

THE AMERICAN GENERA OF ASILIDAE (DIPTERA): KEYS FOR IDENTIFICATION WITH AN ATLAS OF FEMALE SPERMATHECAE AND OTHER MORPHOLOGICAL DETAILS. VII.7. SUBFAMILY STENOPOGONINAE HULL —TRIBE CYRTOPOGONINI, WITH DESCRIPTIONS OF FOUR NEW GENERA AND ONE NEW SPECIES AND A CATALOGUE OF THE NEOTROPICAL SPECIES.*

Los géneros americanos de Asilidae (Diptera): Claves para su identificación con un atlas de las espermatecas de las hembras y otros detalles morfológicos. VII.7. Subfamilia Stenopogoninae Hull —Tribe Cyrtopogonini, con descripción de cuatro nuevos géneros y una nueva especie y catálogo de las especies neotropicales.*

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ABSTRACT

A key for the identification of the 21 American genera of Cyrtopogonini (Asilidae, Stenopogoninae), with illustrations of female spermathecae and other morphological details, is given. The following new taxa are described: *Ivettea*, gen. n. (type-species, *Dasycyrtion minusculus* Artigas, 1970); *Lonquimayus*, gen. n. (type species, *Holopogon tener* Bigot, 1878); *Nothopogon triangularis*, gen. n., sp. n. (type-locality:

Argentina, Salta, El Carmen, 27 kms. s. Molinos); *Raulcortesia*, gen. n. (type-species *Dasycyrtion lanosus* Artigas, 1970). A catalogue of the neotropical species of Cyrtopogonini is added.

KEYWORDS: Insecta. Taxonomy. America. Key. Asilidae. Stenopogoninae. Cyrtopogonini.

RESUMEN

Se presenta una clave para la identificación de los 21 géneros americanos de Cyrtopogonini (Asilidae, Stenopogoninae), con ilustraciones de espermatecas y otros detalles morfológicos. Los siguientes nuevos taxones son descritos: *Ivettea*, gen. n. (especie-tipo, *Dasycyrtion minusculus* Artigas, 1970); *Lonquimayus*, gen. n. (especie-tipo, *Holopogon tener* Bigot, 1878); *Nothopogon triangularis*, gen. n., sp. n. (localidad-tipo: Argentina, Salta, El Carmen, 27 kms. s. Molinos). Se agrega un catálogo de las especies neotropicales de Cyrtopogonini.

PALABRAS CLAVES: Insecta. Taxonomía. América. Clave. Asilidae. Stenopogoninae. Cyrtopogonini.

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INTRODUCTION

In this paper we complete the treatment of the American genera of Stenopogoninae. (Previous papers in Stenopogoninae, in this series, will be published as follows: Part. VII.1. (Stenopogoninae, key to tribes) in Gayana, Zool. 55(2); Part VII.2 (Stenopogoninae, tribes Acronychini, Bathypogonini, Ceraturgini) in Gayana, Zool. 55(3); Part. VII.3 (Stenopogoninae, tribes Dioctrini, Echthopodini) in Gayana, Zool. 55(4); Part VII.4 (Stenopogoninae, tribe Enigmomorphini) in Bol. Soc. Biol. Concepción, 62; Part VII.5 (Stenopogoninae, tribe Tillobromini) in Rev. Chilena Ent. 19; Part VII.6 (Stenopogoninae, tribes Plesiommatini, Stenopogonini and Willistonini) in Bol. Soc. Biol. Concepción 63. Part VII.7 (Stenopogoninae, tribe Cyrtopogonini) in Bol. Soc. Biol. Concepción, 62.

The other subfamilies have been published as:

- Part I (Introduction, key to subfamilies, subfamily Leptogastrinae) in Gayana, Zool., 52(1-2): 95-114. 1988.
- Part II (Dasypogoninae) in Gayana, Zool. 52(3-4): 199-260. 1988.
- Part III (Trigonimiminae) in Bol. Soc. Biol. Concepción, 60: 35-42. 1989.
- Part IV (Laphriinae, except Atomosiini) in Bol. Mus. Paraense Emilio Goeldi, Zool. 4(2): 211-255, 1989.
- Part V (Stichopogoninae) in Bol. Soc. Biol. Concepción, 61: 39-47, 1990.
- Part VI (Laphriinae, tribe Atomosini) in Gayana, Zool. 55(1): 53-87, 1991.

