grey on sides and behind, katapleurotergite darker. Pleura brownish grey. Halteres dark brown. Legs with the coxæ yellowish grey; trochanters yellow; femora brown, the tips narrowly blackened, tibiæ brownish black, the tarsi paling to reddish brown, the outer segments black; claws (male) toothed. Wings greyish brown, the costal border narrowly darker brown, stigma concolorous; additional brown areas in radial field, a band before cord, heavier and darker at outer end of vein *Cu* and over *m-cu*; dark spot at near mid-length of cell *Cu* unusually small; the pale areas include all of cell *M* excepting the subterminal part, cell *Cu* before and beyond the dark spot, and a large conspicuous oblitative area at and before cord, involving the broad outer ends of cells *R* and *M* and most of cell 1st *M*<sub>2</sub>; bases of outer medial cells narrowly whitened; veins brown. Veins beyond cord glabrous, *R*<sub>4+5</sub> with a scattered series of trichia. Venation: *Rs* virtually straight, subequal to *m-cu*; petiole of cell *M* a trifle longer than *m*; *m-cu* a short distance before the fork of *M*<sub>3+4</sub>.

Abdominal tergites yellow medially, clearest on the basal segments, restrictedly more darkened sublaterally, the borders narrowly pale; basal sternites brownish yellow; outer segments darker brown, including a more blackened subterminal ring. Male hypopygium with the ninth tergite terminating in two compressed-flattened blades that are separated by a narrow U-shaped notch, the spicules very small and sparse, restricted to the outer end and almost to the dorsal edge. Outer dististyle broadest at near mid-length, its apex narrowly rounded. Inner dististyle with the beak deep, almost truncate at apex; outer lobe beyond the sensory area reduced to a small sclerotized point, the setæ of this region long and pale, not concentrated as in *quadri-notata*; a single long black spine on disk of style. Eighth sternite transverse, the posterior border very gently convex, with numerous short yellow setæ at the mid-region, not forming distinct tufts or brushes.

*Hab.* India (Assam).

*Holotype*, ♂, Foot of Mount Japvo, Naga Hills, altitude 5,000 feet, May 1952 (*S. Sircar*).

The most similar described species include *Tipula* (*Acutipula*) *quadri-notata* Brunetti and *T.* (*A.*) *robusta* Brunetti, both of which have the

wing-pattern generally the same, but differ in the structure of the male hypopygium.

*Tipula (Indotipula) blandita*, sp. n.

General coloration orange, the abdomen with a subterminal brownish-black ring; antennæ with basal three segments pale, the remainder black, with very long verticils; wings subhyaline, the prearcular and costal regions more yellowed; male hypopygium with the ninth tergite narrowed posteriorly, produced into two relatively slender lobes with obtuse tips and relatively sparse setæ; beak of inner dististyle deep, its apex entire and very obtuse; outer basal lobe slender with long twisted setæ at apex.

*Male*.—Length about 15 mm.; wing 16 mm.; antenna about 5 mm.

Frontal prolongation of head yellowish brown, darker on sides; nasus long and slender; palpi brownish yellow, the outer segments darker. Antennæ with scape and pedicel yellow, the first flagellar segment brownish yellow, succeeding segments black; basal enlargements small, verticils very long, exceeding the segments. Head above brownish grey, more yellowed in front, the orbits very narrowly clear grey; a vaguely darkened median vitta; occiput brownish yellow; no vertical tubercle.

Pronotum orange-yellow, deeper orange medially above. Mesonotum orange, the extreme cephalic part darker orange; præscutal vestiture very reduced; pleurotergite and pleura more yellowed. Halteres brownish yellow, the knobs brownish black. Legs with the coxæ and trochanters yellow; remainder of legs brownish yellow, the outer tarsal segments passing into brownish black; femoral bases clearer yellow; claws toothed. Wings subhyaline, the prearcular and costal regions more yellowed, cell *Sc* a little more darkened; stigma brown; veins brown. Venation: *Rs* subequal to or a little shorter than *m-cu* and less than  $R_{2+3}$ ; petiole of cell  $M_1$  and *m* subequal; basal section of vein  $M_4$  distinct, vertical; cell *2nd A* relatively narrow.

Basal abdominal tergites obscure orange with vague indications of darker stripes, the posterior borders of the segments narrowly pale; basal sternites yellow; subterminal segments brownish black to black, the hypopygium light yellow. Male hypopygium with the ninth tergite narrowed posteriorly, produced into two relatively slender lobes, their tips obtuse, provided with strong incurved setæ at and near apex, some of these more flattened; notch a little narrower than the lobes but having nearly the same conformation. Outer dististyle relatively narrow, approximately four-and-one-half times as long as the greatest width, the tip narrowly obtuse; setæ marginal and on outer fourth. Inner dististyle with the beak deep, cleaver-like, the apex entire and very obtuse; lower beak slender, terminating in a blackened scabrous head; outer margin with a series of about fifteen flattened setæ, the innermost larger and stronger; outer basal lobe relatively slender, with long twisted setæ at apex. Gonapophysis appearing as a flattened pale blade, the apex a little more expanded.

