

THE ORIENTAL TIPULIDAE IN THE COLLECTION OF THE INDIAN MUSEUM. PART III.

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The two preceding parts under this general title were published in the *Records of the Indian Museum* XXIX, pp. 167-214, 1927, and XLIV, pp. 29-72, 1942. At this time I am recording some further materials based on the study of collections made by the Zoological Survey of India, and have also included rather numerous records from other sources in order to add to our still very insufficient knowledge of the vast crane-fly fauna of India and surrounding countries. A particular attempt has been made to provide illustrations of several rare and little-known species that are here figured for the first time. It seems evident that in the present potentially destructive era in which we have entered collections throughout the World are no longer safe and in time many of these may be destroyed through one cause or another. This makes it more than advisable to provide adequate illustrations, particularly of type materials, in order to assure the identity of the species in the event of loss.

I wish to express my sincere thanks and appreciation to Dr. Sunder Lal Hora and Dr. A. P. Kapur for continued aid and encouragement in studying the Tipuloidea of India. The geographical area treated includes India, Kashmir, Pakistan, Ceylon, Burma, and adjoining parts of Tibet, being the region covered in the great series of volumes of the *Fauna of British India*.

LIST OF THE GENERA AND SUBGENERA OF INDIAN TIPULIDAE.

Since the appearance in press of Brunetti's *Catalogue of Oriental and South Asiatic Nematocera, Rec. Ind. Mus.* XVII, pp. 1-300, 1920, there have been many changes in nomenclature within the family Tipulidae as well as rather numerous additions of genera and subgenera. It seems appropriate to provide an arrangement of these groups as at present known from the area.

TIPULINAE

Tanyptera Latreille

Dictenidia Brullé

Pselliophora Osten Sacken

Prionota van der Wulp

Subgenus *Plocimas* Enderlein

Ctenacroscelis Enderlein

Longurio Loew

Subgenus *Macromastix* Osten Sacken

Nephrotoma Meigen

Tipula Linnaeus

Subgenus *Brithura* Edwards

Nippotipula Matsumura

Yamatotipula Matsumura

Tipulodina Enderlein

Vestiplex Bezzi

Arctotipula Alexander

Bellardina Edwards

Schummelia Edwards

Formotipula Matsumura

Acutipula Alexander

Indotipula Edwards

Oreomyza Pokorny

Lunatipula Edwards

Dolichopeza Curtis

Subgenus *Sinoropeza* Alexander

Mitopeza Edwards

Nesopeza Alexander

Oropeza Needham

CYLINDROTOMINAE

Cylindrotoma Macquart

Phalacrocera Schiner

Stibadocera Enderlein

Stibadocerella Brunetti

LIMONIINAE

LECHRIINI

Lechria Skuse

Trichoneura Loew

Subgenus *Xipholimnobia* Alexander

LIMONIINI

Limonia Meigen

Subgenus *Limonia* Meigen

Libnotes Westwood

Discobola Osten Sacken

Dicranomyia Stephens.

Geranomyia Haliday

Rhipidia Meigen

Alexandriaria Garrett

Thrypticomys Skuse

Euglochina Alexander

Pseudoglochina Alexander

Antocha Osten Sacken

Subgenus *Antocha* Osten Sacken

Orimargula Mik

Thaumastoptera Mik

Dicranoptycha Osten Sacken

Orimarga Osten Sacken

Subgenus *Orimarga* Osten Sacken

PEDICIINI.

Ula Haliday

Subgenus *Ula* Haliday

Metaula Alexander

Malaisemyia Alexander

Pedicia Latreille

Subgenus *Tricyphona* Zetterstedt

Eucyphona Alexander

Nasiternella Wahlgren

Nipponomyia Alexander

Dicranota Zetterstedt

Subgenus *Amalopinodes* Alexander

Euamalopina Alexander

Amalopina Brunetti

Rhaphidolabina Alexander

Plectromyia Osten Sacken

Rhaphidolabis Osten Sacken

HEXATOMINI

Paradelphomyia Alexander

Subgenus *Oxyrhiza* de Meijere

Phyllolabis Osten Sacken

Epiphragma Osten Sacken

Subgenus *Epiphragma* Osten Sacken

Polymera Wiedemann

Subgenus *Polymera* Wiedemann

Troglophila Brunetti

Pseudolimnophila Alexander

Limnophila Macquart

Subgenus *Limnophila* Macquart

Elæophila Rondani

Dicranophragma Osten Sacken

Eupilaria Alexander

Pilaria Sintenis

Hexatoma Latreille

Subgenus *Hexatoma* Latreille

Eriocera Macquart

Atarba Osten Sacken

Subgenus *Atarbodes* Alexander

Elephantomyia Osten Sacken

Subgenus *Elephantomyia* Osten Sacken

Elephantomyodes Alexander

ERIOPTERINI

Conosia van der Wulp

Clydonodozus Enderlein

Crypteria Bergroth

Cladura Osten Sacken

Neolimnophila Alexander

Dasymallomyia Brunetti

Gnophomyia Osten Sacken

Gonomyia Meigen

Subgenus *Protogonomyia* Alexander

Idiocera Dale

Gonomyia Meigen

Lipophleps Bergroth

Teucholabis Osten Sacken

Subgenus *Teucholabis* Osten Sacken

Gymnastes Brunetti

Subgenus *Gymnastes* Brunetti

Paragymnastes Alexander

Trentepohlia Bigot

Subgenus *Trentepohlia* Bigot

Anchimongoma Brunetti

Mongoma Westwood

Plesiomongoma Brunetti*Lipsothrix* Loew*Rhabdomastix* SkuseSubgenus *Rhabdomastix* Skuse*Riedelomyia* Alexander*Cryptolabis* Osten SackenSubgenus *Bæoura* Alexander*Ormosia* Rondani*Erioptera* MeigenSubgenus *Empeda* Osten Sacken*Psiloconopa* Zetterstedt*Symplecta* Meigen*Teleneura* Alexander*Erioptera* Meigen*Meterioptera* Alexander*Molophilus* CurtisSubgenus *Molophilus* Curtis*Styringomyia* Loew*Toxorhina* LoewSubgenus *Toxorhina* Loew*Ceratocheilus* Wesché

PREOCCUPIED NAMES

As was the case in the preceding two parts under this title, various names in the family that have been found to be preoccupied are re-named. As before, my thanks are extended to Dr. Alan Stone, of the United States National Museum, for calling to my attention certain of the names in question.

Ctenacroscelis cressida, nom. nov., for *Ctenacroscelis serricornis* Brunetti; *Tipula serricornis* Brunetti, *Fauna Brit. India, Dipt. Nemat.*, pp. 309-310, 1912; nec *Tipula serricornis* Zetterstedt, *Ins. Lapponica ponica, Diptera*, p. 844, 1838; nec *Tipula serricornis* Macquart, *Dipt. exot.*, suppl. 1, p. 13, 1846.

Nephrotoma dorsata, nom. nov., for *Nephrotoma dorsalis* (de Meijere), *Bijd. tot de Dierkunde XVII*, p. 89, 1904; nec *Nephrotoma dorsalis* Fabricius, *Spec. Ins.*, II, p. 403, 1781.

Tipula (Nippotipula) flavostigmalis, nom. nov., for *Tipula (Nippotipula) xanthostigma* Edwards, *Journ. Fed. Malay States Mus.* XVII, p. 291, 1933; nec *Tipula xanthostigma* Dietz, *Ent. News*, XXVIII, pp. 150-151, 1917.

Tipula (Vestiplex) subbifida, nom. nov., for *Tipula bifida* Alexander, *Bull. Mus. d'Hist. Nat.*, Paris, 1921, pp. 539-540, 1921 ; nec *Tipula doanei bifida* Dietz, *Trans. Amer. Ent. Soc.*, XL, pp. 354-355, 1914.

Tipula (Vestiplex) mimica, nom. nov., for *Tipula (Vestiplex) vicina* Lackschewitz, *Trav. de l'Inst. Zool. Acad. Sci. l'URSS*, IV, pp. 262-263, 1936 ; nec *Tipula (Yamatotipula) vicina* Dietz, *Ent. News*, XXVIII, pp. 148-149, 1917.

Tipula (Arctotipula) centrodentata, nom. nov., for *Tipula (Arctotipula) mediodentata* Alexander, *Ann. Ent. Soc. America*, XLIII, p. 422, 1950 ; nec *Tipula (Eumicrotipula) mediodentata* Alexander, *Ann. Mag. Nat. Hist.* (11) XI, p. 293, 1944.

Tipula (Schummelia) pterotricha, nom. nov., for *Tipula (Schummelia) macrotrichiata* Alexander, *Ann. Ent. Soc. America*, XVII, pp. 443-444, 1924 ; nec *Tipula (Eumicrotipula) macrotrichiata* Alexander, *Bull. d'Hist. Nat.*, Paris, 1922, p. 74, 1922.

Dolichozeza (Dolichozeza) disseminata, nom. nov., for *Dolichozeza (Dolichozeza) thysbe* Alexander, *Ann. Mag. Nat. Hist.* (11) XIV, p. 395, 1947 ; nec *Dolichozeza (Nesozeza) thysbe* Alexander, *Philip. Journ. Sci.*, LXVI, p. 111, 1938.

Limonia (Libnotes) whiteana, nom. nov., for *Limonia (Libnotes) distincta* Senior-White, *Mem. Dept. Agr. India*, Ent. Ser. VII, pp. 133-134, 1922 ; nec *Limonia (Geranomyia) distincta* Doane, *Journ. N. Y. Ent. Soc.* VIII, p. 186, 1900.

Limonia (Dicranomyia) pictithorax argyrophora, nom. nov., for *Limonia (Dicranomyia) pictithorax argentifera* Alexander, *Ann. Mag. Nat. Hist.* (9) XIII, p. 565, 1924 ; nec *Limonia (Geranomyia) argentifera* de Meijere, *Tijd. voor Ent.* LIV, p. 29, 1911.

Limonia (Dicranomyia) contraria, nom. nov., for *Limonia (Dicranomyia) sordidipennis* Alexander, *Proc. R. Ent. Soc. London*, (B) XVII, p. 19, 1948 ; nec *Limonia (Dicranomyia) sordidipennis* Alexander, *Lingnan Sci. Journ.* XIX, p. 111, 1940.

Limonia (Dicranomyia) whitei monacha, nom. nov., for *Limonia (Dicranomyia) whitei brevispinula* Alexander, *Ann. Mag. Nat. Hist.* (10) XII, p. 344, 1933 ; nec *Limonia (Geranomyia) brevispinula* Alexander, *Journ. N. Y. Ent. Soc.*, XXXVIII, p. 110, 1930.

Limonia (Geranomyia) lycaon, nom. nov., for *Limonia (Geranomyia) pallidula* Alexander, *Philip. Journ. Sci.* XL, p. 247, 1929 ; nec *Limonia (Dicranomyia) pallidula* Santos Abreu, *Mem. Real Acad. Cien. Art. Barcelona*, XVIII, No. 4, p. 12, 1923.

Limonia (Geranomyia) militaris, nom. nov., for *Limonia (Geranomyia) viridula* Alexander, *Journ. N. Y. Ent. Soc.*, XXXVIII, pp. 110-111, 1930 ; nec *Limonia (Limonia) viridula* Alexander, *Insec. Inscit. Menst.* X, pp. 79-80, 1922.

- Limonia (Doaneomyia) fijicola*, nom. nov., for *Limonia (Doaneomyia) fijiensis* Alexander, *Ann. Mag. Nat. Hist.* (9) XIII, pp. 33-34, 1924; nec *Limonia (Libnotes) fijiensis* Alexander (as *Teucholabis*), *Ann. Ent. Soc. America* VII, p. 240, 1914.
- Dactylolabis sexmaculata dilutior*, nom. nov., for *Dactylolabis sexmaculata diluta* Lackschewitz, *Ann. Naturhist. Mus. Wien*, 1939, p. 79, 1940; nec *Dactylolabis diluta* Alexander, *Insec. Inscit. Menst.* X, p. 183, 1922.
- Limnophila casta profuga*, nom. nov., for *Limnophila casta pallidithorax* Alexander, *Ann. Mag. Nat. Hist.* (10) III, p. 482, 1929; nec *Limnophila pallidithorax* Edwards, *Sarawak Mus. Journ.* III, p. 267, 1926.
- Hexatoma (Eriocera) paenulatoides*, nom. nov., for *Hexatoma (Eriocera) subpaenulata* Edwards, *Spolia Zeylanica*, XIV, p. 123, 1927; nec *Hexatoma (Eriocera) subpaenulata* Edwards, *Sarawak Mus. Journ.* III, p. 270, 1926.
- Teucholabis (Teucholabis) walkeriana*, nom. nov., for *Teucholabis (Teucholabis) exclusa* Walker (as *Limnobia*), *Proc. Linn. Soc. London* VIII, p. 105, 1865; nec *Limnobia exclusa* Walker (now *Dicranota*), *List Dipt. Brit. Mus.* I, p. 49, 1848.
- Gonomyia (Paralipophleps) neobifida*, nom. nov., for *Gonomyia (Paralipophleps) bifida* Alexander, *Ann. Ent. Soc. America* XIX, p. 167, 1926; nec *Gonomyia bifida* Tonnoir, *Bull. Soc. Ent. Belgique*, II, pp. 144-145, 1920.
- Ormosia (Ormosia) romanovichiana*, nom. nov., for *Ormosia nubila* Osten Sacken (as *Erioptera*), *Proc. Acad. Nat. Sci. Phila.* 1859, p. 227, 1859; nec *Erioptera (Empeda) nubila* Schummel, *Beitr. zur Ent.* I, p. 147, 1829.
- Ormosia (Ormosia) staegeriana*, nom. nov., for *Ormosia similis* Staeger (as *Erioptera*), *Naturhist. Tidsskr.* III, p. 53, 1840; nec *Erioptera (Symplecta) similis* Schummel, *Beitr. zur Ent.*, I, p. 156, 1829.
- Molophilus (Molophilus) lackschewitzianus*, nom. nov., for *Molophilus (Molophilus) hastatus* Lackschewitz, *Ann. Naturhist. Mus. Wien*, 1939, pp. 20-21, 1940; nec *Molophilus (Molophilus) hastatus* Alexander, *Ann. Mag. Nat. Hist.* (9) XX, pp. 359-361, 1927.

Family PTYCHOPTERIDAE

Ptychoptera annandalei Brunetti.

1918. *Ptychoptera annandalei*, Brunetti, *Rec. Ind. Mus.* XV, p. 256.

Described from Kalaw, Southern Shan States, Burma, altitude 4,000-4,500 feet, March 10, 1917. A few further males have been found, taken

on Road 40 km. east of Taunggyi, Southern Shan States, September 25—October 13, 1934 (Malaise) ; in Stockholm Museum.

The species has not been fully described and supplementary notes are provided. *Male*.—Length about 7.5—8 mm. ; wing 7.75 mm. ; antenna about 5 mm.

