

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

By CHARLES P. ALEXANDER

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

SYNOPSIS

Eight new species of the Limoniine genus *Antocha* Osten Sacken are described, seven from the Himalayan region of Kumaon, Sikkim and Assam, and one from South India.

THE preceding part in this series of papers was published in 1969 (*Proc. R. ent. Soc. Lond. (B)* 38 : 33–39). In the present report I am continuing the discussion of species belonging to the genus *Antocha* Osten Sacken, as considered in the two preceding parts of this series of papers. Virtually all the species were collected by Dr. Fernand Schmid, chiefly in the Himalayas of Kumaon, Sikkim and Assam, with fewer species from South India. The types are preserved in my personal collection.

Antocha (Antocha) aegina sp. n.

Allied to *spiralis*; general coloration of mesonotal praescutum light grey with 4 poorly indicated darker brownish-grey stripes; antennae with flagellar segments short-oval; knobs of halteres dark brown; legs yellowish-brown; wings weakly brownish-grey, stigma not indicated, vein R_2 slightly beyond level of $r-m$; male hypopygium with inner gonapophyses of phallosome with a single tight spiral before apex, outer gonapophysis a long slender simple spine that narrows very gradually into a long point, before apex with several pale erect setulae.

Male.—Length, about 5–6.5 mm.; wing, 5–7.5 mm.; antenna, about 1.1–1.5 mm.

Rostrum brownish-yellow, palpi darker brown, terminal segment about one-half longer than the penultimate. Antennae with scape brownish-yellow, remainder dark brown; flagellar segments short-oval throughout, including the terminal one. Head dark brown.

Pronotal scutum brownish-grey, scutellum and pretergites more yellowed. Mesonotal praescutum light grey with 4 poorly indicated darker brownish-grey stripes; posterior sclerites of notum darker grey, scutellum light grey. Pleura chiefly yellow, ventral sternopleurite grey. Halteres with stem light yellow, knob dark brown. Legs with bases of fore coxae dark brown, remainder of coxae and all trochanters light yellow; remainder of legs yellowish-brown, outer tarsal segments darker. Wings weakly brownish-grey, prearcular field whitened, stigma not indicated; veins pale brown, more yellowed in the white areas. Venation: R_2 slightly beyond level of $r-m$; R_{2+3} relatively short, about twice R_2 ; $m-cu$ shortly before fork of M .

Abdominal tergites dark brown, sternites brownish-yellow, subterminal segments darker, hypopygium light brown. Male hypopygium (fig. 1) generally as in *spiralis* in the conformation of the inner gonapophyses of the phallosome (p), these being twisted into a single tight spiral before the long terminal spine. Both dististyles (d) horn yellow, inconspicuous. Outer gonapophysis (g) a long slender simple spine that narrows very gradually into a long point, with several pale erect setulae before tip.

Holotype ♂, INDIA: Gery, Pauri Garhwal, Kumaon, 6800 feet, 16.viii.1958 (*F. Schmid*). *Paratypes*.—♂ ♀, Rata, Almora, Kumaon, 11,000 feet, 14.ix.1958; Dakwani, Pauri Garhwal, 9300–11,000 feet, 5.viii.1958; Kulara, Pauri Garhwal, 12,000 feet, 4.viii.1958; Chamiteng, Sikkim, 9900 feet, 24.viii.1959; Lathong, Sikkim, 6560 feet, 26.vii.1959; Padamchen, Sikkim, 7060 feet, 29.viii.1959; Talam, Sikkim, 11,300 feet, 16.vi.1959; Yumtang, Sikkim, 12,140 feet, 27.vi.1959; Zema, Sikkim, 8900 feet, 11.vi.1959 (all *F. Schmid*).