*Hab.* Thailand (Chiengmai Province).

*Holotype*, ♂, Miss Lemon's Cabin, Doi Chom Cheng, altitude 3,000 feet, May 4-10, 1952 (*D. C. & E. B. Thurman*).

The present fly is generally similar to species such as *Tipula* (*Indotipula*) *suensoni* Alexander and *T. (I.) yamata* Alexander, differing from these and other allied forms in the structure of the male hypopygium, particularly the tergite and inner dististyle.

*Limonia* (*Limonia*) *lemonæ*, sp. n.

General coloration of thorax yellow, the sternopleura darker; head brownish black, the anterior vertex very broad; antennæ elongate, the flagellar segments long-oval with abrupt apical pedicels; legs black; wings with a weak dusky tinge, the oval stigma dark brown; anal veins strongly convergent; abdominal segments bicoloured, black, the broad posterior borders pale; cerci very slender; male hypopygium with the posterior border of the ninth tergite truncate; rostral prolongation of the ventral dististyle slender, the spines near the extreme tip; mesal-apical lobe of gonapophysis long and strap-like.

*Male*.—Length about 5.5 mm.; wing 5.5 mm.; antenna about 1.7 mm.

*Female*.—Length about 6 mm.; wing 6 mm.

Rostrum relatively small, yellow; palpi black. Antennæ (male) with scape obscure brownish yellow, remainder black; flagellum relatively long, the segments long-oval with short abrupt apical pedicels; segments with a dense erect pubescence and a few coarse stouter bristles. Head brownish black, sparsely pruinose to give a dull appearance; anterior vertex very broad, approximately five times the diameter of scape. In the female the antennæ are generally similar and almost as long; anterior vertex broad.

Pronotum brown, especially in female. Mesonotum almost uniformly yellow, a trifle darker in female; pleura yellow, the sternopleurite and dorsopleural region a little darker. Halteres black, the base of stem yellow. Legs with the coxæ and trochanters yellow, remainder of legs black; claws long and slender, almost straight, with basal teeth that are extended into a long bristle. Wings with a weak dusky tinge, the extreme base paler; stigma oval, dark brown, conspicuous; veins brownish black, paler in the prearcular field. Venation: *Sc* long, *Sc*<sub>1</sub> ending just beyond mid-length of *Rs*, *Sc*<sub>2</sub> close to its tip; *R*<sub>2</sub> in direct transverse alignment with *R*<sub>3</sub>, bisecting the stigma; *Rs* long, approximately three times the basal section of *R*<sub>4+5</sub>; cell 1st *M*<sub>2</sub> large, about as long as the distal section of *M*<sub>3</sub>; *m-cu* close to the fork of *M*; vein 2nd *A* converging strongly toward 1st *A* beyond the interanal cross-vein, greatly narrowing cell 1st *A* at this point.

Abdomen black, the posterior borders of the segments broadly pale, light grey pruinose, the colour involving more than one-third of the segment. Ovipositor with the cerci very slender, almost acicular; genital segment, including bases of the valves, intensely blackened.

Male hypopygium black, the very small ventral dististyle paler. Male hypopygium with the tergite transverse, the caudal margin truncate or virtually so, without distinct lobes; about a score of strong setæ on either side of mid-line, marginal in position. Basistyle short and compact, the ventromesal lobe oval, with relatively few long setæ, the longest only a little shorter than the lobe itself. Dististyles broken and lost in mounting; small, rostral prolongation long and slender, the spines near the extreme tip. Gonapophysis with mesal-apical lobe long and narrow, strap-like, the extreme tip narrowed into a point.

*Hab.* Thailand (Chiengmai Province).

*Holotype*, ♂, Wat at Doi Sutep, December 30, 1952 (*D. and E. Thurman*).

*Allotopotype*, ♀, pinned with type.

At the suggestion of Doctor and Mrs. Thurman I am pleased to name this distinct fly for Miss Sadie Lemon, pioneer nurse in Chiengmai, whose mountain cabin at the foot of Mount Doi Chom Cheng has been made available to the Thurmans and other scientists. This distinct fly is most similar to species such as *Limonia (Limonia) dravidiana* Alexander, differing in the structure of the antennæ, male hypopygium and in the venation.

*Antocha (Orimargula) papuensis*, sp. n.

Size small (wing, 4.5 mm. or less); antennæ short in both sexes; mesonotum brown, grey pruinose, the cephalic portion of the præscutum with a brown median stripe; legs light brown; wings with a weak brown tinge, scarcely patterned; male hypopygium with both dististyles elongate, subequal in length, the outer style with numerous strong setæ on outer end; gonapophyses appearing as slender blades with obtuse tips.

*Male*.—Length about 3–3.2 mm.; wing 4.2–4.5 mm.; antenna about 0.6–0.7 mm.

*Female*.—Length about 3.4–3.5 mm.; wing 3.8–4 mm.

Rostrum brownish yellow; palpi brown. Antennæ short, dark brown; flagellar segments suboval; verticils appressed, relatively inconspicuous. Head brownish grey, the orbits narrowly clearer grey.