The methodology employed in the dissection and preservation of the male terminalia, female spermathecae and other morphological parts is the same employed by Artigas (1971).

Tribe CYRTOPOGONINI Artigas & Papavero

KEY TO GENERA:

- 1. Face flat or very evenly rounded 2
 - Face decidedly gibbose or sometimes (*Sintoria*) higher near antennae 13
- 2(1). Hairs normally dense, plumose, crinkly, on head, thorax and abdomen 3
 - Hairs never plumose, even if very dense 4
- 3(2). Hind tibiae much enlarged, as thick as or thicker than hind femur. CuA_2 and A_1 joined before wing margin, i. e., anal cell closed, with short pedicel. Male terminalia as in Figs. 1-3 and aedeagus as in Figs. 4-5. Spermathecae as in Figs. 6-7. (Nearctic) *Holopogon* Loew, 1847.
 - Hind tibiae more slender, thinner than femur. Anal cell open. Spermathecae as in Figs. 8-9. (Nearctic) *Heteropogon* Loew, 1847.
- 4(2). Disc of scutellum without fine, semierect pile, at most micropubescent 5
 - Disc of scutellum with a variable number of fine, semierect pile 11
- 5(4). Midtibia with a pair of moderately strong, black, ventral bristles at apex, directed approximately at an angle of 60-90°. Spermathecae as in Figs. 10-11. (Nearctic) *Callinicus* Loew, 1872.
 - Midtibia with 3-5 bristles directed distally 6

6(5). Pulvilli absent	7
Pulvilli present	8
7(6). Thorax, legs and pronotum and base of C with appressed white scale-like hairs. C continuing after $CuA_2 + A_1$. Spermathecae as in Figs. 12-13. (Western USA).....	
..... <i>Ablautus</i> Loew, 1866.	
Thorax, legs, pronotum and base of C never with scale-like hairs. C evanescent after $CuA_2 + A_1$. (Chile)	<i>Nothopogon</i> , gen. n.
8(6). Wing with 4 posterior cells (Fig. 34). Mesonotum with shining black spots, the rest of it gray. Abdomen at least in part reddish. Ambient vein absent after tip of M_1 . Spermathecae as in Figs. 18-19. (South-western USA)	<i>Itolia</i> Wilcox, 1936.
Wing with 5 posterior cells. Ambient vein after $CuA_2 + A_1$ present, evanescent or absent ..	9
9(8). Very small (2.8-3.6 mm) flies. Vertex tumid, not excavated. Ambient vein evanescent after $CuA_2 + A_1$ (Fig. 23). Male terminalia as in Figs. 24-26, aedeagus as in Fig. 27. Spermathecae as in Figs. 28-29. (Argentina, Chile)	<i>Ivettea</i> , gen. n.
Larger flies (5.5-8.0 mm). Vertex excavated. Ambient vein present or absent after $CuA_2 + A_1$	10
10(9). Ambient vein clearly present after $CuA_2 + A_1$. Face narrow. (Chile).	<i>Raulcortesia</i> , gen. n.
Ambient vein clearly absent after $CuA_2 + A_1$ (Fig. 33). Face wide (Fig. 31). Spermathecae as in Figs. 35-36. (Chile)	<i>Dasycyrtus</i> Philippi, 1865.
11(4). Five posterior cells present on wing	12
Only three sessile posterior cells on wing. Ambient vein ending in tip of M_1 . Mystax occupying entire face. Mesonotum and abdomen entirely black. Spermathecae as in Artigas (1971: fig. 45). (Chile)	<i>Dasypecus</i> Philippi, 1865
12(11). Face and frons narrow, lower face in anterior view narrower than half width of an eye. Mystax with a dense patch of short bristles in middle of lower margin and longer, less densely spaced bristles on remainder of face. Small black flies with sparse pollinosity on thorax and shining abdomen. (USA: Texas, Oklahoma)	<i>Hadrokolos</i> Martin, 1959.
Face widening below, lower face slightly wider than inferior width of an eye. Mystax not as above. Densely white-grey pollinose flies (including abdomen). Spermathecae as in Figs. 37-38. (Southwestern USA)	<i>Wilcoxia</i> James, 1941.
13(1). Thorax more or less flat, without a mane	14
Thorax strongly arched, with a conspicuous mane of hairs and bristles, at least on posterior half	20
14(13). Disc of scutellum, at least in part, with sparse to dense hairs or bristles	16
Disc of scutellum bare (at least at center), margin with 2-3 pairs of strong bristles	15
15(14). Midtibia at apex with a comb of 4-6 strong bristles. Mystax with bristles and hairs of about same length. Spermathecae as in Figs. 39-40. (Southwestern USA)	<i>Nannocyrtopogon</i> Wilcox & Martin, 1936
Midtibia never as above. Mystax variable. Spermathecae as in Artigas (1971: fig. 41). (Chile)	<i>Lonquimayus</i> , gen. n.