Antocha (Antocha) spiralis Alexander typifies a small group of Asiatic members of the genus that are distinguished by the peculiar twisted inner gonapophyses of the hypopygium. The present fly is readily told from *spiralis* by the simple unmodified gonapophysis (as described and figured), in *spiralis* this being unequally bifurcate. In the extensive series of the present fly there is considerable variation in the length and structure of the male antennae and in details of the hypopygium, particularly

Proc. R. ent. Soc. Lond. (B). 39 (5–6). Pp. 73–78, 9 figs. 1970.

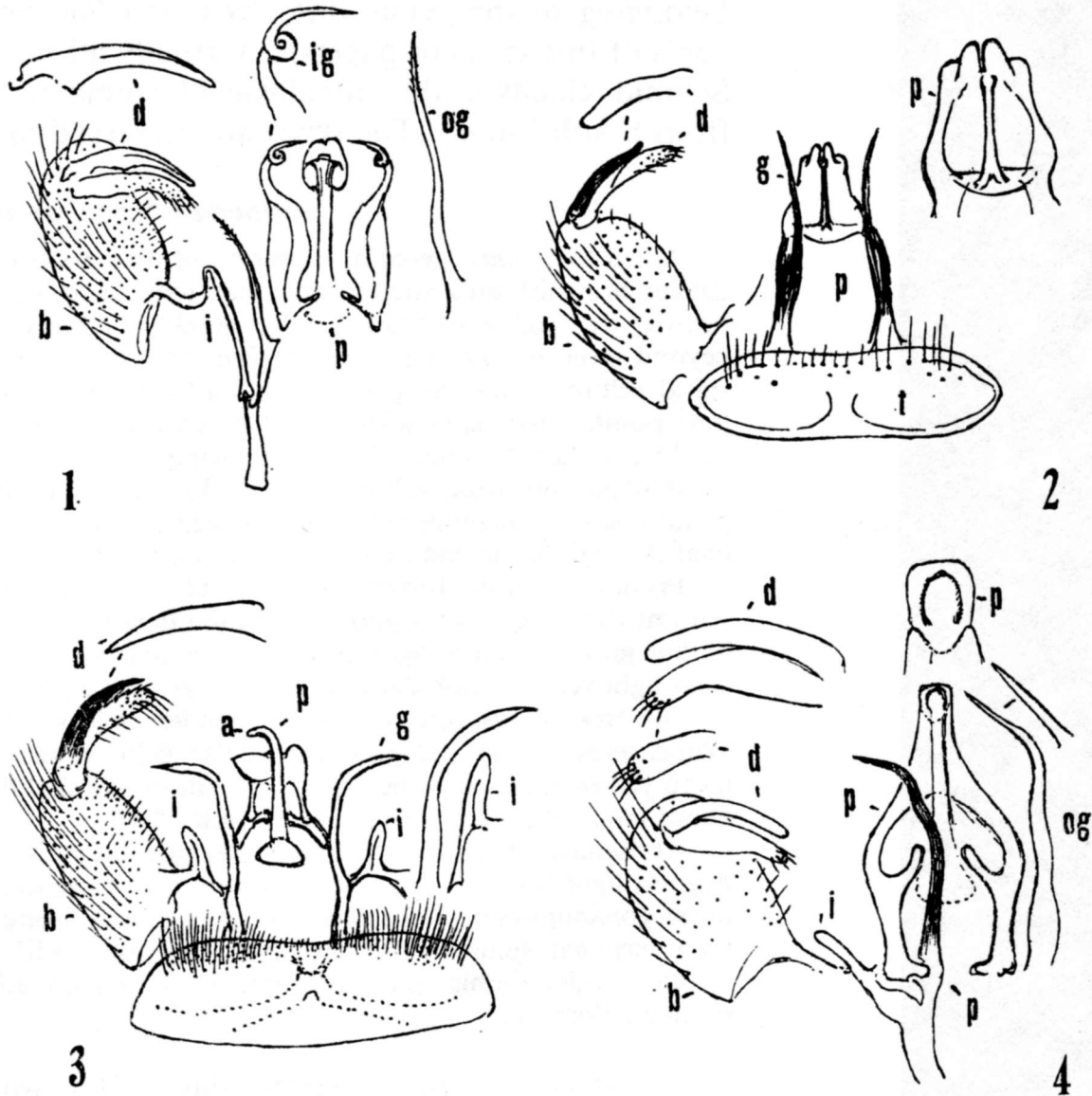
the shape and coloration of the outer dististyle and phallosome. It is possible that more than a single species is included in this material.