Rostrum brownish black, labella yellow, palpi yellow, the tip of the last segment infuscated. Antennae (male) moderately long, approximately two-thirds the wing ; scape, pedicel and first flagellar segment yellow, succeeding segments black ; flagellar segments long-cylindrical, the outer ones progressively shorter to the last which is about one-fourth longer than the penultimate ; verticils shorter than the segments, those of outer face longer and arranged in a more or less distinct single row. Head blue black.

Pronotum obscure brownish yellow. Mesonotum blue black, the small central portion of the scutellum and adjoining part of mediotergite restrictedly obscure yellow, in cases the mesonotum almost uniformly darkened. Pleura, including pleurotergite, brown, evidently paler than the notum in dry specimens. Halteres dusky. Legs with the coxae and trochanters weakly infuscated ; femora brownish yellow, the tips narrowly blackened ; tibiae and basitarsi obscure yellow, the tips blackened, outer tarsal segments black. Wings pale yellowish subhyaline, the prearcular and costal fields clearer yellow ; a restricted brown pattern, including narrow crossbands at cord and across the outer forks, the stigmal part of the latter still darker, neither band reaching the posterior border of wing ; veins brown, paler in the brightened fields. Venation : *Rs* very short and straight, approximately two-thirds to three-fourths as long as *r-m*, in extreme cases nearly as long as this crossvein.

Abdomen with basal four segments yellow, the caudal borders ringed with brown, the second tergite with an additional brown ring at before midlength ; outer segments, including hypopygium, blackened. Male hypopygium (text-fig. 1a) with the tergite profoundly divided, each arm, *9t*, slender, the outer surface provided with abundant long pale setae, at apex with a dense brush of short but conspicuous blackened setae. Dististyle, *d*, small, the two principal lobes presenting a more or less distinct forceps-like appearance ; outer lobe short and stout, provided with relatively few but very long pale setae, the longest of these approximately three-fourths as long as the lobe itself ; inner lobe and main stem of style with a series of blackened peglike retrorse spines distributed over the entire length, relatively few on the slender lobe, more numerous on the stem ; basal lobes of dististyle relatively inconspicuous, the most basal one pendant, provided with inconspicuous setae. Sternite with a pair of fingerlike pale lobes, the upper surface with stellate groups of microscopic setulae, the lower edge with unusually long and dense setae, towards the midline becoming shorter but so dense as to appear almost squamose, each bristle terminating in a delicate hairlike point.

Family TIPULIDAE

Subfamily TIPULINAE

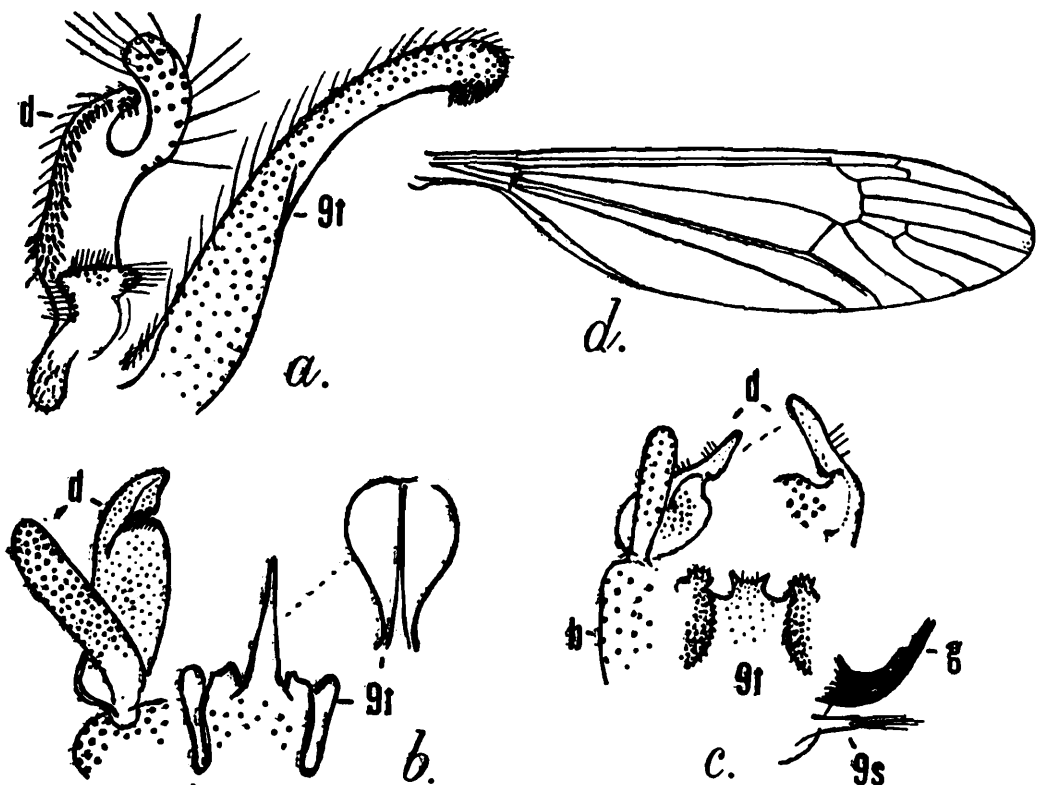
***Pselliophora laeta* (Fabricius).**1792. *Tipula laeta*, Fabricius, *Ent. Syst.* IV, p. 239.1886. *Pselliophora laeta*, Osten Sacken, *Berlin. Ent. Zeitschr.* XXX, p. 168.

Additional records, Siruvani, Coimbatore District, South India, altitude 3,000 feet, August 11, 1938 (Susai Nathan). Nilgiri Hills, Cherangode, altitude 3,400 feet, May 1949; Gudalur, altitude 3,500 feet, April 1949; Mango Range, altitude 3,800 feet, May 1949 (Susai Nathan).

***Dolichopeza (Nesopeza) compressor* Alexander.**1952. *Dolichopeza (Nesopeza) compressor*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

Described from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, September 20-21, 1950 (Susai Nathan).

Male hypopygium (text-fig. 1b) relatively large and complex. Ninth tergite, 9t, extended into a deep compressed median blade, comprised of two halves that are capable of being flattened into a broad depressed central plate, on either side of this with a more sclerotized blackened lobe that is bilobed, the outermost lobe obtusely rounded. Outer dististyle, d, a simple dusky lobe; inner style shorter, its apex truncated. Phallosome large and complex, pale horn-colored. Eighth sternite not produced or armed.



Text-fig. 1a. *Ptychoptera annandalei* Brunetti; b. *Dolichopeza (Nesopeza) compressor* Alexander; c. *Dolichopeza (Nesopeza) laetipes* Alexander; d. *Dolichopeza (Milopeza) kanagaraji* Alexander; male hypopygium and venation.

Dolichopeza (Nesopeza) laetipes Alexander.

1952. *Dolichopeza (Nesopeza) laetipes*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The type was from Cherambadi, Nilgiri Hills, South India, altitude 3,300 feet, November 9, 1950 (Susai Nathan).

Male hypopygium (text-fig. 1c) relatively small. Caudal border of ninth tergite, *9t*, with a flattened central blackened plate, more or less rectangular in outline, the outer angles produced into points, the slightly concave margin with a row of setae; lateral tergal lobes appearing as conspicuously blackened plates, provided with several spinulae, the plates produced backward along the ventral margin of the tergite. Outer dististyle, *d*, of moderate length, clavate, its length about 4 to 4.5 times the greatest width; inner style with the beak elongate. What appear to be gonapophyses, *g*, jut from the genital chamber as a pair of curved blackened rods. Region of ninth sternite pale, submembranous, near its dorsal portion on either side of the midline with a slender finger-like lobe, *9s*, that is tufted with a few very long bristles, these subequal in length to the lobes. Eighth sternite short, unmodified.

Dolichopeza (Mitopeza) kanagaraji Alexander.

1952. *Dolichopeza (Mitopeza) kanagaraji*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

Described from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, September 27, 1950 (Susai Nathan).

The wing is illustrated (text-figure 1d).

Nephrotoma cornicina (Linnaeus).

1758. *Tipula cornicina*, Linnaeus, *Syst. Nat.*, Ed. X, p. 586.

Sind Valley, Baltistan, altitude 9,000 feet, June 14, 1934 (Vivien Hutchinson).

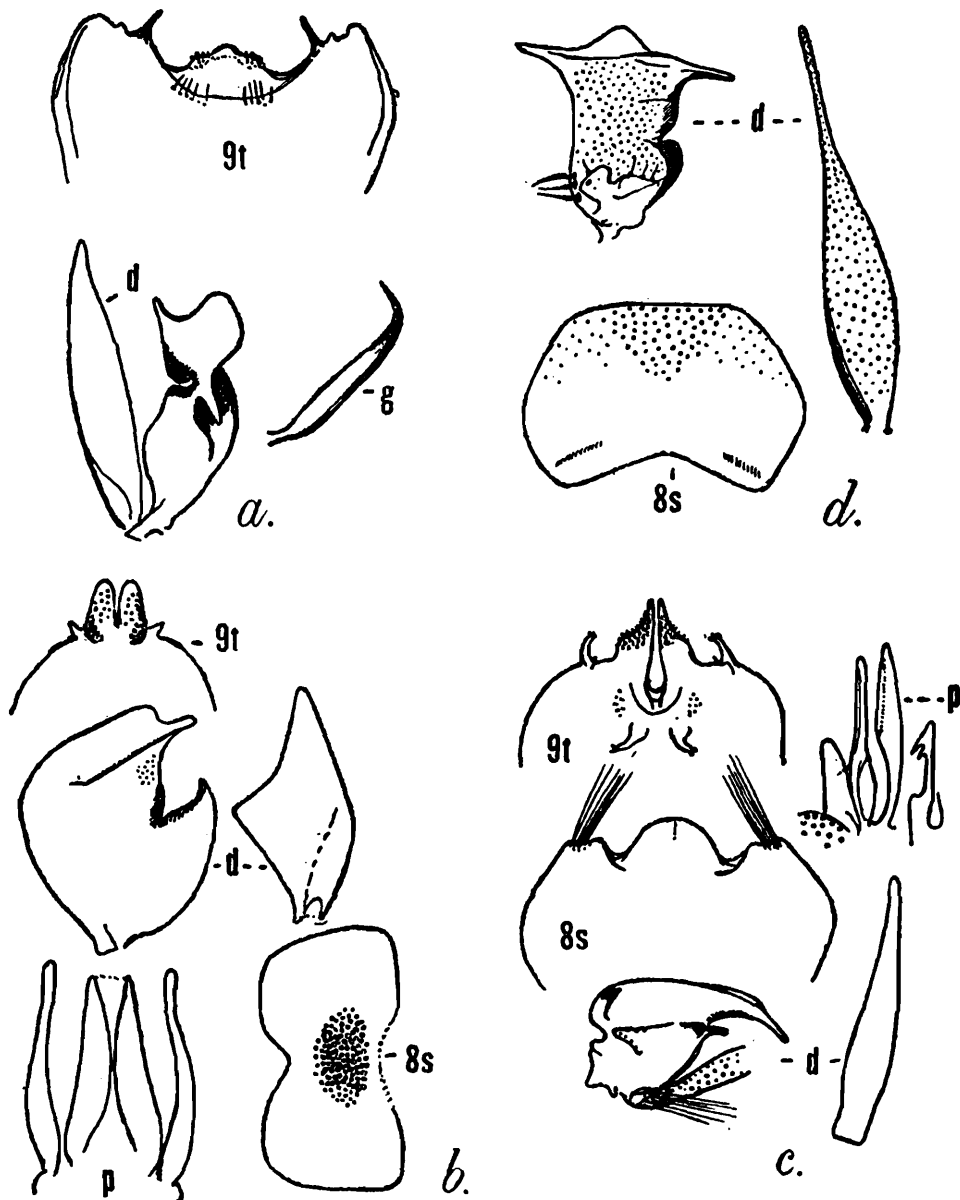
Nephrotoma dodabettæ Alexander.

1951. *Nephrotoma dodabettæ*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 886-887.

Described from Dodabetta Peak, Ootacamund, Nilgiri Hills, South India, altitude 8,000 feet, May 5, 1950 (Susai Nathan).

Male hypopygium (text-fig. 2a) with the tergite, *9t*, broad, the central portion of the posterior border emarginate but farther produced into a low lobe that is provided on its lateral shoulders with a few microscopic black spicules and scattered setae; on either side of the emargination with a single slender blackened spine. Inner dististyle, *d*, with the outer basal lobe produced into conspicuous blackened blades; beak slender; dorsal crest high. Gonapophysis, *g*, appearing as a slender reddish rod, the tip narrowed into a curved black spine. Ninth sternite extensive, profoundly emarginate, the notch with an elevated darkened flange on either side, this becoming higher behind. Eighth sternite only moderately sheathing, the caudal border very slightly emarginate, the posterior

margin with long delicate setae that are longer and more conspicuous at and near the midline.



Text-fig. 2a. *Nephrotoma dodabettæ* Alexander; b. *Nephrotoma fletcheriana* Alexander; c. *Nephrotoma globata* Alexander; d. *Nephrotoma nigrohalterata* Edwards; male hypopygia.

Nephrotoma fletcheriana Alexander.

1952. *Nephrotoma fletcheriana*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press,

Described from various stations in India and Burma. Mayuyo, Burma, March 22, 1918; Katihar, Purneah district, North Bengal, August 7-31, 1910; Pusa, Bihar, March 17, 1914.

Male hypopygium (text-fig. 2b) with the ninth tergite, 9t, transverse the caudal margin produced into a pair of flattened-compressed blades that lie vertically side by side at the midline, the surface with black setae, the lower margin with blackened spicules; at base on either side the blade subtended by a strong acute spine. Region of ninth sternite very short, without a lobe. Outer dististyle, d, relatively short and broad, the lower margin at near midlength produced into a rectangular lobe, somewhat as in *kodaikanalensis* but less accentuated. Inner dististyle with the beak slender, passing abruptly into the more elevated sclerotized dorsal crest; no posterior crest; lower beak blackened, narrowed to an acute point. Phallosome, p, with the gonapophyses appearing as very slender rods,

gradually narrowed into pale membrane at apex. Eighth sternite, *8s*, small, not sheathing, the apex emarginate and filled with pale membrane; center of disk with unusually abundant long yellow setae, much more numerous than in *kodaikanalensis*.

Nephrotoma globata Alexander.

1951. *Nephrotoma globata*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1087-1089.

Described from Kodaikanal, Palni Hills, South India, altitude 7,000 feet, August 11-17, 1921 (Fletcher).