Pronotum and pretergites pale yellow. Mesonotal præscutum brown, sparsely grey pruinose, the cephalic portion infuscated to produce an incomplete median stripe; posterior sclerites of notum more pruinose. Pleura brownish yellow, sparsely pruinose. Halteres with stem pale, especially at base, knob infuscated. Legs with coxæ and trochanters brownish yellow; remainder of legs light brown. Wings with a weak brownish tinge, scarcely patterned to vaguely seamed with darker along the veins, especially along  $R_s$  and the cord; veins brown. Venation:  $R_{2+3}$  a little shorter than  $R_2$ ;  $R_s$  and basal section of  $R_{4+5}$  nearly equal;  $m-cu$  more than twice its length before the fork of  $M$ .

Abdomen brown, the sternites and hypopygium somewhat more yellowed. Male hypopygium relatively large. Ninth tergite transverse, its caudal margin virtually truncate. Both dististyles elongate, subequal;



outer style with numerous strong setæ on outer end, these becoming more sparse and scattered on the basal portions. Phallosomic lobe with long scattered setæ that are directed outwardly. Gonapophysis a slender sinuous blade, the tip acute.

*Hab.* Papua.

*Holotype*, ♂, Kokoda, altitude 1,200 feet, August–September, 1933 (*L. E. Cheesman*); British Museum (Natural History). *Allotopotype*, ♀. *Paratopotypes*, numerous ♂♀.

The most similar described regional species having the antennæ short as in the present fly include certain Australian forms, particularly *Antocha* (*Orimargula*) *australiensis* Alexander, which is larger and with the wings conspicuously patterned.

*Pedicia* (*Tricyphona*) *margipunctata*, sp. n.

Allied to *vetusta*; mesonotum light grey, the præscutum with four brown stripes; antennæ apparently only 13-segmented, the flagellum black; femora yellow, the tips narrowly and abruptly blackened, the amount subequal on all legs; wings brownish yellow, the costal border clearer yellow; a restricted brown pattern, including a narrow, virtually complete band at the cord and clearly defined marginal spots at ends of all longitudinal veins; vein  $R_{2+3+4}$  nearly perpendicular at end of  $R_s$  and interstitial with  $r-m$ .

*Female*.—Length about 12 mm.; wing 13 mm.

Rostrum grey; palpi black. Antennæ apparently 13-segmented; scape grey, pedicel obscure brownish yellow, flagellum black; flagellar segments oval, gradually decreasing in size outwardly. Head light grey, the posterior vertex patterned with pale brown.

Pronotum grey, weakly patterned with brown. Mesonotal præscutum light grey with four brown stripes, the intermediate pair confluent posteriorly or virtually so; posterior sclerites of notum and the pleura somewhat paler grey. Halteres with stem yellow, knob weakly infuscated. Legs with the coxæ pale, weakly pruinose; femora yellow, the tips narrowly but abruptly blackened, the amount subequal on all legs, involving less than the outer tenth to twelfth; tibiæ and basitarsi yellow, the tips more narrowly blackened; remaining tarsi brown. Wings brownish yellow, the costal and prearcular fields still clearer yellow; veins  $Cu$  and *2nd A*, with the surrounding membrane, similarly bright yellow; a restricted but conspicuous brown pattern, including a narrow, virtually complete band at the cord and clearly defined marginal spots at ends of all longitudinal veins; other dark spots at arculus,  $Sc_2$ , origin of  $R_s$ , and outer end of cell 1st  $M_2$ ; veins light yellow, infuscated in the patterned areas. Venation: Generally as in *vetusta*;  $R_{2+3+4}$  nearly perpendicular at end of  $R_s$ , interstitial with  $r-m$ ,  $R_s$  thus in longitudinal alignment with  $R_s$ ;  $m$  erect, shorter than the basal section of vein  $M_2$ ;  $m-cu$  at fork of  $M$ .

Abdominal tergites brown, the posterior borders of the segments

narrowly pale, sternites obscure yellow ; subterminal segments, especially the tergites, more intensely darkened ; ovipositor fulvous.

*Hab.* China (Fukien).

*Holotype*, ♀, Ta-chu-lan, altitude 1,500 metres, October 28, 1948 (*Joseph Fu*).

Most similar to *Pedicia* (*Tricyphona*) *depressiloba* Alexander, *P. (T.) seticauda* Alexander, and *P. (T.) vetusta* (Alexander), differing in the coloration of the legs and wings and in the details of venation.

*Eupilaria thurmani*, sp. n.

Size large (wing, male, 9 mm.) ; general coloration of head and thorax plumbeous, the thorax with two major velvety black areas on either side, one on the lateral portion of the scutum, the other on the anepisternum ; femora yellow, the tips abruptly black ; wings strongly suffused with brown, the stigma darker, preceded and followed by whitened areas ; abdomen dark reddish brown, the outer segments still darker.

*Male*.—Length about 10 mm. ; wing 9 mm.

Rostrum and palpi black. Antennal scape and pedicel black ; flagellum broken. Head plumbeous, the front and very narrow orbits lighter grey ; anterior vertex broad, approximately five times the diameter of scape.