- 16(14). Flies not metallic colored. Hind tibia not more than 1.5 times diameter of fore and middle tibiae. Fore tibia only slightly tapered apically. Scutellum with strong marginal bristles and pile on disc either sparse or dense 17
Black flies with metallic blue or green shine. Hind tibia twice diameter of fore and middle tibiae. Fore tibia sharply tapering apically. Mesonotal declivity with long pile. Scutellum with semierect pile. (USA: California. Arizona, Utah, Texas; México; Baja California)..... *Sintoria* Hull, 1962.
- 17(16). Body and coxae, rest of legs excepted, entirely white-grey pollinose. Spermathecae as in Artigas (1971: fig. 44). (Chile) *Graptostylus* Hull, 1962.
Body never as above 18
- 18(17). Middle tibia at apex with a comb of about 5 strong black spines. Abdomen totally pollinose or either one margin or both anterior and posterior margins of tergites pollinose 19
Middle tibia at apex with only two strong bristles. Tergites 3-5 with pollinose markings on the anterior margin but not laterally, and on the lateroposterior corners but not dorsally. Scutellar disc with sparse pile; long marginal scutellar bristles present. Pedicel with 2 and scape with 1 noticeable strong bristles. (USA: California, New Mexico)
..... *Backomyia* Wilcox & Martin, 1957.
- 19(18). Weak dorsocentral and acrostical bristles on mesonotal declivity. Mesonotum with strong lateral bristles and slightly prominent short bristles covering most of the thoracic dorsum. Face moderately gibbose to the antennae. Large (over 20 mm) vespid mimics, abdomen predominantly striped and banded with yellow. (USA: California)
..... *Pritchardomyia* Wilcox, 1965.
Thoracic vestiture pile-like, except lateral bristles, some species almost bare on thorax. Face more strongly gibbose almost to the antennae. Flies not marked at abdomen. Length under 20 mm. Spermathecae as in Figs. 46-47. (Nearctic).
..... *Cyrtopogon* Loew, 1847.
- 20(13). Scutellum with sparse short to long pile on disc, two strong long bristles at margin. Vein "R₃" (reactivation of field of R₃) present as a stump vein. Face produced at lower margin, triangular in profile. Spermathecae as in Figs. 48-49. (Western USA)
..... *Metapogon* Coquillett, 1904.
Scutellar disc with dense long wrinkly hairs and long slender marginal bristles. "R₃" stump absent. Face strongly produced in profile. Spermathecae as in Figs. 50-51. (Nearctic).
..... *Eucyrtopogon* Curran, 1923.

Genus *Ablautus* Loew

Ablautus Loew, 1866: 37 (Cent. 7, N° 63). Type-species, *trifarius* Loew (mon.).