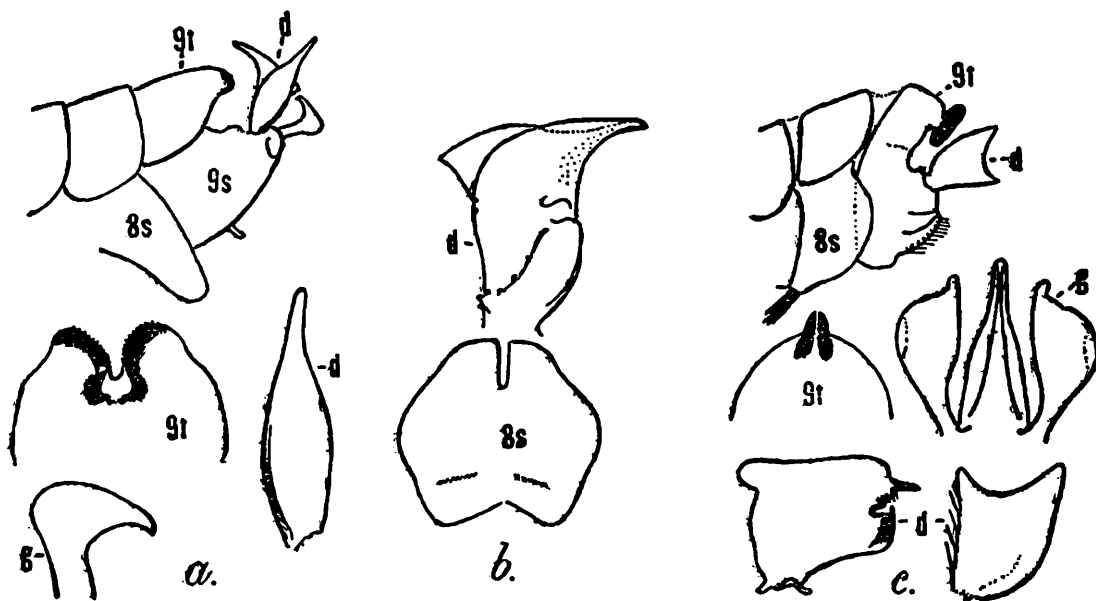
Male hypopygium (text-fig. 2c) with the caudal border of the ninth tergite, *9t*, produced into two pairs of lobes, including a larger pair on either side of a deep and narrow median incision, the mesal edge of these blades extended into an acute glabrous point; lateral marginal arms slender, each tipped with two or three spicules. Outer dististyle, *d*, long and slender; inner style long and narrow, the beak especially so, lower beak a slender blackened rod. Phallosome, *p*, complex, consisting of two sets of structures subtending a microscopic pair of arms. Eighth sternite, *8s*, large and sheathing, the caudal border trilobed; lateral lobes widely separated, with a brush of long setae; median lobe large, appearing as a flattened semicircular plate.

Nephrotoma kaulbacki Alexander.

1951. *Nephrotoma kaulbacki*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1094-1096.

The type was from Poshö, Kyari Dzong, East Tibet, altitude 12,500 feet, June 27, 1936, taken by R. J. H. Kaulback.

Male hypopygium (text-fig. 3a, 3b), with the outer half of the ninth tergite, *9t*, slightly narrowed, with a deep median notch, the lateral lobes thickened and blackened, spiculate. Inner dististyle, *d*, with the beak slender; posterior crest produced backward as pale membrane. Eighth sternite, *8s*, large, strongly sheathing, its posterior border with a very deep and narrow notch.



Text-fig. 3a. b. *Nephrotoma kaulbacki* Alexander. c. *Nephrotoma kodaikanalensis* Alexander; male hypopygia.

Nephrotoma kodaikanalensis Alexander.

1951. *Nephrotoma kodaikanalensis*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1089-1090.

Described from Kodaikanal, Palni Hills, South India, altitude 7,000 feet, August 13, 15, October 8, 1921 (Fletcher).

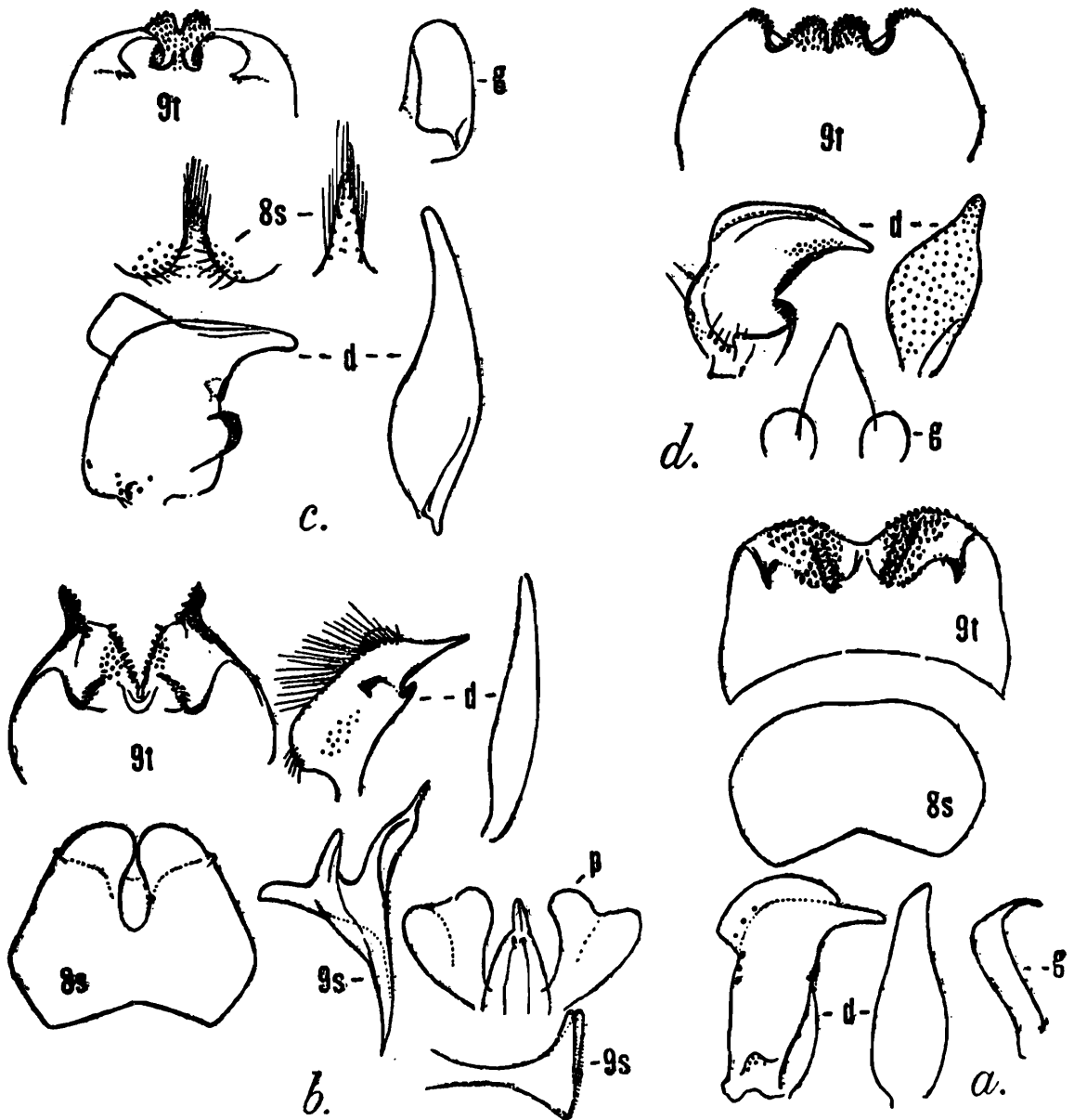
Male hypopygium (text-fig. 3c) with the ninth tergite, *9t*, relatively small, its posterior end produced into two flattened black blades that lie vertically, their surface with blackened spicules. Outer dististyle, *d*, bearing a strong pointed lobe on outer or upper margin; inner style with the beak narrowed abruptly into a slender point; posterior crest large. Gonapophyses, *g*, appearing as expanded flattened blades.

Nephrotoma libra Alexander.

1951. *Nephrotoma libra*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1092-1094.

Type from Gyantse, Tibet, altitude 13,000 feet, July 19, 1928, taken by Lt. Col. F. M. Bailey.

Male hypopygium (text-fig. 4a) with the caudal margin of tergite, *9t*, thick and blackened, the outer lateral angle produced into a decurved spine. Basistyle with a smooth blackened plate on mesal face. Inner dististyle, *d*, with an unusually high and conspicuous glabrous dorsal crest. Gonapophysis, *g*, appearing as a flattened yellow blade, the slender apex bent at a right angle, gradually narrowed to the slightly decurved tip,



Text-fig. 4a. *Nephrotoma libra* Alexander; b. *Nephrotoma megascapha* Alexander; c. *Nephrotoma multivesarensis* Alexander; d. *Nephrotoma quadrilata* Alexander; male hypopygia.

Nephrotoma megascapha Alexander.

1951. *Nephrotoma megascapha*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 891-893.

The types were from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, May 3—20, 1950 (Susai Nathan).

Male hypopygium (text-fig.4b) with the tergite, *9t*, deeply emarginate, the outer lateral angles produced into strong arms that bear several blackened spines at apex and along the inner face; on either side of ventral surface of tergite with a strong sclerotized plate that bears further blackened spines, including a linear retrorse series. Outer dististyle, *d*, unusually long and narrow, obtuse at tip, the greatest width about one-sixth the length; inner style with the beak slender; a high glabrous crest at summit of style behind the beak; dorsal margin with unusually long setae that form a more or less distinct comb. Phallosome, *p*, consisting of the relatively small aedeagus and unusually large and flattened bilobed gonapophyses. Ninth sternite, *9s*, with a broad oval membranous area, from the posterior ends of which extend strong irregularly bifid structures that subtend the phallosome; from the base of the cephalic region of the sternite in the notch of the eighth sternite, a strong median arm arises, projecting backward, enlarged at apex into a two-pointed head. Eighth sternite, *8s*, very large, projecting caudad about to the level of the remainder of the hypopygium, its caudal margin deeply split to form two unusually large flattened plates that form a scoop, these plates densely covered by microscopic setulae.

Nephrotoma muktesarensis Alexander.

1952. *Nephrotoma muktesarensis*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

Described from Muktesar, Kumaon, United Provinces, altitude 7,500 feet, August 10-12, 1923, July 26—28, September 11, 1924, all collected by Sen.

Male hypopygium (text-fig. 4c) with the ninth tergite, *9t*, transverse, the posterior border truncate, with the lateral shoulders rounded; median area with a pale membranous part that is produced into two obtusely triangular spiculose lobes, separated by a small V-shaped notch. Ninth sternite with an erect fingerlike setiferous lobe at the base of an elongate-oval central emargination. Outer dististyle, *d*, relatively long and narrow, its basal half more dilated, thence narrowed to the tip; inner style subquadrate in general outline, the beak relatively slender; lower beak obtusely rounded; dorsal crest lacking; posterior crest conspicuously produced into a flattened blade, its tip truncate. Gonapophysis, *g*, appearing as a small pale blade, the tip obtuse. Eighth sternite, *8s*, large and sheathing, the posterior border conspicuously emarginate, with pale membrane, the lobes obtuse, provided with coarse black setae that are directed inward; in the notch lies a stout fingerlike lobe directed strongly cephalad, this provided with long yellow setae.

Nephrotoma nigrohalterata Edwards.

1928. *Nephrotoma nigrohalterata*, Edwards, *Ann. Mag. Nat. Hist.* (10) I, p. 700,

Edwards's types, two females, were from Tibet. I have a male metatypical specimen from Poshö, East Tibet, received through an exchange with Edwards. This shows that the species is very close to

Nephrotoma attenuata Alexander (1935) and the two flies may prove to be identical.

Male hypopygium (text-fig. 2*d*) with the outer dististyle, *d*, unusually long and slender, especially on its outer two-fifths; inner style with the beak long and slender, the posterior crest produced backward, slender, having approximately the same outline as the beak; dorsal crest slightly elevated; region of the outer basal lobe with three strong black setae. Ninth sternite with a deep notch, at the base of which is a brown fingerlike lobe, directed ventrad. Eighth sternite, 8*s*, broad, the posterior border truncated, the central part back of the border with abundant long retrorse setae, the margin produced ventrad into a small pale fleshy lobe.

***Nephrotoma pleurinotata* Brunetti.**

1912. *Pachyrhina pleurinotata*, Brunetti, *Fauna Brit. India, Dipt. Nomat.* pp. 343-344.

Described from Ceylon. Now known from various stations in South India-Kollar, altitude 1,000 feet, July 1947; Walayar Forest, South Malabar, altitude 2,000 feet, September 18, 1947 (Susai Nathan).

***Nephrotoma pratensis* (Linnaeus).**

1758. *Tipula pratensis*, Linnaeus, *Syst. Nat.*, Ed. X, p. 586.

One female, Dü Chu Valley, Poshö, East Tibet, altitude 12,000 feet, July 7, 1936, collected by Kaulback; British Museum (Natural History). I can see no significant differences between this female and comparable European specimens of *pratensis*, although it is possible that the male sex will reveal such distinctions.

***Nephrotoma quadrilata* Alexander.**

1951. *Nephrotoma quadrilata*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 887-889.

The types were from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, May 5-20, 1950 (Susai Nathan).

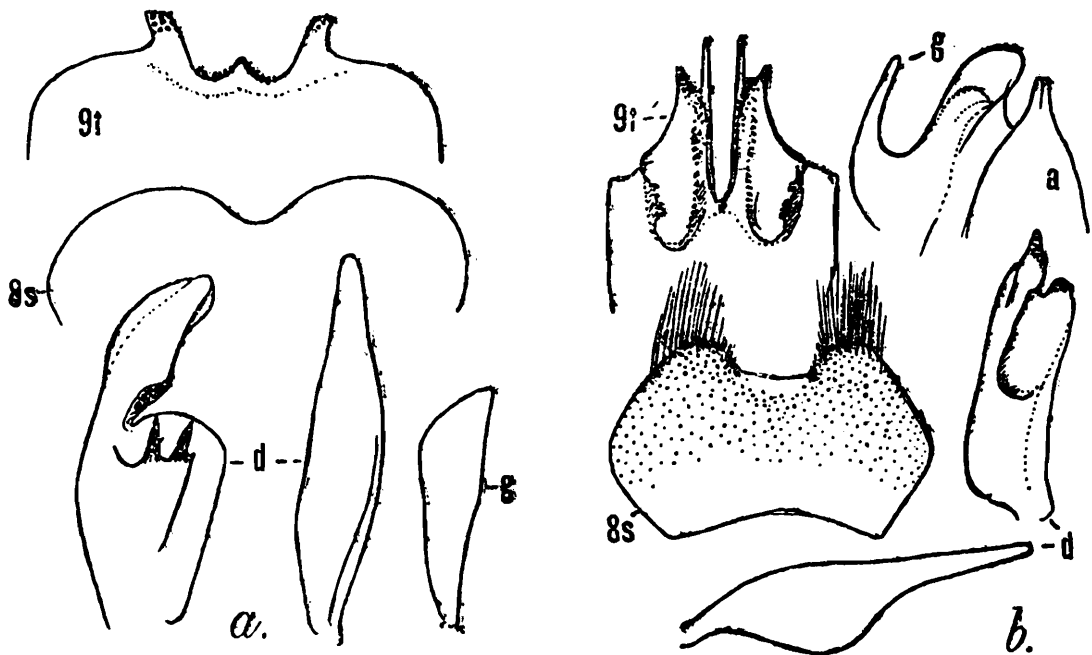
Male hypopygium (text-fig. 4*d*) with the tergite, 9*t*, transverse, its caudal margin with four unusually short and stout lobes that are tipped with short blackened spinous pegs, the more basal ones of the intermediate lobes more setoid. Outer dististyle, *d*, relatively short and broad, the width about one-half the total length; inner dististyle unusually small and simple, the dorsal crest long and low, entirely glabrous, extending from the beak back to the posterior outer part of style. Gonapophysis, *g*, appearing as an unusually broad obtuse blade that subtends the short stout aedeagus. Ninth sternite deeply emarginate medially, at cephalic end of the notch with protuberant pale membrane to form a more or less distinct lobe. Eighth sternite with the caudal margin notched, the surface with sparse setae.