Thorax almost uniformly plumbeous, variegated by two major circular velvety black spots, one on the lateral part of the scutum, the other occupying more than the ventral half of the anepisternum ; ventral sternopleurite less evidently darkened. Halteres dark brown. Legs with the fore coxæ plumbeous, the middle and hind pairs of this same colour basally, paler at tips ; trochanters testaceous ; femora obscure yellow, the tips abruptly black, involving about the outer sixth ; tibiæ light brown, the tips narrowly darker ; tarsi black. Wings strongly suffused with brown, the long-oval stigma darker brown, preceded and followed by whitened areas, the latter along the costa for about one-third the length of cell  $R_3$  ; cells *C* and *Sc* somewhat paler than the remainder of the ground ; a narrow pale longitudinal streak in centre of cell *R*, crossing cell 1st  $M_2$  into  $M_3$  ; a similar pale line in cell *Cu*, crossing *m-cu* into cell  $M_4$ , almost attaining the margin ; veins brown, paler in the brightened fields. Venation :  $R_{2+3+4}$  about one-half the basal section of  $R_5$  ; vein  $R_4$  bent very strongly caudad, ending shortly before the wing-tip, cell  $R_3$  at margin very extensive ; *m-cu* about one-third to one-half its length beyond the fork of *M*.

Abdominal tergites dark reddish brown, the first darker, pruinose, the outer segments, including the hypopygium, more brownish black ; lateral tergal borders narrowly blackened ; basal sternites reddish ; segments seven and eight black to form a narrow ring, the ninth sternite again more reddened.

*Hab.* Thailand (Chiengmai Province).

*Holotype*, ♂, Wat at Doi Sutep, June 12, 1952 (*D. and E. Thurman*) ; Thurman No. 814 B.

I take great pleasure in naming this very distinct fly in honour of Dr. Deed C. Thurman, to whom much of our recent knowledge of the insects of Thailand is due. By my key to the regional species of the genus (Ann. & Mag. Nat. Hist. (12) i. p. 650; 1948), the present fly runs to *Eupilaria incana* Alexander, of South India, a smaller fly with the coloration of the body, wings and legs quite distinct.

*Pilaria brooksi*, sp. n.

General coloration brownish grey, the præscutum with four reddish-brown stripes; basal flagellar segments pale; legs light brown, the outer tarsal segments darker brown; wings weakly tinged with brown; stigma small, slightly darker;  $R_2$  before fork, cell  $M_1$  lacking; abdominal segments dark brown, the extreme posterior borders of the intermediate segments whitened.

*Female*.—Length about 11–12 mm.; wing 8–8.5 mm.

Rostrum dark grey; palpi brownish black. Antennæ with the scape and pedicel brown, the former sparsely pruinose; basal flagellar segments obscure yellow or brownish yellow, the outer ones passing into brownish black; flagellar segments short-cylindrical, the outer ones more elongate-cylindrical, the intermediate segments with long conspicuous verticils that are considerable longer than the segments alone. Head grey anterior vertex about twice the greatest diameter of scape.

Pronotum brown, pruinose. Mesonotal præscutum brownish grey with four reddish-brown stripes, in cases the intermediate pair obsolete on the anterior half; pseudosutural foveæ and tuberculate pits blackened, conspicuous; scutum brownish grey, each lobe with a reddish-brown area; posterior sclerites clearer grey medially, the sides paling to brownish yellow. Pleura reddish brown, sparsely pruinose. Halteres short, stem pale, knob weakly darkened. Legs with the coxæ whitened, the extreme bases vaguely more darkened; trochanters white; remainder of legs brownish yellow to light brown, the outer tarsal segments darker brown; tibial spurs conspicuous. Wings with a weak brownish tinge; stigma relatively small, slightly darker brown, its margins poorly delimited; veins brown, somewhat more yellowish brown in the prearcular and costal fields. Venation: *Sc* moderately long,  $Sc_1$  ending about opposite fork of *Rs*,  $Sc_2$  near its tip;  $R_2$  about two-thirds  $R_{1+2}$ , placed before the fork, subequal to or a little longer than vein  $R_{3+4}$ ; veins  $R_3$  and  $R_4$  generally parallel to one another basally, thence divergent, cell  $R_3$  at margin subequal in extent to cell  $R_2$ ; cell  $M_1$  lacking; *m-cu* slightly variable in position, at or shortly beyond the fork of *M*; anterior arculus strongly preserved.

Abdominal segments dark brown, the extreme posterior borders of the intermediate segments whitened. Ovipositor with the cerci slender, upcurved, horn-coloured.

*Hab.* North Queensland.

*Holotype*, ♀, Cairns, October 10, 1951 (*J. G. Brooks*).

*Paratopotype*, ♀, November 6, 1951 (*J. G. Brooks*).

I am pleased to dedicate this interesting fly to Dr. J. G. Brooks, to whom I am indebted for many Tipulidae from the Cairns District. I am referring the fly to *Pilaria* without much question despite the fact that only the female sex is available and the genus is new to the Australasian Region. The venation is somewhat as in *Pilaria amica* (Alexander), of Java, differing in all details, particularly the basal position of *m-cu*.