Antocha (Antocha) macrocera sp. n.

Mesonotal praescutum obscure yellow, with 3 brown stripes, the central one darker, pleura obscure yellow, patterned with brown; antennae of male unusually long, approximately three-fifths the wing; knobs of halteres dark brown; wings with cell M_2 open by atrophy of m ; male hypopygium with outer dististyle darkened, apex obtuse, phallosome with aedeagus slender.

Male.—Length, about 4–5 mm.; wing, 4.5–5 mm.; antenna, about 2.5–2.9 mm.

Rostrum brown, palpi paler brown. Antennae brown, unusually long, approximately three-fifths the wing or body; flagellar segments very long-oval, narrowed at ends, with dense erect pale setae that are about one-fourth as long as the diameter of segment; terminal segment small, slightly more than one-fourth the penultimate. Head dark brown.



FIGS. 1–4.—Male hypopygium of: (1) *Antocha (Antocha) aegina* sp. n.; (2) *A. (A.) macrocera* sp. n.; (3) *A. (A.) madrasensis* sp. n.; (4) *A. (A.) mara* sp. n. (*b*, basistyle; *d*, dististyle; *g*, gonapophysis; *i*, interbase; *ig*, inner gonapophysis; *og*, outer gonapophysis; *p*, phallosome; *t*, tergite).

Pronotum obscure yellow. Mesonotal praescutum with ground obscure yellow, with a broad dark brown central stripe and much paler greyish-brown laterals; scutum and scutellum yellowish-brown, parascutella yellowed; mediotergite dark brown, pleurotergite yellowed, the katapleurotergite narrowly dark brown. Pleura obscure yellow, the anepisternum and ventral sternopleurite brown. Halteres with stem yellow, knob brown. Legs with coxae and trochanters yellowed, remainder light brown; terminal tarsal segment without a basal epicondyle but with a ventral tubercle beyond mid-length; claws of male long and slender, basal spine straight, conspicuous. Wings greyish, pre-arcular field whitish, stigma scarcely indicated; veins pale brown. Numerous macrotrichia on distal section of R_{4+5} excepting the basal fifth, with fewer on M_{1+2} and M_3 . Venation: cell M_2 open by atrophy of m ; $m-cu$ a short distance before fork of M .

Abdominal tergites weakly bicolored, bases brown, apices somewhat paler, subterminal segment

darker brown. Male hypopygium (fig. 2) with posterior border of tergite (*t*) very shallowly emarginate, anterior thickened border and central strut conspicuous. Outer dististyle (*d*) darkened, slender, outer fourth slightly narrowed, apex obtuse. Phallosome (*p*) with outer gonapophyses appearing as long slender simple spines; inner structures of phallosome heavily sclerotised and darkened, aedeagus slender, apex apparently expanded.

Holotype ♂, INDIA: Bhairabkunda, Kameng, North East Frontier Agency, 700 feet, 7.iii.1961 (*F. Schmid*). *Paratopotypes*, ♂, 3–8.iii.1961. *Paratypes*.—♂, Chapai, Kameng, 700 feet, 26.ii.1961; Lifakpo, Kameng, 3100 feet, 15.iii.1961 (*F. Schmid*).

Antocha (Antocha) macrocera is readily told from other regional species by the elongate antennae of the male and the open cell M_2 of the wings. The antennae are longer than in any other regional member of the subgenus but shorter than in certain species of the subgenus *Orimargula* Mik. The most similar species is *A. (A.) hyperlata* Alexander, with shorter antennae and with cell $1st M_2$ of the wings closed.