Ablautatus, error or emend.

flavipes Coquillett, 1904: 178. Type-locality: USA, California. Distr. — USA, México (Durango).

trifarius Loew, 1866: 36 (Cent. 7, N° 63). Type-locality: USA, California, Distr. — USA, ?México (Osten Sacken, 1887: 168).

Genus *Dasycyrton* Philippi

Dasycyrton Philippi, 1865: 701. Type-species, *gibbosus* Philippi (mon.).

arrayanensis Artigas, 1970: 93, figs. 70, 83, 478. Type-locality: Chile, Santiago, Arrayán, Distr. — Chile (Bío-Bío, Santiago). HT MZUC.

coquimbensis Artigas, 1970: 95, figs. 78, 477. Type-locality: Chile, Coquimbo, Illapel. HT MZUC.

gibbosus Philippi, 1865: 701, pl. 26, figs. 30, 30a. Type-locality: Chile, Santiago and Aconcagua: Hacienda Catemu. Distr. — Chile (Coquimbo, Santiago). Ref. Artigas, 1970: 97, figs. 82, 407, 492. NT MZUC.

medinae Artigas, 1970: 99, fig. 86. Type locality: "Chile". HT SANT.

sucinopedis Artigas, 1970: 105, figs. 80, 480. Type-locality: Chile, Valparaíso. HT MZUC.

Genus *Dasypecus* Philippi

Dasypecus Philippi, 1865: 692. Type-species, *heteroneurus* Philippi (Hull, 1962: 139).

heteroneurus Philippi, 1865: 692, pl. 28, figs. 54, 54a, 54b. Type-locality: "Chile". Distr. — Chile (Coquimbo, Santiago). Ref. — Artigas, 1970: 110, figs. 63, 64, 66, 463). NT BMNH.

?*latus* (Philippi), 1865: 686 (*Dasypogon*). Type-locality: Chile, Illapel. HT lost.

Genus *Graptostylus* Hull

Graptostylus Hull, 1962: 207. Type-species, *dolosus* Hull (orig. des.).

dolosus Hull, 1962: 208. Type-locality: Chile, Valparaíso. Distr. — Chile (Coquimbo, Santiago). Ref. — Artigas, 1970: 119, figs. 65, 67, 68, 69, 71, 74, 457). HT USNM.

Genus *Heteropogon* Loew

Dasypogon, subg. *Heteropogon* Loew, 1847: 488. Type-species, *manicatus* Meigen (Back, 1909: 318).

Anisopogon Loew, 1874: 377 (unjustified nom. nov. for *Heteropogon* Loew). Type-species, *Dasypogon manicatus* Meigen (aut.).

Dasypogon subg. *Pycnopogon* Loew, 1847: 526. Type-species, *mixtus* Loew (Rondani, 1856: 157).

dejectus (Williston), 1901: 306 (*Holopogon*). Type-locality: Mexico, Guerrero, Venta de Zopilote. TP BMNH.

divisus (Coquillett), 1902: 139 (*Pycnopogon*). Type-locality: Mexico, Chihuahua. TP USNM.

dorothyae Martin, 1962: 373. Type-locality: Mexico, Guerrero, 32 mi. n. of Chilpancingo. Distr. — Mexico (Guerrero, Morelos). TP KU.

rejectus Williston, 1901: 307. Type-locality: Mexico, Guerrero, Venta de Zopilote. TP BMNH.

spatulatus Pritchard, 1935: 5. Type-locality: USA, Arizona. Distr. — USA, Mexico (Sonora). TP MIN.

willisoni Martin, 1962: 375. Type-locality: Mexico, Morelos, Highway 136, near Cuernavaca. Distr. — Mexico (Morelos, Guerrero). TP KU.

Genus *Holopogon* Loew

Dasypogon, subg. *Holopogon* Loew, 1847: 473.

Type-species, *nigripennis* Meigen (Coquillett, 1910: 552).