*Hexatoma (Hexatoma) brevistigma*, sp. n.

General coloration pale brown, the præscutum with three poorly indicated darker stripes; thoracic pleura buffy, the ventral anepisternum and sternopleurite darker to produce two incomplete longitudinal stripes; wings pale grey, the prearcular and costal fields more yellowed; stigma small, short-oval, brown; veins  $R_3$  and  $R_4$  divergent, cells  $R_2$  and  $R_3$  at margin subequal in extent; vein  $R_2$  close to fork of  $R_{2+3+4}$ ; abdomen weakly bicoloured, the basal half of the segments dark brown, the posterior half grey pruinose.

*Female*.—Length about 6 mm.; wing 6 mm.

Rostrum very reduced, pale brown; palpi small, pale brown. Antennæ with the scape and pedicel pale brown; flagellum broken. Head buffy brown, the central part of the broad vertex darker brown.

Thoracic dorsum pale brown, sparsely pruinose, the præscutum with three poorly indicated darker stripes. Pleura buffy, the ventral anepisternum and sternopleurite darker to produce two incomplete longitudinal stripes. Halteres infuscated, the stem, particularly its base, paler. Legs with the coxæ brown, trochanters a little darker; remainder of legs broken. Wings pale grey, the prearcular and costal fields more yellowed; stigma small but conspicuous, brown, subcircular to short-oval in outline; veins brown, more brownish yellow in the brightened portions. Veins beyond cord glabrous. Venation: Veins  $R_2$  and  $R_4$  divergent, cells  $R_2$  and  $R_3$  at margin subequal in extent; vein  $R_2$  close to fork of  $R_{2+3+4}$ ; *m-cu* at or immediately before the fork of  $M$ ; outer branches of  $M$  very delicate to subevanescent.

Abdomen weakly bicoloured, the basal half of the segments dark brown, the posterior half grey pruinose. Ovipositor with the cerci fleshy, obtuse at tips.

*Hab.* Thailand (Chiengmai Province).

*Holotype*, ♀, Chiengmai, June 25, 1952 (*D. and E. Thurman*); Thurman No. 869. *Paratopotype*, ♀, January 1953. The type was taken at light traps, associated with abundant specimens of *Limonia (Rhipidia) pulchra* (de Meijere), *L. (L.) umbrata* (de Meijere), *Conosia irrorata* (Wiedemann), *Trentepohlia (Trentepohlia) trentepohlii* (Wiedemann), and other eminently characteristic Oriental Tipulidae. The most similar Asiatic species is *Hexatoma (Hexatoma) kiangsiana* Alexander, of eastern China, which differs particularly in the coloration, venation and trichiation of the wings. In this species the veins beyond the cord bear very abundant trichia throughout their lengths.

*Hexatoma (Eriocera) retrograda*, sp. n.

Head dull black; mesonotal præscutum, scutum and scutellum darkened, the pleura light yellow; femora light brown, the tips passing into black, the remainder of legs brownish black; segments of legs with elongate flattened scales additional to the usual setæ; wings with a brownish tinge, the prearcular and costal fields still darker; vein  $R_2$  directed slightly backward; cell  $M_1$  very deep, its petiole shorter than  $m$ ; abdominal tergites orange, the sternites more yellowed; ovipositor with very slender elongate valves.

*Female*.—Length about 12 mm.; wing 10 mm.; antenna about 2 mm.

Rostrum and palpi black. Antennæ (female) 9-segmented, black throughout; first two flagellar segments stout, the remainder more slender, elongate-cylindrical; verticils long. Head dull black.

Pronotum yellow, weakly darkened on sides. Mesonotal præscutum black with four narrow more blackish grey stripes; scutum blackened, scutellum brown; postnotum yellow, the mediotergite with the sides and a vague central line darker, the colour also including the extreme upper angle of the pleurotergite. Pleura uniformly clear light yellow, with a darkened spot on the dorsal part of the pleural suture beneath the wing root; thorax unusually glabrous. Halteres blackened, the base of stem restrictedly pale. Legs with all coxæ and trochanters light yellow; femora light brown, brightened basally, the tips passing into black; remainder of legs dark brown to brownish black; segments with elongate flattened scales, additional to the usual setæ. Wings with a brownish tinge, the prearcular and costal fields still darker; stigma not or scarcely differentiated; vague paler streaks in cells  $M$  and 1st  $A$ ; veins dark brown. Veins beyond cord with abundant macrotrichia. Venation:  $Sc$  long,  $Sc_1$  ending beyond mid-length of  $R_{2+3+4}$ ,  $Sc_2$  not far from its tip;  $R_s$  fully three times  $R_{2+3+4}$ ;  $R_2$  directed slightly backward, the part at  $R$  lying slightly more basad than that at  $R_{2+3}$ , about two-thirds as long as  $R_{1+2}$ ; cell  $M_1$  very long, its petiole shorter than  $m$ ;  $m-cu$  just beyond mid-length of cell 1st  $M_2$ .