Antocha (Antocha) madrasensis sp. n.

Size medium (wing to 7 mm.); general coloration of thorax brownish-grey, variegated with yellow; antennae short, black; legs brown; wings greyish, prearcular field whitened, stigma small, pale brown; male hypopygium with outer dististyle blackened, slender, tip acute; outer gonapophysis long and slender, narrowed to the acute apex; aedeagus slender, outer end an oval lobe.

Male.—Length, about 6.5–7 mm.; wing, 6.5–7 mm.; antenna, about 1.2–1.3 mm.

Rostrum pale brown, palpi darker, terminal segment long, subequal to the preceding 2 combined. Antennae black; proximal flagellar segments cylindrical, outer ones long-oval, verticils shorter than the segments, normal vestiture long and abundant. Head dark brown.

Pronotum brownish-grey. Mesonotum almost uniformly brownish-grey, praescutum and scutal lobes with a vague darker pattern; median region of scutum, posterior border of scutellum and the parascutella yellowed; lateral borders of mediotergite and most of pleurotergite brownish-yellow. Pleura chiefly dark brown, dorsal sternopleurite, pteropleurite and meral region more yellowed. Halteres with stem yellow, knob brown. Legs with coxae brownish-yellow, anterior face of fore pair brownish-grey; trochanters yellowed; remainder of legs brown, tips of tibiae narrowly more darkened; claws long, gently curved, basal spine small and weak. Wings greyish, prearcular field whitened, stigma small and inconspicuous, pale brown, veins brown. Outer halves of veins R_{4+5} , M_{1+2} and M_3 with strong macrotrichia. Venation: R_2 shortly before level of $r-m$; $m-cu$ about one-third to two-thirds its length before fork of M .

Abdominal tergites brown, subterminal segments darker brown, sternites brownish-yellow. Male hypopygium (fig. 3) with posterior border of tergite (*t*) gently emarginate, the low lobes with unusually numerous light brown setae; internal armature conspicuous, especially the broad anterior arms. Outer dististyle (*d*) blackened, slender, narrowed gradually to the acute tip. Phallosomic scaffolding (*p*) with the interbase (*i*) long; outer gonapophysis (*g*) long and slender, bent at near mid-length, thence narrowed to the acute apex; internal phallosome including the slender aedeagus (*a*) having its outer end curved, near apex conspicuously produced into an oval lobe.

Holotype ♂, INDIA: Avalanche, Madras, 6900–7500 feet, 30.xii.1958 (*F. Schmid*). *Paratype*.—♂, Makurti, Madras, 7100 feet, 1.i.1959 (*F. Schmid*).

Antocha (Antocha) madrasensis differs from other generally similar species in hypopygial structure, especially the phallosome. There is no close relative known from South India, the nearest species being Himalayan.

Antocha (Antocha) mara sp. n.

Mesonotum yellow, praescutum with 3 medium brown stripes, pleurotergite and pleura light yellow, unpatterned; knobs of halteres weakly darkened; legs yellowish-brown to pale brown; wings with a faint grey tinge, veins very pale brown, inconspicuous; macrotrichia of outer veins very restricted, occurring on R_{4+5} and M_{1+2} only; male hypopygium with apices of both dististyles obtuse; phallosomic scaffolding with outer gonapophysis long, sinuous, each narrowed into a long spine; apex of aedeagus nearly truncate.

Male.—Length, about 3.5 mm.; wing, 3.8 mm.

Rostrum light yellow, palpi black. Antennae relatively short; scape obscure yellow, remainder dark brown; flagellar segments oval, verticils yellow. Head dark grey.