***Nephrotoma rajah* Alexander.**

1951. *Nephrotoma rajah*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1091-1092.

Types from Glen Morgan, Nilgiri Hills, South India, altitude 6,500 feet, May 22, 1948 (Susai Nathan).

Male hypopygium (text-fig. 5a) with the tergite, 9t, transverse, the caudal margin unequally trilobed, including a pair of lateral lobes that are tipped with blackened spicules and a smaller median triangular point, the sides of which bear a few similar spicules; margin of the incision thickened; no development of sclerotized armature on ventral surface of plate. Outer dististyle, *d*, of moderate length, its greatest width approximately one-fifth the length; inner style with the beak much prolonged, the outer margin subtended by pale membrane to form a crest; lower beak very low and obtuse, blackened; on face of style with a flattened black plate, its apex produced into two strong spines, with one or two further tiny points. Gonapophysis, *g*, appearing as a flattened blade, gently widened outwardly, broadest across the outer half; inner margin of blade nearly straight, the outer strongly convex, particularly on outer half. Ninth sternite incised medially, with protruding membrane at base of notch. Eighth sternite, 8s, transverse, only moderately sheathing;



Text-fig. 5a. *Nephrotoma rajah* Alexander; b. *Nephrotoma semicineta* Alexander; male hypopygia.

posterior border with a small emargination, provided with long conspicuous setae.

Nephrotoma semicineta Alexander.

1951. *Nephrotoma semicineta*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 893-895.

Described from the Nilgiri Hills, South India, taken at Naduvatam altitude 6,000 feet, May 4-5, 1950, and at Glen Morgan, altitude 6,500 feet, May 22, 1948 (Susai Nathan).

Male hypopygium (text-fig. 5b) with the caudal margin of the ninth tergite, 9t, with a very deep and narrow median notch that is subtended by flattened blades that are provided with numerous blackened spicules; on ventral face of tergal plate on either side of the notch with a long slender blade that is directed caudad, its surface with further spicules. Outer dististyle, *d*, relatively long, narrow basally, at near one-third the length conspicuously dilated on the inner margin, thence narrowed to the obtuse

tip; inner style unusually long and narrow, without a dorsal crest; both the beak and lower beak more blackened, the latter obtusely rounded. Gonapophysis, *g*, complex, appearing as an irregularly bilobed blade, its outermost arm slender, the inner one subtending the small aedeagus. Ninth sternite with a prow-shaped median lobe that is directed ventrad, placed at the base of a deep central notch. Eighth sternite, *8s*, conspicuously emarginate, the low obtuse lateral lobes with long setae.

***Nephrotoma seniana* Alexander.**

1952. *Nephrotoma seniana*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

Described from Muktesar, Kumaon, United Provinces, altitude 7,500 feet, July 24, 1924 (Sen).



Text-fig. 6a. *Nephrotoma seniana* Alexander; b. *Nephrotoma subopaca* Alexander; c. *Nephrotoma toda* Alexander; male hypopygia.

Male hypopygium (text-fig. 6a) with the ninth tergite, *9t*, transverse, the caudal margin virtually trilobed, including lateral sclerotized blades, their tips obtuse, each with three or four blackened spicules on face; central lobe microscopically notched at tip by a tiny emargination but appearing virtually entire, with a triangular outline, the whole surface with abundant spicules. Outer dististyle, *d*, about three and one-half times as long as the greatest width, this just before midlength, then rather suddenly narrowed to the obtuse tip; inner style with the beak relatively slender; no dorsal or posterior crests; setae of the outer margin long but sparse, yellow; lower beak viewed from the side appearing long and slender, gently curved, when viewed from above more spatulate, broadest before the subobtuse apex. Phallosome, *p*, with the aedeagus very short, subtended by the subequal pale gonapophyses, the latter unequally bilobed, the outer lobe a flattened-compressed blade. Eighth sternite

transverse, the membrane beneath the posterior border with a small fleshy lobe, 8s, this directed caudad, the surface densely covered with microscopic setulae.

Nephrotoma serricornis Brunetti.

1912. *Pachyrhina serricornis*, Brunetti, *Fauna Brit. India, Dipt. Nemat.*, p. 341.

Between Therriaghat and Mahadeo, Khasi Hills, Assam, April 7, 1927 (Gopi Ram); Indian Museum No. 6.

Nephrotoma subopaca Alexander.

1952. *Nephrotoma subopaca* Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

Types from Kashmir, taken at Yusimarg, altitude 7,500 feet, August 6—15, 1923, and at Killarmarg, altitude 10,000 feet, July 19, 1923, taken by T. B. Fletcher.

Male hypopygium (text-fig. 6b) with the ninth tergite, 9t, transverse, slightly narrowed posteriorly, each lobe broad and low, separated by a narrow U-shaped notch, the lobes provided with abundant blackened spicules, the more mesal end of the lobe a little more produced. Ninth sternite short. Outer dististyle, *d*, relatively short, the length about two and one-half times the greatest width which is just beyond midlength; inner style with the beak relatively slender; dorsal and posterior crests glabrous; region of the outer basal lobe produced to produce an outline almost like that of the posterior crest. Gonapophysis, *g*, very small, only about one-half as long as the aedeagus, at apex a trifle dilated into a weak head. Eighth sternite unarmed, the posterior border truncated or virtually so.

Nephrotoma toda Alexander.

1951. *Nephrotoma toda*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 889-891.

The type is from the Wood Estate, Nilgiri Hills, South India, altitude 4,200 feet, May 24, 1950 (Susai Nathan).

Male hypopygium (text-fig. 6c) with the caudal margin of the ninth tergite, 9t, with a deep rectangular notch, the subtending lobes appearing as flattened blades that project caudad beyond any other part of the tergite, armed with spiculate points, including a concentration on the outer margin before the narrowed apex; laterad of these blades with a shorter slender rod that is likewise provided with spiculate points; ventral surface of tergite with a lateral blackened arm and a more mesal flattened plate. Outer dististyle, *d*, excessively long and narrow, the length exceeding ten times the greatest width; inner style small and compact, beak slender; dorsal crest very low to barely indicated; posterior end of style blackened. Phallosome consisting of elongate bladelike gonapophyses, *g*, and a gently curved structure of slightly greater length, presumably representing the aedeagus. Ninth sternite, 9s, at apex with a brush of long setae and a small flattened lobe or appendage, at base of the latter with a small slender horn; median area of sternite filled with dark-colored pigmented membrane, outlining a more or less cordate area. Eighth sternite, 8s, with the posterior border emarginate, with a median

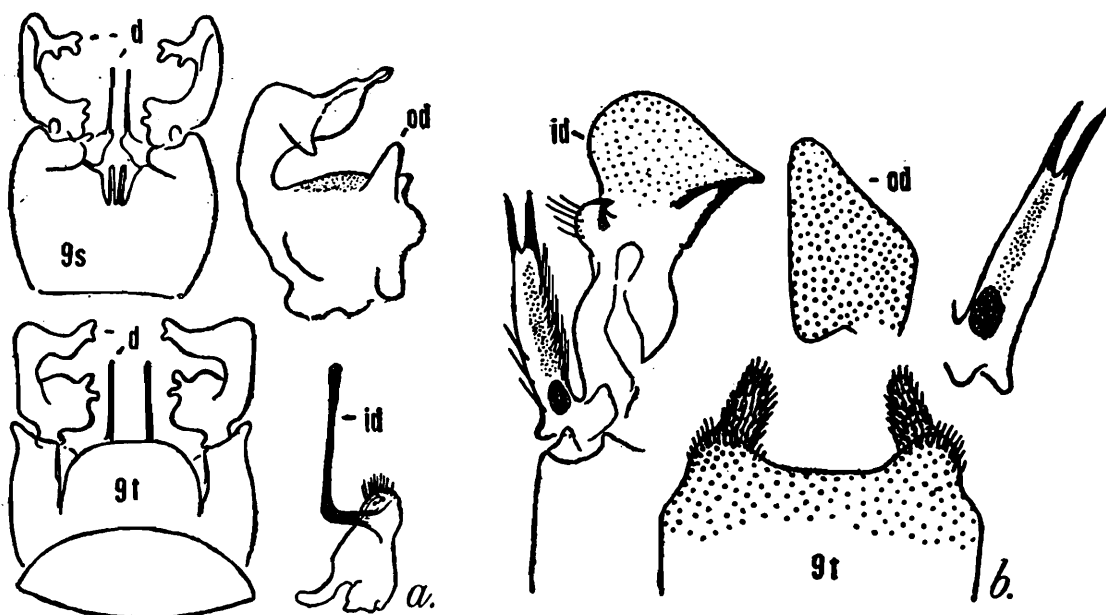
lobe, the apex of which is microscopically setuliferous; lateral lobes low and obtuse, with unusually long setae. Seventh sternite with a pale membranous border, the median part of which is further produced into a small setuliferous lobule.

***Tipula (Bellardina) cranbrooki* Alexander.**

1951. *Tipula (Bellardina) cranbrooki*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1074-1076.

Described from Lung Sa, Adung Valley, Northeast Burma, altitude 12,000 feet, July 1—August 12, 1931 (Kingdon Ward and Lord Cranbrook).

Male hypopygium (text-fig. 7a) with the ninth tergite, 9t, on ventral surface near posterior border with a small bilobed appendage. Ninth sternite, 9s, with two narrow sclerotized rods arising from the base of the



Text-fig. 7a. *Tipula (Bellardina) cranbrooki* Alexander; b. *Tipula (Tipulodina) xanthippe* Alexander; male hypopygia.

U-shaped ventral notch. Outer dististyle, *od*, very irregular in outline, including an outer arm that is expanded apically and is unequally bilobed. Inner dististyle, *id*, much smaller, extended caudad as a slender black rod that is encased in pale membrane.

***Tipula (Bellardina) exquisita* Alexander.**

1935. *Tipula (Sinotipula) exquisita*, Alexander, *Philip. Journ. Sci.*, LVII, pp. 95-97.

East Tibet. Poshö, altitude 14,000 feet, July 23—24, 1936, and the Dü Chu Valley, altitude 13,000—13,500 feet, July 13, 1936, taken by R. J. H. Kaulback; British Museum (Natural History).

***Tipula (Tipulodina) brunettiella* Alexander.**

1923. *Tipulodina brunettiella*, Alexander, *Ann. Ent. Soc. America*, XVI, p. 75.

Described from Ceylon. Singara, Nilgiri Hills, South India, altitude 3,400 feet, April 28, 1948 (Susai Nathan).

Tipula (Tipulodina) xanthippe Alexander.

1951. *Tipula (Tipulodina) xanthippe*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 882-884.

The unique type was from the Mango Range, Nilgiri Hills, South India, altitude 3,800 feet, May 1950 (Susai Nathan).

Male hypopygium (text-fig. 7*b*) with the posterior border of the ninth tergite, 9*t*, broadly emarginate, the lateral lobes with strong black setae; on ventral face of each lobe with an even longer and more conspicuous secondary lobe, clothed with black setae. Outer dististyle, *od*, with the basal half dilated, the short outer portion obtuse at apex. Inner dististyle, *id*, with the beak short and obtuse, blackened, the crest very high, obtusely rounded, its basal lobe produced into a blackened beak; outer arm of style a powerful structure that splits at apex into two subparallel blackened spines; surface of arm with the sensory area at its base and with a row of abundant long yellow setae over most of the length.

The most similar regional species is *Tipula (Tipulodina) simillima* Brunetti, likewise from South India, which has the outer arm of the inner dististyle quite different, being profoundly bifid, with both arms blackened and more or less setiferous. The exact homologies of this powerful outer arm or spine found on the male hypopygium of the various species of *Tipulodina* have been uncertain. In an earlier paper (*Philip. Journ. Sci.* LVII, p. 115, 1935) I had considered the structure as representing a disconnected prolongation of the basistyle, rather than being a part of the dististyle. Edwards called it an 'outer style', a term generally restricted to the different outer dististyle. From better preserved materials it now appears that the spine actually is part of the inner dististyle and represents a structure additional to the usual outer basal lobe, common to virtually all members of the genus. This additional or supplementary arm is not limited to the subgenus *Tipulodina* but is found in at least three western Nearctic species of the subgenus *Lunatipula* Edwards—*albofascia* Doane, *bifalcata* Doane, and *cladacantha* Alexander. That the structure is actually part of the inner dististyle is confirmed by the fact that it bears the so-called 'sensory area', a compact group of pores that is usually found on the main body of the inner dististyle.

Tipula (Vestiplex) bisentis Alexander.

1951. *Tipula (Vestiplex) bisentis*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1080-1082.

Described from Lung Sa, Adung Valley, Northeast Burma, altitude 12,000 feet, July 4—19, 1931 (Kingdon Ward and Lord Cranbrook).

Male hypopygium (text-figs. 8*a*, 8*b*) with the caudal border of the ninth tergite, 9*t*, broadly emarginate, the lateral lobes obtuse; at base of notch and lying more ventral are two smaller blackened knobs with spiculose tips. Basistyle, *b*, bispinous, the more dorsal spine longer. Appendage of ninth sternite, 9*s*, bearing a small finger-like lobe with three long setae.

Tipula (Vestiplex) gandharva Alexander.