Abdominal tergites orange, the posterior border of the first segment more or less darkened; sternites more yellowed. Ovipositor with the valves very slender, the cerci gently upcurved to the acute tips.

*Hab.* Thailand (Chiengmai Province).

*Holotype*, ♀, Miss Lemon's Cabin, Doi Chom Cheng, altitude, 3000 feet, January 3, 1953 (*Prayoon C*).

*Hexatoma (Eriocera) retrograda* is most like *H. (E.) aurantia* (Brunetti), differing in details of coloration and venation. The presence of elongate scales on the legs is evidently common and widespread in the subgenus though not found in all species. In most cases where present they are very similar in their general outline and appearance to normal setæ and have been overlooked.

*Hexatoma (Eriocera) aegle*, sp. n.

General coloration of entire body deep orange; antennæ of male 8-segmented, scape orange, the remainder black; a small darkened

spot on dorsal mesepisternum; halteres and legs black, the femoral bases restrictedly paler; segments of legs with elongate flattened scales additional to the usual setæ; wings with a strong brown tinge, the stigma small, linear, darker brown; veins  $R_{1+2}$  and  $R_2$  subequal; cell  $M_1$  relatively deep; cell 1st  $M_2$  rectangular, with  $m-cu$  before mid-length.

*Male*.—Length about 9–11 mm.; wing 12.5–14 mm.; antenna about 1.9–2.1 mm.

*Female*.—Length about 14 mm.; wing 11 mm.

Rostrum reddish brown; palpi dark brown. Antennæ (male) 8-segmented; scape dull orange, pedicel and flagellum black; flagellar segments elongate-cylindrical, the verticils long and conspicuous, the longest on the second flagellar segment only a little less than the segment. Head orange.

Thorax orange, glabrous, the pleura more yellowed; a very small darkened spot on the extreme dorsal mesepisternum before the wing root. Halteres brownish black. Legs with all coxæ and trochanters orange; femora black, the bases restrictedly paler; tibiæ and tarsi black; segments with very elongate flattened scales additional to the usual still longer setæ. Wings with a strong brownish tinge, the centres of the cells before the cord paler; cell  $Sc$  more yellowed; stigma reduced to a narrow line, darker brown; veins brown,  $Sc$  paler. Veins beyond cord with abundant long setæ. Venation:  $Sc$  long,  $Sc_1$  ending beyond mid-length of  $R_{2+3+4}$ ;  $R_{1+2}$  subequal to or a little longer than  $R_2$ ;  $R_{2+3+4}$  and  $R_{2+3}$  subequal; cell  $M_1$  from one and one-half to about twice its petiole; cell 1st  $M_2$  rectangular, approximately twice as long as broad;  $m-cu$  subequal to the distal section of  $Cu_1$ , before mid-length of cell 1st  $M_2$ , in cases only a short distance beyond the fork of  $M$ .

Abdomen orange, the hypopygium a little more obscured, the segments opaque, without differentiated basal rings. Ovipositor with the cerci long and slender, very gently upcurved.

*Hab.* Thailand (Chiengmai Province).

*Holotype*, ♂, Miss Lemon's Cabin, Doi Chom Cheng, altitude 3,000 feet, May 4–12, 1952 (*D. and E. Thurman*). *Allotopotype*, ♀. *Paratopotypes*, 2 ♂♂.

*Hexatoma (Eriocera) aegle* is most similar to *H. (E.) aurantia* (Brunetti) of India, differing in the coloration and wing-venation. Both species have the elongate scales on the legs, as discussed under the preceding species.

*Hexatoma (Eriocera) thaiensis*, sp. n.

*Female*.—Length about 17 mm.; wing 12 mm.

Generally similar to *Hexatoma (Eriocera) graveleyi* (Brunetti), of the eastern Himalayas, differing as follows:—

Mesonotal præscutum and scutum entirely fiery orange, the remainder of head and thorax dull black. Wings with the distribution of the white areas different, that portion of the major discal spot lying in cell  $M$  more extensive than that in cell  $R$ , extending distad almost to the fork of  $M$ ; pale area in cell  $R_1$  much larger; anal cells abruptly paler. Venation:  $R_{2+3+4}$  approximately three times  $R_{2+3}$ . Abdominal tergites two to five,

inclusive, with the pale basal bands very extensive, nearly three times as broad as the narrow black apices, their bases nacreous and glabrous, the outer ends heavily white pruinose; segments six and seven uniformly black; remainder of abdomen, including the ovipositor, fiery orange.

*Hab.* Thailand (Lampong Province).

*Holotype*, ♀, Ngao District, in woods, December 15, 1952 (*D. and E. Thurman*); Thurman No. 1202.

*Gonomyia (Protogonomyia) namtokensis*, sp. n.

General coloration brownish grey, variegated with paler; thoracic pleura striped longitudinally with dark brown; femora yellowish brown; wings with a weak brownish tinge, the stigma darker; male hypopygium with three dististyles, the outermost a sinuous glabrous blade, its apex expanded, obtuse; intermediate style unequally forked; inner style a clavate blade that is provided with retrorse setæ.