Pronotum obscure yellow, praescutum with 3 medium brown stripes, scutal lobes slightly darkened; mediotergite infuscated on more than the posterior half, pleurotergite and pleura light yellow, unpatterned. Halteres with stem whitened, outer half of knob darkened. Legs with coxae and

trochanters light yellow; remainder of legs yellowish-brown to pale brown. Wings with a faint greyish tinge, prearcular field more whitened; veins very pale brown, inconspicuous. Macrotrichia of veins very restricted, occurring on outer half of R_{4+5} and distal section of M_{1+2} . Venation: R_s long, about 4 times the basal section of R_{4+5} ; R_2 slightly distad of level of $r-m$, about two-fifths the width of cell R_5 ; $m-cu$ shortly before fork of M .

Abdominal tergites brown, sternites paler, outer segments and hypopygium more uniformly darkened. Male hypopygium (fig. 4) with both dististyles (d) relatively slender, the apices obtuse, outer end of inner style only moderately dilated. Phallosomic scaffolding (p) including long sinuous outer gonapophyses (g), each narrowed into a long spine; aedeagus (a) narrowed outwardly, tip nearly truncate.

Holotype ♂, INDIA: Lifakpo, Kameng, North East Frontier Agency, 3100 feet, 15.v.1961 (*F. Schmid*).

Antocha (Antocha) macrocera Alexander, of Assam, likewise has the male hypopygium with both dististyles obtuse at tips and without spinous apophyses on the phallosome, differing from the present fly in coloration and in details of structure of the antennae and hypopygium.

Antocha (Orimargula) almorae sp. n.

Size small (wing of male 3.8 mm.); general coloration of mesonotal praescutum and scutal lobes dark brown; antennae of male elongate, exceeding the body; flagellar segments long-cylindrical, with very long erect pale setae distributed over the entire length, setae shorter than in *salikensis*, on the more proximal segments less than one-half the segments. Head dark brown, sparsely pruinose.

Male.—Length, about 3 mm.; wing, 3.8 mm.; antenna, about 3.2 mm.

Rostrum obscure yellow, palpi brownish-black. Antennae of male longer than body; scape and pedicel yellow, flagellum brownish-black; flagellar segments long-cylindrical, with very long erect pale setae that are scattered over the entire surface, these shorter than in *salikensis*, on the more proximal segments being less than one-half the segment. Head dark brown, sparsely pruinose.

Pronotum, mesonotal praescutum and scutal lobes dark brown, posterior sclerites more brownish-yellow. Mesopleura dark brown, posterior pleural sclerites yellowed. Halteres with stem yellow, knob dark brown. Legs with coxae and trochanters yellow; remainder of legs brown; claws very small, the teeth reduced. Wings weakly tinged with brown, unpatterned; veins darker brown. Macrotrichia on outer fourth of vein R_3 and on basal section of R_{4+5} . Venation: R_2 and R_{2+3} subequal; R_s relatively long, straight, slightly exceeding the basal section of R_{4+5} ; $m-cu$ about one and one-half times its length before fork of M ; M_{3+4} shorter than basal section of M_{1+2} .

Abdomen dark brown. Male hypopygium with both dististyles slender, especially the slightly longer outer style which is gently curved to the narrowly obtuse tip. Phallosome with central structure subrectangular, its subtruncated apex entire.

Holotype ♂, INDIA: Loharket, Almora, Kumaon, 5770 feet, 19.ix.1958 (*F. Schmid*).

In its venation and antennal structure the present fly is most similar to the Ceylonese *Antocha (Orimargula) salikensis* Alexander, differing in the vestiture of the flagellar segments and in details of venation and hypopygial structure, especially the phallosome. *A. (O.) prefurcata* Alexander, of Assam, has the venation (fig. 6) different, with R_s very short and with R_2 lying proximad of R_{4+5} to leave a very short basal section of R_{4+5} . All other regional members of the subgenus presently known have the venation normal for the subgenus, with R_2 placed beyond the fork of R_s (fig. 5).

Antocha (Orimargula) brevifurca sp. n.