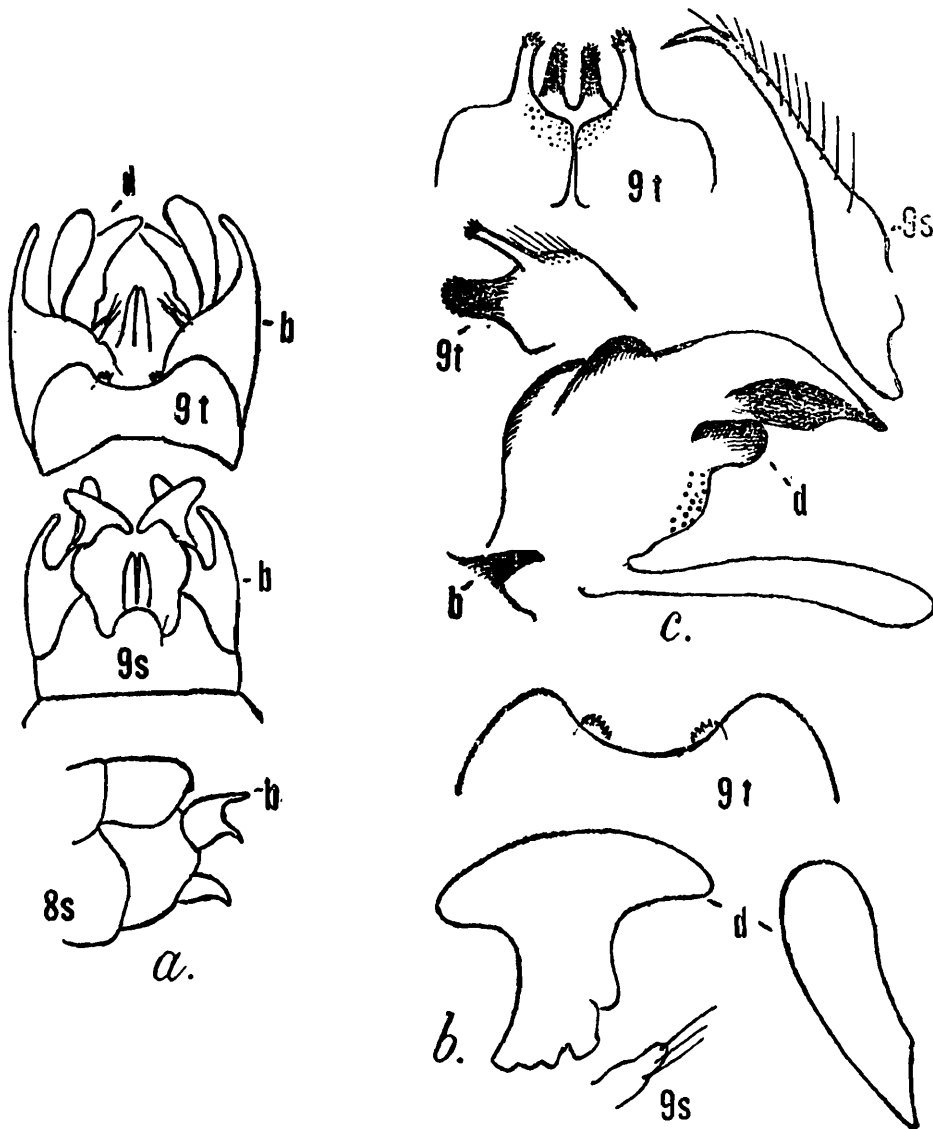
1951. *Tipula (Vestiplex) gandharva*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1076-1078.

The type was from the Adung Valley, Northeast Burma, altitude 8,000 feet, June 4, 1931 (Kingdon Ward and Lord Cranbrook).

Male hypopygium (text-fig. 8c) with the caudal margin of the ninth tergite, *9t*, bearing two pairs of lobes, an outer slender pair and two blackened blades that lie close together and at a lower level. Basistyle, *b*, terminating in a short stout spine. Inner dististyle, *d*, massive, the lower surface of beak conspicuously blackened. Appendage of ninth sternite, *9s*, a long simple rod, its basal third more dilated.

***Tipula (Vestiplex) halteroptera* Alexander.**

1951. *Tipula (Vestiplex) halteroptera*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1078-1080.



Text-fig. 8a, b. *Tipula (Vestiplex) bisentis* Alexander; c. *Tipula (Vestiplex) gandharva* Alexander; male hypopygia.

Type material from the Adung Valley, Northeast Burma, altitude 13,000 feet, July 1, 1931 (Kingdon Ward and Lord Cranbrook).

Male hypopygium (text-fig. 9a) with the tergite, *9t*, having a deep V-shaped notch, the mid-area with pale membrane; a blackened flange or beak on ventral face of each lobe. Basistyle, *b*, unarmed. Appendage of ninth sternite, a flattened yellow blade that bears two setae at near three-fourths the length, the blade about five times as long as broad.

Tipula (Vestiplex) mitchelli Edwards.

1927. *Tipula mitchelli*, Edwards, *Ann. Mag. Nat. Hist.* (9) XX, pp. 229-230.

Sonamarg, Kashmir, altitude about 9,000 feet, Station 7, June 17-23, 1921 (Kashmir Survey).

Tipula (Vestiplex) nigroapicalis Brunetti.

1911. *Tipula nigroapicalis*, Brunetti, *Rec. Ind. Mus.* VI, p. 257.

The types were taken by Brunetti at Darjiling in October 1905. A male metatype from Muktesar, Kumaon, altitude 7,500 feet, taken on September 10, 1924, by Sen; determined by Edwards.

Tipula (Vestiplex) ravana sp. nov.

Antennae with the pedicel light yellow, scape light brown; femora brownish black, their bases obscure yellow, with an obscure yellow subterminal ring; wings medium brown, variegated with cream-yellow areas; basal abdominal segments reddish brown, the outer ones black; male hypopygium with the ninth tergite having the lateral lobes low and obtuse, from their ventral surface with an acute blackened spine, directed caudad; basistyle and eighth sternite unarmed; appendage of ninth sternite boomerang-shaped, the margin with four scattered setae.

Male.—Length about 14 mm.; wing 16 mm.; antenna about 4.5 mm.

Type badly discoloured and the pattern describable in general terms only. Frontal prolongation of head light brown, nasus distinct; palpi yellowish brown, the terminal segments darkened. Antennae (male) moderately long, if bent backward ending about at the wing root; scape light brown, pedicel yellow, flagellar segments dark brown, the basal swellings of moderate size; longest verticils subequal to the segments. Head brown, gray pruinose, with a narrow darker brown median stripe; vertical tubercle low, entire.

Pronotum brown, sparsely pruinose. Mesonotal praescutum badly discoloured, apparently brownish black, the interspaces with a gray pruinosity persisting; scutellum apparently with a still darker central stripe. Pleura dark, the dorsopleural membrane buffy brown. It seems evident that in fresh material, the entire thoracic ground color is heavily gray pruinose. Halteres with stem and apex of knob obscure yellow, base of the latter dark brown. Legs with the coxae reddish brown; trochanters obscure yellow; femora brownish black, the bases obscure yellow, more extensively so on some legs, presumably the posterior pair (all legs detached); a narrow obscure yellow subterminal ring; tibiae and tarsi dark brown to brownish black; claws (male) toothed. Wings with the ground medium brown, variegated with cream yellow areas, including the prearcular field; two irregular pale bands cross the wing before the cord, the first forking behind to form two pale marginal areas in cell *2nd A*, the second band ending virtually at *Cu*; beyond the cord a similar extensive area in bases of cells of outer radial field; obliterative areas before stigma and crossing the base of cell *1st m₂*; veins brown. Venation: *Rs* relatively long, slightly exceeding twice *m-cu*; *R₁₊₂* entire; petiole of cell *M₁* and *m* subequal; *m-cu* shortly before fork of *m₃₊₄*.

Abdomen with proximal six segments reddish brown, vaguely patterned with darker; outer segments blackened. Male hypopygium (text-fig. 9c) with the sutures separating the ninth tergite and basistyle from the ninth sternite entire. Ninth tergite, *9t*, transverse; viewed from above, the caudal border with a very shallow V-shaped notch, the lateral lobes very low, on their ventral surface with a blackened spine, directed caudad and slightly upturned; viewed from above with the base thickened and with a small tooth on the mesal face. Basistyle entirely unarmed. Outer dististyle, *d*, a flattened dusky spatula; inner style massive, beak short but slender, heavily blackened, especially beneath; lower beak pale, very deep; a double dorsal crest, including a long low setiferous one, extending the whole length of the dorsal surface and a small glabrous flange immediately back of the beak. Appendage of ninth sternite, *9s*, boomerang-shaped, narrowed very gradually to the obtuse tip, the concave margin with four setigerous punctures, three being grouped near the tip. Aedeagus, *a*, with the tip decurved, the lower face with a large flattened flange, this apparent from the lateral aspect. Eighth sternite, *8s*, entirely unarmed.

Habitat.—India (United Provinces).

Holotype, male, Jabharket, on Mussoorie-Tehri Road, ca. 4 miles from Mussoorie, Dehra Dun District, June 20—25, 1930 (B. N. Chopra); Station 4, found in damp places in jungle near water trickling from a spring; Zoological Survey of India No. 62.

The present fly is readily told from all other generally similar regional species by the structure of the male hypopygium, particularly the tergite, unarmed basistyle, and the appendage of the ninth sternite. The most similar of these species are *Tipula (Vestiplex) stylifera* Alexander and *T. (V.) inaequidentata* Alexander.

***Tipula (Vestiplex) scandens* Edwards.**

1928. *Tipula scandens*, Edwards, *Ann. Mag. Nat. Hist.* (10) I, p. 691.

East Tibet: Poshö, Dzongra, altitude 14,500—16,000 feet, July 4 20, 1936 (R. J. H. Kaulback); British Museum (Natural History).

***Tipula (Vestiplex) styligera* Alexander.**

1927. *Tipula styligera*, Alexander, *Rec. Ind. Mus.* XXIX, pp. 179-180.

The unique type was taken at Darjiling, altitude 7,000 feet, May 23, 1910, by Brunetti, and no further specimen appears to have been taken. The two drawings of the male hypopygium (text-fig. 9d) showing the ninth tergite, *9t*, and the basistyle, *b*, were made from the dry type.

***Tipula (Vestiplex) subreposita* Alexander.**

1942. *Tipula (Vestiplex) subreposita*, Alexander, *Rec. Ind. Mus.* XLIV, pp. 39-41.

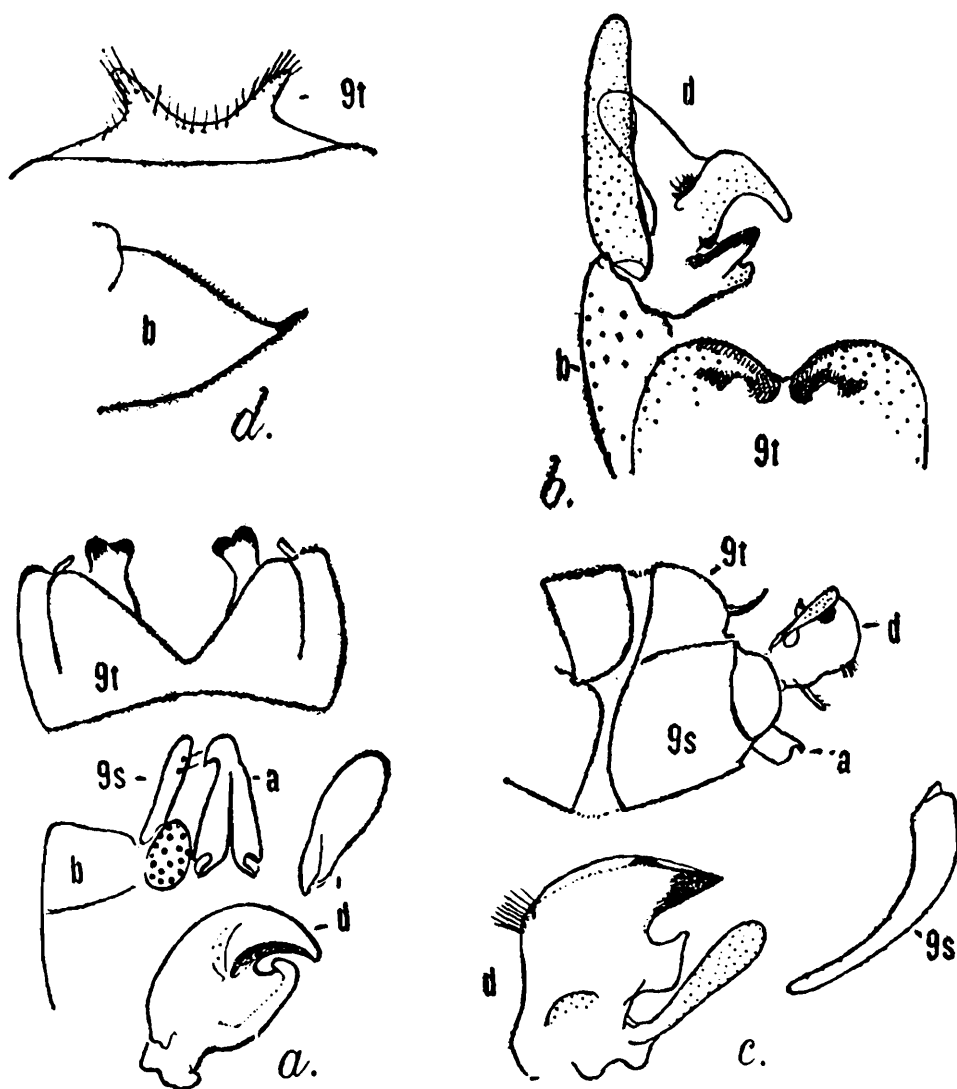
The type was from Sureil, Darjiling District, taken in April-May 1917, by Kemp. One further male, Company Khud, below Landour Bazar, Mussoorie, Dehra Dun District; Station 3, June 18, 1930, taken by B. N. Chopra; Zoological Survey of India No. 39.

Tipula (Schummelia) nicothoe Alexander.

1953. *Tipula (Schummelia) nicothoe*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The type was from the Dü Chu Valley, East Tibet, altitude 13,500 feet, taken July 13, 1936, by R. J. H. Kaulback; British Museum (Natural History).

Male hypopygium (text-fig. 9b) with the ninth tergite, *9t*, large, transverse, the caudal margin with two broadly rounded blackened lobes that are separated by a V-shaped notch; on ventral surface of lobe with a conspicuous blackened flange that appears emarginate by a small U-shaped notch. Outer dististyle, *d*, elongate, pale, gradually narrowed



Text-fig. 9a. *Tipula (Vestiplex) halteroptera* Alexander; b. *Tipula (Schummelia) nicothae* Alexander; c. *Tipula (Vestiplex) ravana*, sp. nov.; d. *Tipula (Vestiplex) styligera* Alexander; male hypopygia.

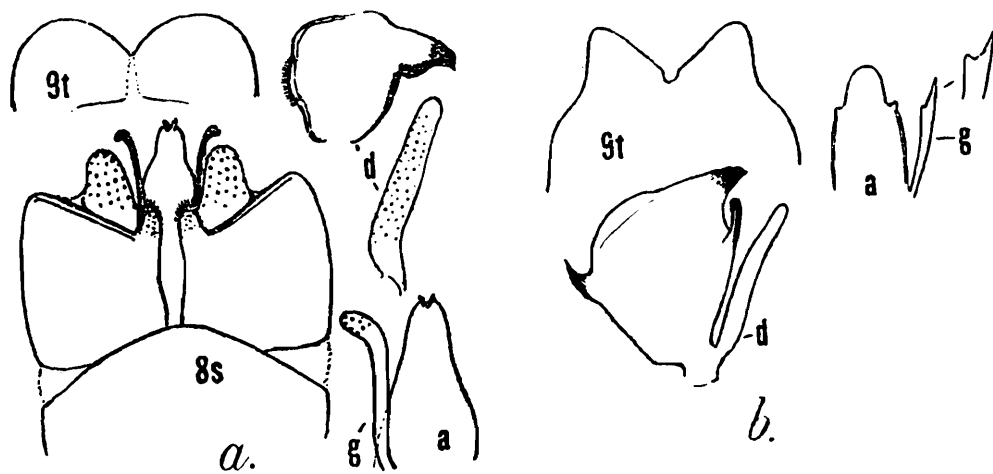
to the obtuse tip; inner style with the posterior crest very long, yellow, directed backward; beak slender, near its base produced into a blackened flange; lower beak with the surface microscopically corrugated; sensory area placed at base of beak, each area with a long coarse seta.