*Male*.—Length about 5–5.2 mm.; wing 6–6.2 mm.

*Female*.—Length about 4.5–5 mm.; wing 5–5.5 mm.

Rostrum and palpi brownish black. Antennæ with the scape and pedicel brownish black, flagellum black, the bases of the segments somewhat reddened, outer segments broken. Head brownish grey; anterior vertex about two-and-one-half times the diameter of scape.

Pronotum chiefly dark brown. Mesonotum brownish grey, the præscutum with a darker central stripe, the lateral pair lacking or poorly defined; scutal lobes, base of scutellum and posterior border of mediotergite darkened. Pleura brownish grey, variegated with dark brown stripes, the dorsal one including the propleura, anepisternum and ventral pleurotergite, the ventral stripe occupying the ventral sternopleurite and meron. Halteres with stem obscure yellow, knob dark brown. Legs with the coxæ and trochanters testaceous yellow; femora light brown or yellowish brown; remainder of legs broken. Wings with a weak brownish tinge, the stigma darker; prearcular field more yellowed; veins dark brown. Venation: *Sc* long, *Sc*<sub>1</sub> ending just before fork of *Rs*, *Sc*<sub>2</sub> far from its tip, *Sc*<sub>1</sub> alone being more than one-half *Rs*; *m-cu* close to the fork of *M*.

Abdomen dark brown, the hypopygium a little more yellowed. Male hypopygium with three dististyles, the outermost a sinuous glabrous blade, the apex expanded, obtuse; intermediate style broad-based, forking into two unequal arms, the outer one shorter, setiferous, the inner arm sinuous, glabrous; innermost style a clavate blade with retrorse setæ. Ædeagus with the apex a strong curved hook, subterminally with numerous setæ.

*Hab.* Thailand (Rong Kwang District).

*Holotype*, ♂, Water Falls (Nam Tok) at Præ, altitude, 2,000 feet, February 14, 1952 (*D. and E. Thurman*). *Paratopotypes*, 2 ♂♂.

The present fly is readily told from other regional members of the subgenus, including *Gonomyia (Protogonomyia) nigripes* (Brunetti), by the structure of the male hypopygium.

*Gonomyia (Idiocera) thaiicola*, sp. n.

General coloration brown, the ventral half of the thoracic pleura more yellowed; head dark grey; rostrum, palpi and antennæ black; wings weakly infuscated, the stigma not or scarcely darker; *Sc* short, cell  $R_3$  relatively small; male hypopygium with the outer dististyle a long needle-like spine; intermediate style bifid, the outer arm a long flattened blade that bears a blackened recurved point on inner margin at near one-third the length, the inner arm again forking into two parts; inner style a simple rod, pointed at apex.

*Male*.—Length about 4 mm.; wing 4 mm.

*Female*.—Length about 4.8–5 mm.; wing 5–5.5 mm.

Rostrum, palpi and antennæ black; flagellar segments long-oval to subcylindrical. Head dark grey.

Pronotum and mesonotum brown, variegated with paler near the wing-root. Pleura weakly infuscated above, reddish yellow on about the ventral half. Halteres weakly infuscated. Legs with the coxæ and trochanters yellow, the fore coxæ weakly darkened; femora and tibiæ brown, the tips vaguely more darkened; tarsi black. Wings weakly infuscated, the stigma not or scarcely darker; veins brown. Venation: *Sc* short,  $Sc_1$  ending a short distance beyond the origin of  $R_s$ ; cell  $R_3$  relatively small, vein  $R_3$  slightly oblique; *m-cu* more than its own length before the fork of  $M$ ; anterior arculus present.

Abdominal tergites dark brown, sternites yellow; hypopygium weakly infuscated. Male hypopygium with the basistyle only slightly produced beyond the point of insertion of the dististyles, the apex obtuse. Outer dististyle a long needle-like spine; intermediate style bifid, including a long flattened dusky blade that narrows very gradually to the acute tip, on inner margin at near one-third the length with a blackened recurved point; inner arm of style again divided into two parts, one arm pointed at apex, the other truncate; inner dististyle a simple rod from an enlarged base, the pointed apex narrowly darkened.

*Hab.* Thailand (Chiengmai Province).

*Holotype*, alcoholic ♂, Chiengmai, at light, May 19, 1952 (*D. and E. Thurman*); Thurman No. 716. *Allotopotype*, alcoholic ♀, with the type. *Paratype*, 1 dry ♀; Thurman No. 869.

*Gonomyia (Idiocera) thaiicola* is most similar to *G. (I.) metatarsata* de Meijere and *G. (I.) proxima* Brunetti, differing in the details of venation and in the structure of the male hypopygium.

*Cryptolabis (Bœoura) inœquiarmata*, sp. n.

Allied to *dicladura*; mesonotum dark grey, darker medially, especially in front, scutellum conspicuously light yellow; legs obscure brownish yellow, with short appressed setæ; wings with a dusky tinge, cells *C* and *Sc* more yellowed; male hypopygium with the dististyle subterminal, the elongate stem sinuous, forked at about the outer fourth, the branch much longer than the axial spine, its margin microscopically serrulate; aedeagus a very long simple hair-like rod.