General coloration of mesonotal praescutum and scutal lobes dark brown, posterior sclerites of notum and pleura yellowed; antennae of male elongate, nearly equal to the body, flagellar segments with very long erect pale setae; wings with R_{2+3} present, subequal to R_2 ; male hypopygium with apex of aedeagus shallowly forked.

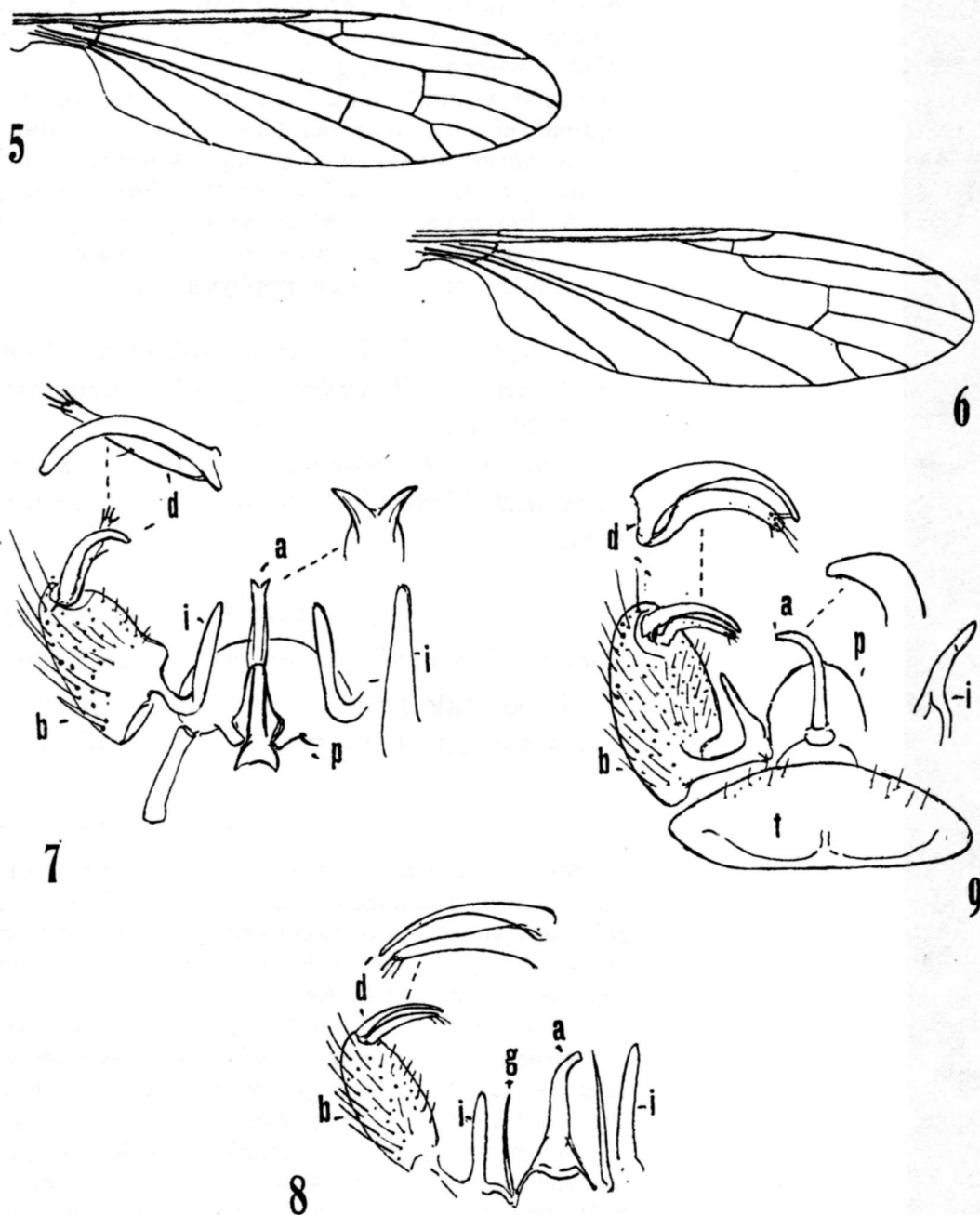
Male.—Length, about 3–3.5 mm.; wing, 3.3–4 mm.; antenna, about 2.5–3 mm.