Tipula (Oreomyza) baileyi Alexander.

1952. *Tipula (Oreomyza) baileyi*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The types were from Tibet, taken at Yatung, altitude 12,000 feet, September 21, 1928, and Changu, altitude 12,500 feet, October 1, 1928, by Lt. Col. F. H. Bailey.

Male hypopygium (text-fig. 10a) with the ninth tergite, *9t*, transverse, the caudal border very gently emarginate to produce two low rounded lobes, their margins with sparse delicate setae. Outer dististyle, *d*, long and relatively slender, narrowed very gradually to the obtuse glabrous tip, the remaining surface sparsely setiferous; inner style a compressed-flattened blade, the beak blackened, its tip highly polished and microscopically pointed beneath. Gonapophysis, *g*, a slender rod, the dilated spatulate tip bent slightly dorsad, provided with a few scattered spicules. Aedeagus, *a*, stout, darkened, broadest across base. Ninth sternite, *9s*, extensive, viewed from beneath showing a narrow central strip that is delimited by two nearly parallel pale lines; accessory sternal sclerites completely cut-off at ends of sternite, dark-coloured, provided with abundant long yellow setae. Eighth sternite, *8s*, with the caudal margin entirely unarmed and glabrous, gently convex.



Text-fig. 10a. *Tipula (Oreomyza) baileyi* Alexander; b. *Tipula (Oreomyza) garuda* Alexander; male hypopygia.

***Tipula (Oreomyza) garuda* Alexander.**

1953. *Tipula (Oreomyza) garuda*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

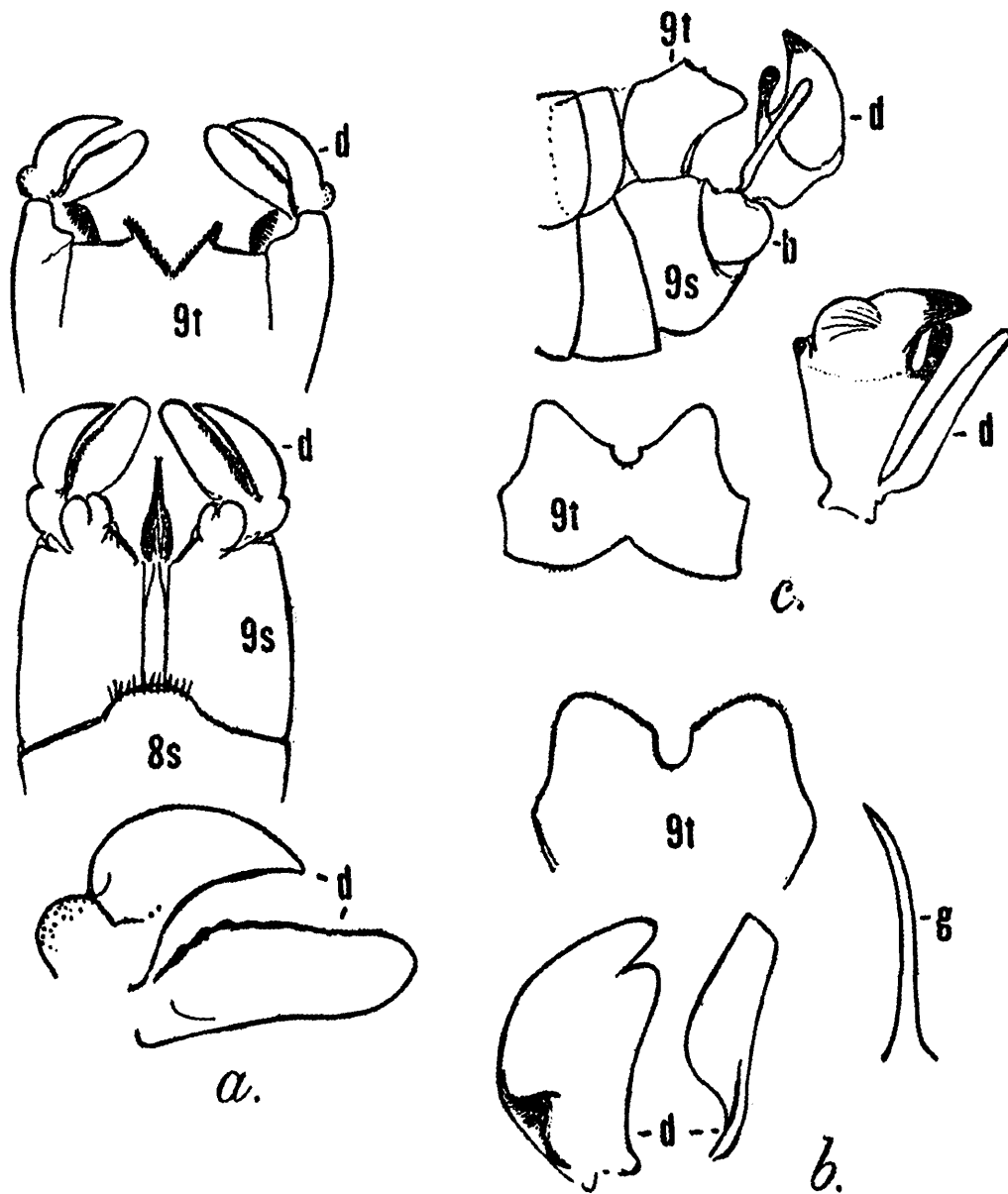
Types from Adung Valley, Northeast Burma, altitude 10,000 feet, taken June 6—7, 1931, by Kingdon Ward and Lord Cranbrook; British Museum (Natural History).

Male hypopygium (text-fig. 10b) with the ninth tergite and basistyle entirely separate from the ninth sternite. Ninth tergite, *9t*, transverse, broadest across basal half, the apex produced into two conspicuous lobes with obliquely truncated apices, separated by a U-shaped notch. Basistyle simple, unproduced in any manner. Outer dististyle, *d*, relatively long and slender, narrowed to the obtuse tip, the latter with conspicuous setae that are longer than elsewhere-on the style; inner style compressed, the beak stout, blackened; lower beak long and slender, subcylindrical, the tip obtuse; posterior border of style with an acute black spine, directed outwardly. Gonapophysis, *g*, a small weak blade, the tip notched to form two unequal lobes, one of which is acute. ninth sternite divided

medially by pale membrane to its very base, the outer end of notch widened, on either side with a small complete accessory sclerite. Eighth sternite transverse, its posterior border truncate to scarcely emarginate unarmed.

Tipula (Oreomyza) letifera Alexander.

1951. *Tipula (Oreomyza) letifera*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1084-1085.



Text. fig. 11a. *Tipula (Oreomyza) letifera* Alexander; b. *Tipula (Oreomyza) harva* Alexander; c. *Tipula (Oreomyza) wardiana* Alexander; male hypopygia.

The unique type was from Shugden Gompa, Southeast Tibet, altitude 13,000 feet, taken August 18, 1935, by R. J. H. Kaulback; British Museum (Natural History).

Male hypopygium (text-fig. 11a) with the ninth tergite, *9t*, transverse, its posterior border truncate, with a V-shaped median notch, the margins of the latter narrowly blackened, produced outward as slender lobes. Outer dististyle, *d*, broad, its dorsal margin narrowly blackened and crenulate; inner style with the main body a flattened blade that narrows to the acute beak, the outer margin evenly convex. Eighth sternite,

8s, slightly sheathing, the central part of caudal border produced into a low rounded lobe that is fringed with about a dozen black setae.

***Tipula (Oreomyza) sharva* Alexander.**

1953. *Tipula (Oreomyza) sharva*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The types were from the Adung Valley, Burma, altitude 12,000—14,000 feet, June 22—July 18, 1931, taken by Kingdon Ward and Lord Cranbrook.

Male hypopygium (text-fig. 11b) with the sutures separating the tergite, sternite and basistyle complete. Ninth tergite, *9t*, large, the caudal border produced into two broad and thin obtuse lobes, separated by a U-shaped notch. Outer dististyle, *d*, narrowed at base, the apex truncate; inner style with both the beak and lower beak obtuse, blackened; region of the posterior crest behind darkened and elevated into a blackened ridge. Gonapophysis, *g*, long and slender, acicular. Eighth sternite unarmed.

***Tipula (Oreomyza) wardiana* Alexander.**

1951. *Tipula (Oreomyza) wardiana*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1082-1083.

Types from the Adung Valley, Northeast Burma, altitude 8,000 feet, taken June 5, 1931, by Kingdon Ward and Lord Cranbrook.

Male hypopygium (text-fig. 11c) with the caudal border of the ninth tergite, *9t*, biemarginate, there being a major outer shallow notch, with a small circular one at its base. Outer dististyle, *d*, long and narrow, only slightly wider near base than near apex; inner style massive, lower beak elongate, dilated at apex into an obtusely rounded head.

***Tipula (Acutipula) deva* Alexander.**

1952. *Tipula (Acutipula) deva*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The unique type was from the Adung Valley, Northeast Burma, altitude 9,000 feet, taken June 6, 1931, by Kingdon Ward and Lord Cranbrook.

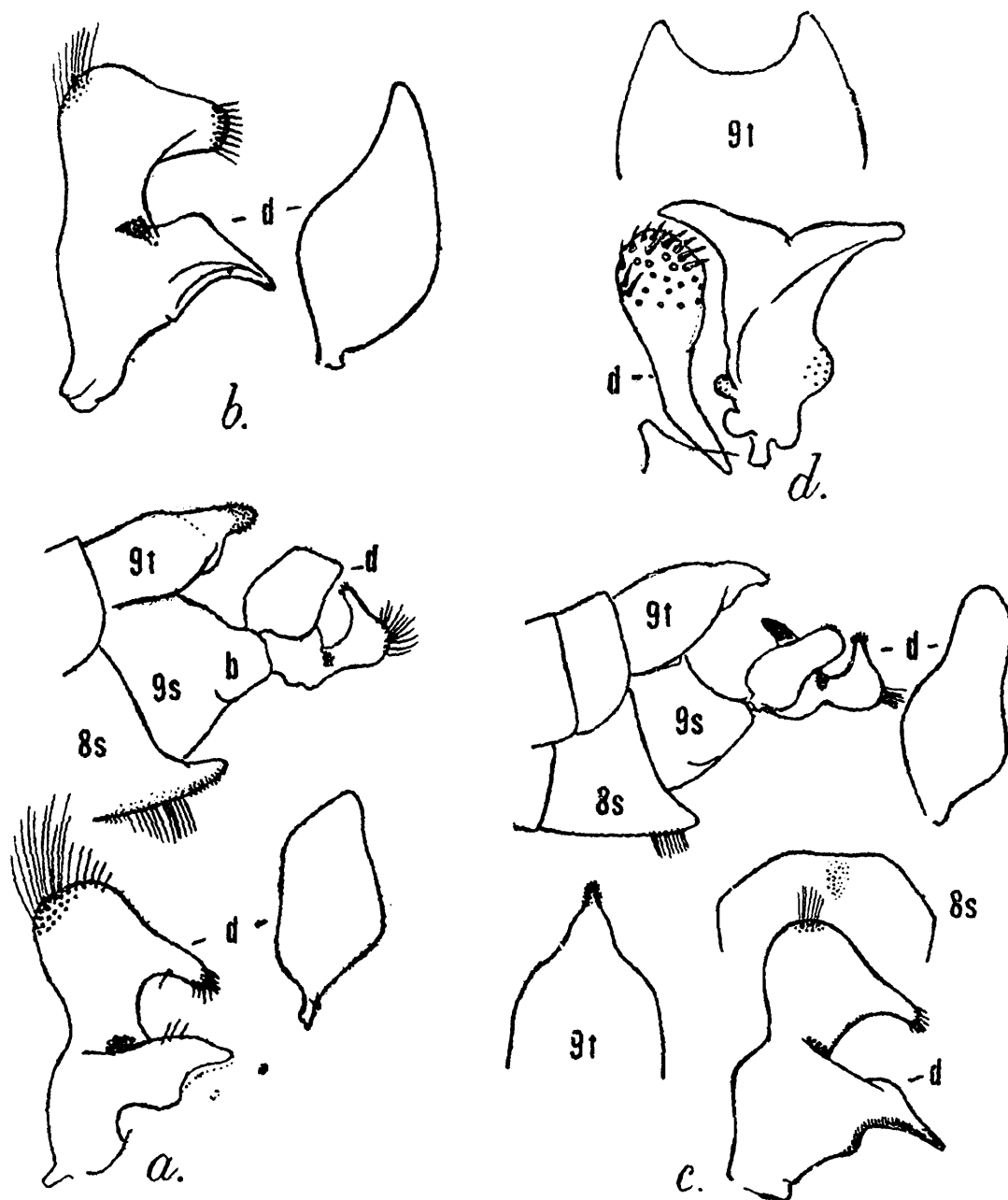
Male hypopygium (text-fig. 12a) with the median lobe of the tergite *9t*, simple, relatively narrow, compressed-flattened, densely set with black spiculate points. Outer dististyle, *d*, white, relatively short and broad, widest across basal half, the tip obliquely truncate; inner style with its outer lobe large and erect, the summit with about thirty strong setae, those nearest the apical lobe shorter; subterminal lobe or beak broken at tip, its exact length and contour unknown. Eighth sternite, *8s*, with a lobe that is somewhat like that of the tergite but broader, depressed-flattened, the apex with spiculae, the more basal part beneath with long yellow setae, the outer ones longest.

***Tipula (Acutipula) epicaste* Alexander.**

1952. *Tipula (Acutipula) epicaste*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The unique type was taken in the Adung Valley, Northeast Burma, altitude 12,000 feet, August 1, 1931, by Kingdon Ward and Lord Cranbrook.

Male hypopygium (text-fig. 12*b*) with the tergite produced into a slender median lobe, its apex simple, spiculose. Outer dististyle, *d*, broadest at about opposite midlength, the distance exceeding one-half the length, apex narrowly obtuse; inner style with the apex of rostrum of outer lobe very broad and obtuse, with strong setae; summit of lobe obtuse, with a smaller group of more delicate setae placed back of the exact summit; beak slender. Eighth sternite broad, with weak brushes of yellow setae back from the border.



Text-fig. 12*a*. *Tipula* (*Acutipula*) *deva* Alexander; *b*. *Tipula* (*Acutipula*) *epicaste* Alexander; *c*. *Tipula* (*Acutipula*) *radha* Alexander; *d*. *Tipula* *pullimarge* Alexander male hypopygia.

***Tipula* (*Acutipula*) *radha* Alexander.**

1952. *Tipula* (*Acutipula*) *radha*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The unique type was from Zayul, Atakwg, Southeast Tibet, altitude 10,000 feet, taken July 16, 1933, by Kingdon Ward and Kaulback.

Male hypopygium (text-fig. 12*c*) with the sutures between the tergite and sternite complete, that between the basistyle and sternite represented

only beneath. Ninth tergite, *9t*, produced far beyond the level of the eighth sternite into a simple lobe, at its apex very slender, terete, provided with small microscopic points; more basally, on sides of tergite with abundant long coarse setae. Outer dististyle, *d*, relatively long, obtuse at tip broadest on basal half; inner style with outer lobe yellowed, the summit obtuse, provided with a small brush of erect setae; the produced beaklike portion tipped with shorter stouter spinous setae; beak of style slender, on outer margin back from the blackened part with a low crest; sensory pores abundant. Eighth sternite, *8s*, broad, only moderately sheathing, the apex truncated; just back of margin at midline with a small brush of relatively short setae, directed ventrad and slightly caudad.