*Male*.—Length about 3.5 mm.; wing 4 mm.



Rostrum light brown; palpi darker. Antennæ with scape and pedicel pale; first flagellar segment enlarged oval, blackened, the succeeding ones oval, the outer segments becoming elongate; verticils long and conspicuous. Head clear light grey; anterior vertex broad.

Pronotum light grey, the sides, with the pretergites, light yellow. Mesonotal præscutum dark grey, darker medially, especially in front, the sides light grey; scutum grey; scutellum conspicuously light yellow, grey pruinose; postnotum grey. Pleura and pleurotergite dark grey, the dorsopleural region yellow. Halteres with stem yellow, knob dark brown. Legs with the coxæ dark grey; trochanters brown; remainder of legs obscure brownish yellow, the outer tarsal segments darker brown; setæ of legs relatively short and appressed. Wings with a dusky tinge, cells *C* and *Sc*, with the wing base, more yellowed; stigma vaguely and diffusely more infuscated; veins brown, brighter in the flavous portions. Venation:  $R_{2+3+4}$  about one-third longer than the basal section of  $R_5$ ; *m-cu* before the mid-length of  $M_{3+4}$ .

Abdomen, including hypopygium, dark brown. Male hypopygium with the dististyle subterminal, the stem elongate, sinuous, forked at about the outer fourth, the axial spine gradually narrowed to the subacute tip, the branch much broader and larger, erect, its apex broadly obtuse, the margin microscopically serrulate. Ædeagus a very long simple hairlike rod, narrowed very gradually to the tip.

*Hab.* China (Kwangtung).

*Holotype*, a broken ♂, Kau-lin-San, Lien-ping District, altitude 700–900 metres, April 20, 1940 (*J. L. Gressitt & F. K. To*).

The present fly is most similar to *Cryptotabis* (*Bæoura*) *di cladura* Alexander and *C. (B.) trihastata* Alexander, differing evidently in the structure of the male hypopygium.

*Styringomyia caudifera*, sp. n.

Mesonotal præscutum with more than the anterior half brownish black, the posterior half, with the centres of the scutal lobes and a central line on scutellum yellow; wings with four larger brown spots and small marginal darkenings at ends of the veins; male hypopygium with the beak of the intermediate arm of the dististyle subtended by a smaller spine.

*Male*.—Length about 7 mm.; wing 4.8 mm.

Rostrum yellow; palpi dark brown. Antennæ with scape yellow above, dark brown on lower face; pedicel brownish black; flagellum pale brownish yellow, the bases of the segments somewhat more darkened. Head ochreous yellow, weakly darkened behind.

Pronotum broadly light yellow above, black on sides. Mesonotal præscutum with more than the anterior half brownish black, the posterior half, centres of the scutal lobes and a central line on the scutellum yellow, the scutal lobes and much of the scutellum blackened; mediotergite dark brown, pleurotergite yellow, the posterior spiracle ringed with black. Pleura yellow, variegated by more reddish areas. Halteres yellow. Legs with all coxæ and trochanters yellow; femora yellow with a brown

subterminal ring and a less evident band at near mid-length; remainder of legs broken. Wings with a faint yellow tinge, with four brown spots placed at the anterior cord, outer end of cell 1st  $M_2$ ,  $m-cu$  and outer end of vein 2nd  $A$ ; veins at margin with minute darkenings, as in *fryeri*; veins yellow, darkened in the patterned areas. Costal fringe long and conspicuous. Venation: Anterior branch of  $Rs$  suberect; cell 2nd  $M_2$  short-petiolate; vein 2nd  $A$  strongly rounded into the margin.

Abdominal tergites obscure yellow, more or less distinctly patterned, including the narrow posterior border, on the outer segments with a further median stripe; hypopygium brownish yellow. Male hypopygium with the tergal lobe relatively narrow, obtuse at apex, densely setiferous; ninth sternite relatively broad, the two setæ separated by a distance nearly equal to three times the diameter of their punctures. Lobe of basistyle with a single relatively short modified bristle. Arms of dististyle distinctive; intermediate arm produced into an acute beak with a smaller subtending spine lying immediately beneath; nearer base of blade with a dilated head, the posterior part blackened by dense closely appressed spinous setæ; inner lobe of style a long flattened blade, its upper margin with abundant blackened spinous setæ, together with numerous normal bristles on upper half of blade. Phallosome much as in *fryeri*, including a long curved posterior spine and a pair of very small blackened beaks, with an irregular blackened mass lying between, this produced backward into two slender points.

*Hab.* Thailand (Chiengmai Province).

*Holotype*, ♂, Chiengmai (55 Chang Puak), in mosquito light trap, August 17, 1952 (*D. and E. Thurman*).

*Styringomyia caudifera* is most nearly related to *S. fryeri* Edwards of Ceylon, differing in the coloration and especially in the details of structure of the male hypopygium, particularly the dististyle.