Rostrum obscure yellow, palpi brown to brownish-black. Antennae with scape and pedicel yellow, flagellum black; flagellar segments elongate, the pale setae very long, some only a little less than the segments. Head large, dark brown; eyes very large.

Pronotum very reduced, darkened, pretergites light yellow. Mesonotal praescutum and scutal lobes almost uniformly dark brown; central area of scutum and contiguous part of praescutum obscure yellow; posterior sclerites of notum testaceous yellow. Anterior sclerites of pleura dark brown, posterior parts yellowed. Halteres brownish-black, base of stem narrowly pale yellow.

Legs with coxae and trochanters yellowed, remainder of legs brown. Wings (fig. 5) faintly tinged with brown, unpatterned, veins darker brown. Venation: R_s relatively short, about two-thirds the basal section of R_{4+5} ; R_2 and R_{2+3} subequal; $m-cu$ about 1.3 to 1.5 times its length before fork of M .

Abdominal tergites and hypopygium dark brown, sternites yellowed. Male hypopygium (fig. 7) generally as in other members of the subgenus, differing from other regional species, excepting *prefurcata*, by the slender straight aedeagus (*a*) with the apex shallowly forked. Both dististyles (*d*) slender; interbase (*i*) a straight flattened blade; central phallosomic plate very large transversely.



FIGS. 5-9.—(5, 6) Venation of: (5) *Antocha (Orimargula) brevifurca* sp. n.; (6) *A. (O.) prefurcata* Alexander. (7-9) Male hypopygium of: (7) *A. (O.) brevifurca* sp. n.; (8) *A. (O.) brevisector* sp. n.; (9) *A. (O.) simplex* sp. n. (*a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *i*, interbase; *p*, phallosome; *t*, tergite).

Holotype ♂, INDIA: Thanlon, Manipur, Assam, 2500 feet, 2. ix. 1960 (*F. Schmid*).
Paratopotype ♂, pinned with type. *Paratypes*.—1♂, Leimatak, Manipur, Assam, 1300 feet, 30. v. 1960; 1♂, Foothills, Kameng, North East Frontier Agency, Assam, 700 feet, 6. ii. 1961 (all *F. Schmid*).

The structure of the aedeagus distinguishes the present fly from other regional species with the exception of *Antocha (Orimargula) prefurcata* Alexander, which differs evidently in the venation (fig. 6).

***Antocha (Orimargula) brevisector* sp. n.**

Size small (wing to about 3.5 mm.), mesonotal praescutum yellow with 3 brown stripes; male antennae elongate, slightly less than the body or wing, flagellar segments with very long delicate erect

setae; wings very faintly tinged with brown, unpatterned; *Rs* short, about two-thirds the basal section of R_{4+5} ; male hypopygium with interbase and gonapophysis subequal in length, the latter a slender spine.

Male.—Length, about 3.4–3.5 mm.; wing, 3.3–3.5 mm.; antenna, about 2.9–3 mm.

Rostrum and palpi medium brown. Antennae of male elongate, scape and pedicel yellowish-brown, flagellum dark brown, segments long, with very long delicate erect setae, the longest nearly equal to the segments. Head brown.