***Tipula (Indotipula) palnica* Edwards.**

1932. *Tipula (Indotipula) palnica*, Edwards, *Stylops I*, pp. 235, 236.

Mango Range, Nilgiri Hills, South India, altitude 3,800 feet, May 1949, collected by Susai Nathan.

***Tipula (Lunatipula) marmoratipennis* Brunetti.**

1912. *Tipula marmoratipennis*, Brunetti, *Fauna Brit. India, Dipt. Nemat*, pp. 319-320.

1942. *Tipula (Lunatipula) marmoratipennis*, Alexander, *Rec. Ind. Mus.* XLIV, pp. 49-50.

The type was from Darjiling, altitude 7,000 feet, taken May 24, 1910, by Brunetti.

One female, Jabharket, on the Mussoorie-Tehri Road, ca. 4 mile from Mussoorie, Dehra Dun District; Station 4-Found in damp places in jungle near water trickling from a spring, June 20-25, 1930 (B. N. Chopra); Zoological Survey of India No. 51.

***Tipula (Lunatipula) trialbosignata* Alexander.**

1935. *Tipula (Lunatipula) trialbosignata*, Alexander, *Philip. Journ. Sci.* LVI, pp. 346-348.

Sind Valley, Kashmir, altitude 9,000 feet, June 14, 1934 (Miss Vivien Hutchinson).

***Tipula pullimargo* Alexander.**

1951. *Tipula pullimargo*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1086-1087.

Types from the Adung Valley, Northeast Burma, altitude 8,000 feet, May 30-June 13, 1931, taken by Kingdon Ward and Lord Cranbrook.

Male hypopygium (text-fig. 12*d*) with the ninth tergite, *9t*, narrowed outwardly, the caudal margin with a broad shallow median notch, the lateral lobes slender. Outer dististyle, *d*, a short compact club, the head set with numerous strong black spinous setae; inner style a larger flattened structure, dilated outwardly to form two subequal blades, the beak and posterior crest both being of approximately equal size and outline, the former more obtuse at tip; beak with more abundant punctures than the crest.

Subfamily LIMONIINAE.

Tribe LIMONIINI.

Limonia (Libnotes) bidentata brunettii Alexander.

1912. *Limnobia nigra*, Brunetti, *Fauna Brit. India, Dipt. Nemat.*, pp. 404-405, preoccupied.

1921. *Limnobia brunettii*, Alexander, *Insec. Inscit. Menst.* IX, p. 180.

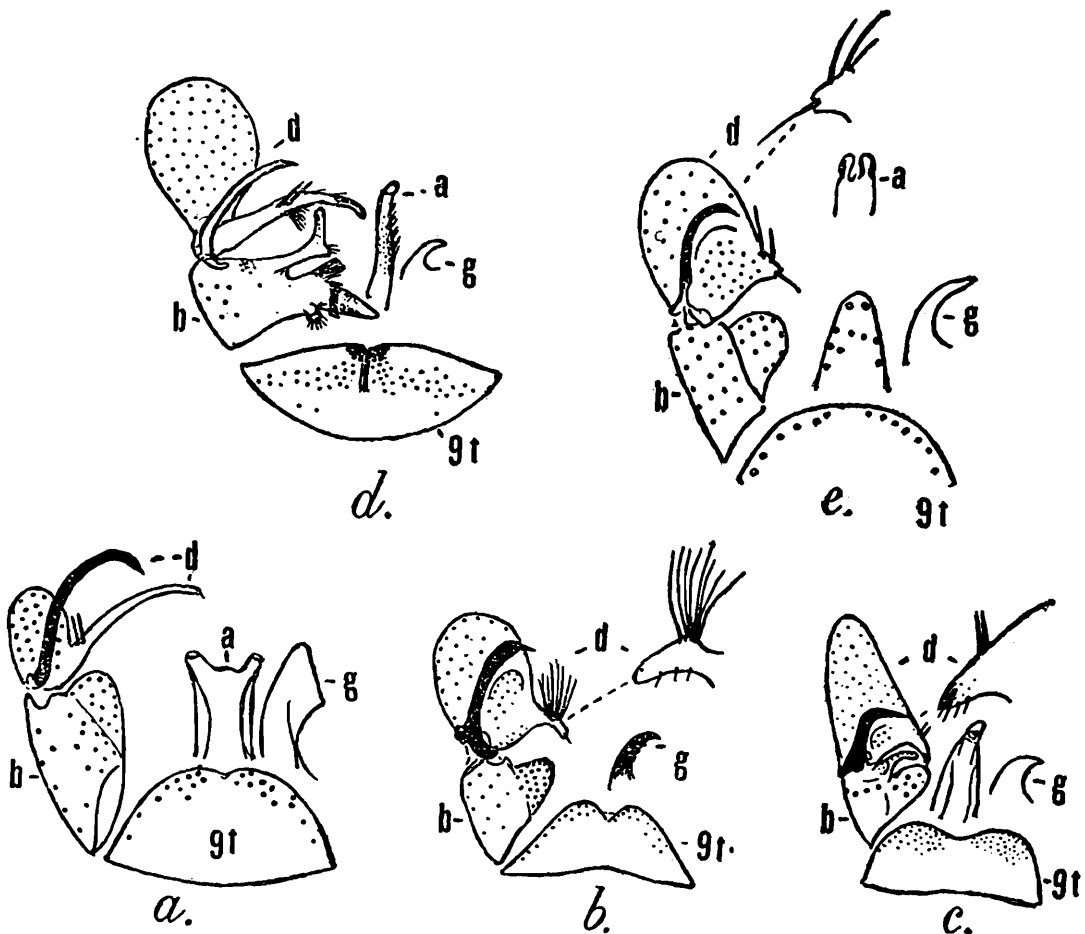
Singara, Nilgiri Hills, South India, June 1948 (Susai Nathan).

Limonia (Libnotes) whiteana Alexander.

1922. *Libnotes distincta*, Senior White, *Mem. Dept. Agr. India*, VII, pp. 133-134, preoccupied.

1952. *Limonia (Libnotes) whiteana*, Alexander, *Rec. Ind. Mus.*, this paper, page 56.

Singara, Nilgiri Hills, South India, altitude 3,400 feet, October 1948 (Susai Nathan).



Text-fig. 13a. *Limonia (Limonia) dravidiana* Alexander; b. *Limonia (Rhipidia) impictipennis* Alexander; c. *Limonia (Dicranomyia) reductissima* Alexander; d. *Limonia (Dicranomyia) vamana* Alexander; e. *Limonia (Euglochina) dravidica* Alexander; male hypopygia.

Limonia (Libnotes) greeni (Edwards).

1928. *Libnotes greeni*, Edwards, *Journ. Fed. Malay St. Mus.* XIV, pp. 76, 82.

Cinchona, Anamalai Hills, altitude 4,000—5,000 feet, September 25, 1946 (Susai Nathan).

***Limonia (Libnotes) notata* (van der Wulp).**

1878. *Libnotes notata*, van der Wulp, *Tijd. voor Ent.* XXI, p. 194.

Coimbatore, South India, October 19, 1947 (Susai Nathan).

Brunetti omitted this from both his 1912 and 1918 reports on the Indian Tipulidæ but included it from Ceylon and South India in his *Catalogue* (1920).

***Limonia (Limonia) dravidiana* Alexander.**

1951. *Limonia dravidiana*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 895-897.

Types from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, May 21, 1950 (Susai Nathan).

Male hypopygium (text-fig. 13*a*) with the tergite, *9t*, large, roughly semicircular in outline, the caudal border convexly rounded, with a very small median notch. Basistyle, *b*, with the ventromesal lobe very stout, occupying the whole inner face of the style. Dorsal dististyle, *d*, a curved blackened rod, narrowed to the acute tip; ventral dististyle small, oval, its area, excluding the prolongation, only about as great as the ventromesal lobe of the basistyle, conspicuously hairy; rostral prolongation unusually long and slender, fully as long as the style itself and approximately two-thirds the dorsal dististyle; rostral spines two, relatively long, pale, placed close together near the base of the prolongation. Gonapophysis, *g*, with the mesal apical lobe appearing as a broad darkened blade, its apex obliquely truncated. Aedeagus, *a*, broad, the tip conspicuously bilobed.

***Limonia (Limonia) flavocincta* (Brunetti).**

1918. *Limnobia flavocincta*, Brunetti, *Rec. Ind. Mus.* XV, p. 289.

Cinchona, Anamalai Hills, South India, altitude 4,000—5,000 feet, September 18, 1946 (Susai Nathan).

***Limonia (Rhipidia) impictipennis* Alexander.**

1952. *Limonia (Rhipidia) impictipennis*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The unique type was from the Adung Valley, Northeast Burma, altitude 12,000 feet, August 5, 1931, taken by Kingdon Ward and Lord Cranbrook.

Male hypopygium (text-fig. 13*b*) with the tergite, *9t*, strongly narrowed outwardly, the caudal margin notched. Dorsal dististyle, *d*, stout, widened outwardly, suddenly narrowed into a long straight spine; ventral style of moderate size, its area approximately twice that of the basistyle; rostral spines eight in number, long and conspicuous, the longest subequal to the prolongation. Gonapophysis, *g*, with the mesal-apical lobe blackened, the slightly curved tip acute, the concave inner margin with a few scattered microscopic points.

***Limonia (Dicranomyia) perobtusa* Alexander.**

1945. *Limonia (Dicranomyia) perobtusa*, Alexander, *Lingnan Sci. Journ.* XXI, pp. 23-24.

The unique type specimen was from Kunming, Yunnan, China, altitude 2,100 meters, taken July 7, 1940, by J. L. Gressitt.

A male, Poshö, East Tibet, Kyari Dzong, altitude 12,500 feet, June 27, 1936 (R. J. H. Kaulback).

Limonia (Dicranomyia) reductissima Alexander.

1952. *Limonia (Dicranomyia) reductissima*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

Male hypopygium (text-fig. 13c) with the tergite, *9t*, transverse, the caudal margin gently emarginate, the obtuse lobes provided with unusually abundant long pale setae. Basistyle, *b*, short, the main body with only about four to six strong setae, arranged in a transverse row near outer end; ventromesal lobe narrowed outwardly, provided with relatively few setae; besides this latter lobe, with two smaller lobes lying still farther distad at extreme outer end of mesal face, one a small oval lobule, the other appearing as a long slender pale lobe, narrowed gradually to the obtuse tip. Dorsal dististyle, *d*, a strongly curved darkened sickle, widened at the bend, thence narrowed to the long acute terminal spine; ventral style long and fleshy, its area more than twice the total area of the basistyle; rostral prolongation stout, its tip narrowly blackened, subacute; rostral spines placed on outer margin near base of prolongation, close together, without evident basal tubercles. Gonapophysis, *g*, with mesal-apical lobe stout, blackened, bent laterad into an acute point.

Limonia (Dicranomyia) sjostedti Alexander.

1934. *Limonia (Dicranomyia) Sjostedti*, Alexander, *Arkiv for Zoologi XXVII* A, No. 17, pp. 18-19.

The types and only other known specimens were from Kung-tze-tägga, Tsaluk Valley, Min-shan, Kina, Kansu, Western China, collected at 3,028 meters, July 20, 1930, by David Hummel. One further male, Dü Chu Valley, East Tibet, altitude 13,000 feet. July 13, 1936 (R. J. H. Kaulback); British Museum (Natural History).

Limonia (Dicranomyia) vamana Alexander.

1952. *Limonia (Dicranomyia) vamana*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The type was from Ootacamund, Nilgiri Hills, South India, altitude 7,500 feet, September 18, 1950 (Susai Nathan).

Male hypopygium (text-fig. 13d) of the same general type as in *gracilis* Doane and *halterella* Edwards. Ninth tergite, *9t*, transverse, the anterior margin evenly convex, the posterior border more nearly transverse, with a deep median split, on either side of which about ten long setae. Basistyle, *b*, relatively small, its ventromesal lobe very complicated by outgrowths, the most caudal being a geniculate darkened lobe; outermost lobe gradually narrowed to a tonguelike pale lobule, before the ligulate portion with two different setiferous areas, one consisting of a dense collar of relatively short setae; at base of the ventromesal lobe on lower margin with a bilobed appendage provided with very long erect setae. Dorsal dististyle, *d*, only slightly curved; ventral style in total area somewhat less than the basistyle, the slender rostral prolongation nearly cut-off from the oval outer lobe; rostral spines two,

on face of prolongation at near midlength, opposite a tuft of setae on the lower face. Aedeagus, *a*, slender, with abundant long pale setae.

Limonia (Euglochina) dravidica Alexander.

1951. *Limonia (Euglochina) dravidica*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 1097-1098.

Cinchona, Anamalai Hills, South India, altitude 4,000—5,000 feet, August 29—September 25, 1946 (Susai Nathan).

Male hypopygium (text-fig. 13e) with the posterior border of tergite, *9t*, gently rounded, the setae mostly marginal in position. Dorsal dististyle, *d*, strongly curved, narrowed to the acute apex; ventral style less than one-half more extensive than the total area of the basis-style; rostral prolongation short and stout, terminating in a single strong seta; two rostral spines on basal half of outer face, the more proximal one a trifle longer and rising from a low tubercle. Gonapophysis, *g*, with the mesal-apical lobe pale, curved to the subacute tip.

Antocha (Antocha) nebulipennis Alexander.

1931. *Antocha (Antocha) nebulipennis*, Alexander, *Philip. Journ. Sci.* XVI, pp. 352-353.

Chumbi Valley, Tibet, altitude 10,000 feet, June 9, 1928 (Lt. Col. F. M. Bailey); British Museum (Natural History).

Antocha (Antocha) pterographa Alexander.

1952. *Antocha (Antocha) pterographa*, Alexander, *Ann. Mag. Nat. Hist.* (1) in press.

The unique type was from Gautsa, Tibet, altitude 13,000 feet, taken June 13, 1928, by Lt. Col. F. M. Bailey.

Male hypopygium (text-fig. 14a) with the tergite, *9t*, transverse, narrowed outwardly, the posterior border truncated; surface with numerous setae, distributed chiefly as a transverse band some distance back from the caudal margin. Outer dististyle, *d*, a gently curved darkened rod, the tip obtuse; inner style little longer, its apex obtuse, inner margin with numerous long strong setae. Phallosome, *p*, with the apophyses very different in appearance, the outer pair being short flattened blades, the inner pair as slender sinuous rods, the acute tips paler. Proctiger with numerous long strong setae. Aedeagus, *a*, strongly decurved at apex.

Dicranoptycha malabarica Alexander.

1941. *Dicranoptycha malabarica*, Alexander, *Philip. Journ. Sci.* LXXVI, pp. 50-51.

Walayar Forests, South Malabar, South India, altitude 1,500—2,000 feet, August 8—28, September 9, 1938; Siruvani, Coimbatore District, South India, altitude 3,000 feet, August 11, 1938 (Susai Nathan).