Pronotum obscure yellow. Mesonotal praescutum yellow with 3 brown stripes, the central one broader; posterior sclerites of notum yellowed, scutal lobes vaguely more darkened, ventral pleurotergite weakly infuscated. Pleura yellow, mesepisternum light brown. Halteres pale brown, base of stem whitened. Legs with coxae yellow, trochanters slightly darker; remainder of legs light brown. Wings very faintly tinged with brown, without pattern; veins light brown. Macrotrichia on longitudinal veins beyond general level of $r-m$, including veins R_3 through distal section of Cu_1 . Venation: R_2 far basad, subequal to or slightly longer than R_{2+3} ; *Rs* short, about two-thirds the basal section of R_{4+5} ; $m-cu$ about 1.5 its length before fork of M .

Abdomen brown. Male hypopygium (fig. 8) with both dististyles (*d*) slender, outer style narrowed very gradually to the obtuse tip. Interbase (*i*) a subhyaline flattened blade, subequal in length to the slender spine-like gonapophysis (*g*).

Holotype ♂, INDIA: Rumkheng, Khasi-Jaintia, Assam, 5500 feet, 25.iii.1960 (F. Schmid). *Paratype*.—♂, Phaiphengmun, Manipur, Assam, 2157 feet, 29.viii.1960 (F. Schmid).

Antocha (*Orimargula*) *brevisector* is generally similar to *A. (O.) almorae*, *A. (O.) salikensis* Alexander and some others, differing in details of venation and hypopygial structure.

Antocha (*Orimargula*) *prefurcata* Alexander

Antocha (*Orimargula*) *prefurcata* Alexander, 1950, *Ann. Mag. Nat. Hist.* (12) 3 : 309–311.

Type male from Cherrapunji, Khasi State, Assam, 4000 feet, May 1936 (*Sircar*). The venation of the type is shown (fig. 6).

Antocha (*Orimargula*) *simplex* sp. n.

Size small (wing of male 4 mm.); general coloration of mesonotal praescutum and scutal lobes dark brown; antennae of male relatively short, about one-half the body; wings weakly darkened, *Rs* relatively short, about two-thirds the basal section of R_{4+5} , $m-cu$ about 1.25 to 1.5 times its length before the fork of M ; male hypopygium with interbase a long pale blade, apex of aedeagus narrowed and bent to the obtuse tip.

Male.—Length, about 3 mm.; wing, 4 mm.; antenna, about 1.5 mm.

Rostrum brown, palpi black. Antennae brownish-black, relatively short, in male less than one-half the wing; flagellar segments cylindrical, with scattered very long setae from small basal tubercles, the longest only a little shorter than the segments. Head dark brown.

Mesonotal praescutum chiefly dark brown, paler medially at suture, scutal lobes similarly dark brown; posterior sclerites of notum pale brown. Pleura with mesopleura dark brown, metapleura paler brown. Halteres with stem brown, base whitened, knob dark brown. Legs with coxae and trochanters yellow, remainder of legs light brown. Wings weakly darkened; veins brown. Longitudinal veins beyond level of anterior cord with numerous trichia. Venation: *Rs* relatively short, about two-thirds the basal section of R_{4+5} ; R_2 and R_{2+3} subequal; $m-cu$ about 1.25 to 1.5 times its length before fork of M .

Abdomen, including hypopygium, dark brown. Male hypopygium (fig. 9) with tergite (*t*) transverse, posterior border low convex, vestiture sparse and pale, difficult to determine. Outer dististyle (*d*) very slender on distal third, inner style slightly broader. Interbase (*i*) a long pale blade, tip narrowly obtuse. Phallosome (*p*) a depressed-flattened plate; aedeagus (*a*) pale, gradually narrowed and bent to the obtuse tip.

Holotype ♂, INDIA: Umlangshor, Khasi-Jaintia, Assam, 4100 feet, 18.iv.1960 (F. Schmid). *Paratopotype* ♂.

Antocha (*Orimargula*) *simplex* differs from other related members of the subgenus, including *A. (O.) almorae*, *A. (O.) brevifurca* and *A. (O.) brevisector*, in the shorter male antennae and in the details of hypopygial structure.