Thaumastoptera (Thaumastoptera) nilgiriensis Alexander.

1951. *Thaumastoptera (Thaumastoptera) nilgiriensis*, Alexander *Ann. Mag. Nat. Hist.* (12) IV, pp. 898-899.

Described from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, taken May 21, 1950, by Susai Nathan.

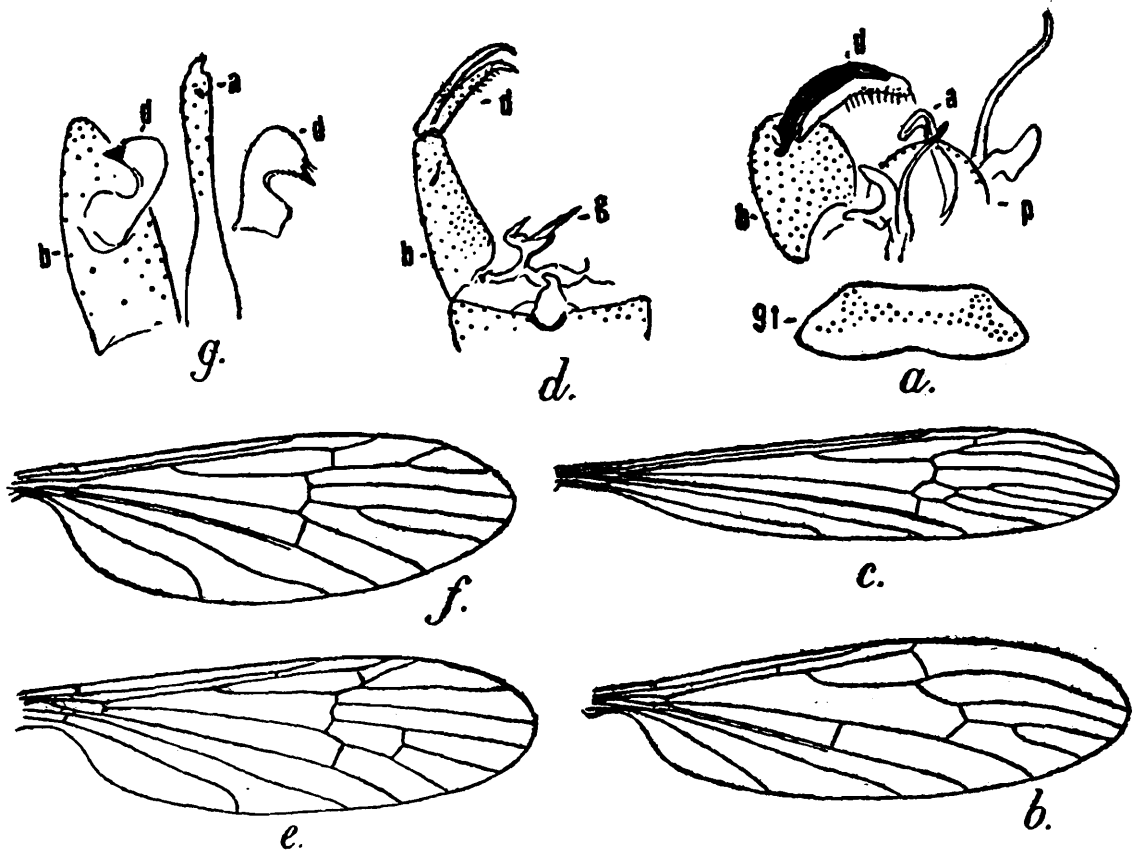
The wing of the type is shown (text-fig. 14b).

Tribe HEXATOMINI.

Pseudolimnophila (*Pseudolimnophila*) *productivena* Alexander.

1951. *Pseudolimnophila productivena*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 899-900.

The unique type was from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, May 21, 1950, taken by Susai Nathan.



Text-fig. 14a. *Antocha* (*Antocha*) *pterographa* Alexander; b. *Thaumastoptera* (*Thaumastoptera*) *nilgiriensis* Alexander; c, d. *Pseudolimnophila productivena* Alexander; e. *Gymnastes* (*Paragymnastes*) *catagrapha* Alexander; f, g. *Gymnastes* (*Paragymnastes*) *imitator* Alexander; male hypopygia and venation.

The venation is shown (text-fig. 14c): Male hypopygium (text-fig. 14d) with both dististyles, d, slender, the subglabrous outer one a trifle longer, its tip a curved spine; inner style conspicuously setiferous, the tip narrowed. Gonapophysis, g, bispinous.

Limnophila multipunctata Brunetti.

1912. *Limnophila multipunctata*, Brunetti, *Fauna Brit. India, Dipt. Nemat.*, p. 569.

Cherangode, Nilgiri Hills, South India, altitude 3,500 feet, November 1950 (Susai Nathan).

Hexatoma (*Eriocera*) *tripunctipennis* (Brunetti).

1912. *Eriocera tripunctipennis*, Brunetti, *Rec. Ind. Mus.* XV, p. 338.

Cherangode, Nilgiri Hills, South India, altitude 3,500 feet, May 24, 1950 (Susai Nathan).

Tribe ERIOPTERINI.

Conosia irrorata (Wiedemann).

Bhadrowati, Mysore State, altitude 1908 feet, at light, August 2, 1938; Nedungadu, Tanjore District, South India, January 24, February 25, 1938 (Susai Nathan).

Trentepohlia (Anchimongoma) simplex (Brunetti).

1918. *Anchimongoma simplex*, Brunetti, *Rec. Ind. Mus.* XV, p. 316.

Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, May 2, 1950 (Susai Nathan).

Gonomyia (Idiocera) metatarsata de Meijere.

1911. *Gonomyia metatarsata*, de Meijere, *Tijd. voor Ent.* LIV, p. 48.

Gudalur, Nilgiri Hills, South India, altitude 3,500 feet, April 1949 (Susai Nathan).

Gymnastes (Paragymnastes) catagrapha Alexander.

1929. *Gymnastes catagrapha*, Alexander, *Philip. Journ. Sci.* XL, pp. 342-344.

The unique type male was from Castle Rock, North Canara District, Southwest India, October 11—26, 1916, taken by Kemp; Type in the Indian Museum. The wing of the type is shown (text-fig. 14e).

Gymnastes (Gymnastes) imitator Alexander.

1951. *Gymnastes (Paragymnastes) imitator*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 904-906.

Types from Cherangode, Nilgiri Hills, South India, altitude 3,500 feet, May 17—22, 1950 (Susai Nathan).

The venation is shown (text-fig. 14f). Male hypopygium (text-fig. 14g) small and simple in construction. A single dististyle, *d*, placed at near two-thirds the length of the basistyle, *b*, expanded at proximal end, thence narrowed, the apex a subtriangular head that narrows to a beaklike point, the lower margin of this with two or three further microscopic denticles. Aedeagus, *a*, long and slender, with scattered setae.

Erioptera (Teleneura) nebulifera Alexander.

1952. *Erioptera (Teleneura) nebulifera*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

Described from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, September 1950 (Susai Nathan).

Male hypopygium (text-fig. 15a) with the posterior border of the tergite, *9t*, conspicuously emarginate, the lobes with abundant spinous setae. A single dististyle, *d*, slender, much shorter than the basistyle, provided with a small tubercle on outer margin near base. Phallosome, *p*, consisting of a contra, depressed plate and a pair of gonapophyses, the

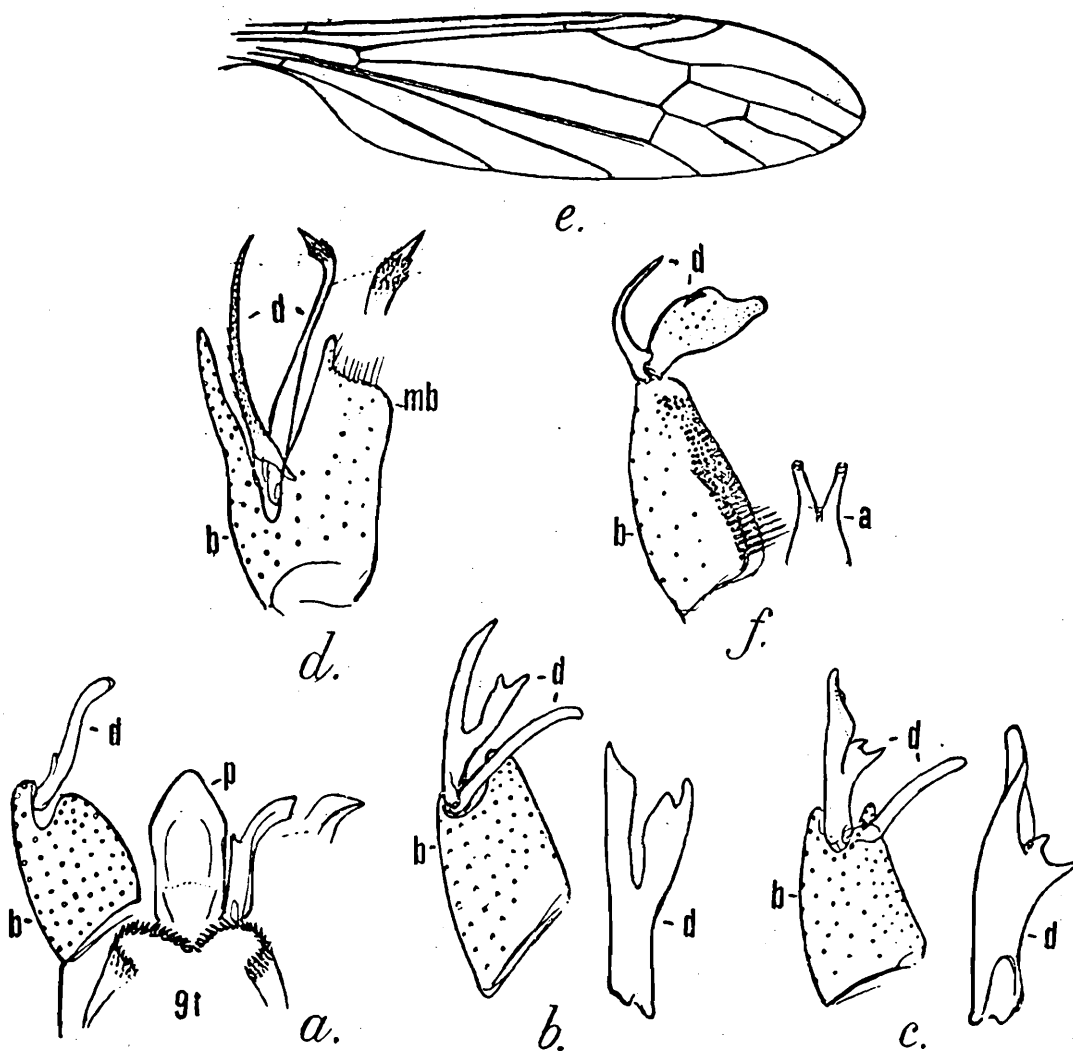
latter appearing as relatively narrow yellow blades, with a strong tooth on inner margin at near midlength.

Erioptera (Erioptera) orbitalis Alexander.

1924. *Erioptera (Erioptera) orbitalis*, Alexander, *Philip. Journ. Sci.* XXIV, p. 584.

1927. *Erioptera ornatifrons* Edwards, *Spoila Zeylancia*, XIV, pp. 122-123.

Singara, Nilgiri Hills, South India, altitude 3,400 feet, May 11, 1948
(Susai Nathan)



Text-fig. 15 a. *Erioptera (Teleneura) nebulifera* Alexander; b. *Erioptera (Empeda) accomoda* Alexander; c. *Erioptera (Empeda) simplicior* Alexander; d. *Molophilus (Molophilus) lancifer* Alexander; e. *Toxorhina (Ceratocheilus) brevifrons* Brunetti; f. *Toxorhina (Toxorhina) brevirama* Alexander; male hypopygia and venation.

Erioptera (Erioptera) orientalis Brunetti.

1912. *Erioptera orientalis*, Brunetti, *Fauna Brit. India. Dipt. Nemat.*, p. 453-454.

1921. *Erioptera dictenidia* Alexander, *Ann. Ent. Soc. America* XIV, pp. 115-116.

Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, May 12, 1950 (Susai Nathan)

Erioptera (Empeda) accomoda Alexander.

1951. *Erioptera (Empeda) accomoda*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV, pp. 906-907.

Described from Cherangode, Nilgiri Hills, South India, altitude 3,500 feet, May 1950 (Susai Nathan).

Male hypopygium (text-fig. 15*b*) with the outer dististyle, *d*, entirely blackened, profoundly bifid, the outer arm a simple blackened rod, its tip subacute; inner arm shorter and stouter, at apex unequally bidentate, the innermost point a little longer.

Erioptera (*Empeda*) simplicior Alexander.

1951. *Erioptera (Empeda) simplicior*, Alexander, *Ann. Mag. Nat. Hist.* (12) IV pp. 907-908.

Described from Singara, Nilgiri Hills, South India, altitude 3,400 feet, taken May 12, 1948, by Susai Nathan.

Male hypopygium (text-fig. 15*c*) with the outer dististyle, *d*, heavily blackened, unusually simple, appearing as a straight rod that narrows to an apical blade; at near midlength on inner margin with two strong teeth, the more basal ones a little longer and more slender; inner style long and narrow, yellow.

Molophilus (*Molophilus*) lancifer Alexander.

1952. *Molophilus (Molophilus) lancifer*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

The type was from Cherangode, Nilgiri Hills, South India, altitude 3,500 feet, taken November 1950, by Susai Nathan.

Male hypopygium (text-fig. 15*d*) with the dorsal lobe of the basistyle *b*, slender, projecting caudad to about two-thirds the length of the outer dististyle, with setae virtually to the tip; mesal lobe of basistyle, *mb*, a broadly flattened lobe, its inner apical angle a trifle more produced. Both dististyles, *d*, simple, the outer a slender rod that narrows gradually into an elongate spine, the surface of the intermediate portion with abundant microscopic spinulae; inner style nearly as long, narrowed outwardly to near three-fourths the length, thence slightly expanded, terminating in a short acute spine, the dilated head with microscopic spinulae.

Todorhina (*Ceratocheilus*) brevifrons (Brunetti).

1918. *Conithorax brevifrons*, Brunetti, *Rec. Ind. Mus.* XV, p. 300.

The wing of the holotype specimen is shown (text-fig. 15*e*).

Toxorhina (*Toxorhina*) brevirama Alexander.

1952. *Toxorhina (Toxorhina) brevirama*, Alexander, *Ann. Mag. Nat. Hist.* (12) in press.

Described from Naduvatam, Nilgiri Hills, South India, altitude 6,000 feet, taken in September 1950 by Susai Nathan.

Male hypopygium (text-fig. 15*f*) with the mesal face of the basistyle, *b*, with a longitudinal row of strong black setae and abundant long erect more delicate bristles. Outer dististyle, *d*, a slender curved rod, narrowed to the acute tip; inner style longer, broad, the apex obtuse; outer margin beyond midlength with a powerful recurved black spine. Arms of aedeagus, *a*, short.