Ceraturgus Wiedemann of Rondani, 1856: 156, misident.

currani Martin, 1959: 17. Type-locality: USA, Arizona, Winona: Distr. — USA, Mexico (Sonora). HT AMNH.

fisheri Martin, 1967: 195. Type-locality: Mexico, Coahuila, Saltillo, Canyon de la Carbonera. HT CAS.

pulcher Williston, 1901: 306, pl. 5, fig. 18. Type-locality: Mexico, Guerrero, Venta de Zopilote. Distr. — Mexico (Guerrero, Morelos). TP BMNH.

violaceus Williston, 1901: 306, pl. 5, fig. 17. Type-locality: Mexico, Guerrero, Venta de Zopilote. TP BMNH.

Genus *Itolia* Wilcox

Itolia Wilcox, 1936: 201. Type-species, *maculata* Wilcox (orig. des.).

atripes Wilcox, 1949: 193. Type-locality: USA, Arizona, Mohawk. Distr. — USA, Mexico (Sonora).

fascia Martin, 1966: 213. Type-locality: Mexico, Puebla, Petlalcingo. HT UCD.

maculata Wilcox, 1936: 202. Type-locality: USA, Arizona, Santa Rita Mts. Distr. — USA, Mexico (Sonora).

pilosa Martin, 1966: 214. Type-locality: Mexico, Sonora, Vicam. HT CAS.

Genus *Ivettea*, gen. n.

Differs from *Dasycyrtion* Philippi by having the vertex tumid, large, unexcavated, and by the very small size (2.8-3.6 mm). From *Raulcortesia*, gen. n., it differs by having the ambient vein absent after $CuA_2 + A_1$.

Type-species, *Dasycyrtion minusculus* Artigas, 1970.

This genus is dedicated to Mrs. Ivette de Artigas.

Ivettea minuscula (Artigas), n. comb.

Dasycyrtion minusculus Artigas, 1970: 101, figs. 77, 425. Type-locality: Chile, Linares, El Radal. Distr. — Chile (Linares, Valdivia). HT MZUC.

Genus *Lonquimayus*, gen. n.

Face gibbose up to the antennae (Fig. 41), wide (Fig. 42). Antenna as in Fig. 43. Thorax more or less flat, without a mane; disc of scutellum bare (at least at center), margin with 2-3 pairs of strong bristles.

Differs from all other genera of Cyrtopogonini from Chile by the gibbose face; from *Graptostylus*, which also has a gibbose face, by not having the body and legs entirely white-grey pollinose

Type-species, *Holopogon tener* Bigot, 1878.

The name of this genus refers to the locality of Lonquimay-Chile.

List of species:

notocinereatus (Artigas), 1970: 102, figs. 85, 494 (*Dasycyrtion*). Type-locality: Chile, Malleco, Angol. HT MZUC. N. COMB.

papaveroi (Artigas), 1970: 104, figs. 81, 491 (*Dasycyrtion*). Type-locality: Chile, Bío Bío, Los Angeles, Fundo San José. Distr. — Chile (Bío Bío, Cautín, Malleco). HT MZUC. N. COMB.

tener (Bigot), 1878: 437 (*Holopogon*). Type-locality: "Chile". Distr. — Chile (Arauco, Concepción, Malleco, Ñuble, Santiago). Ref. — Artigas, 1970: 107 (as *Dasycyrtion*; figs. 72, 73, 75, 76, 84, 487). NT MZUC. N. COMB.

Genus *Metapogon* Coquillett

Metapogon Coquillett, 1904: 181. Type-species, *gilvipes* Coquillett (orig. des.).

leechi Wilcox, 1964: 197. Type-locality: Mexico, Baja California, Misión San Javier. HT CAS.

Genus *Nothopogon*, gen. n.

Head 1/5 width of head, wider at oral margin. Width of frons similar to that of face. Facial gradually sloping from base of antennae to oral margin. Frontal hairs scattered, finer than those of mystax, similar to the ocellar hairs. Mystax with fine and long hairs, occupying entire face (Figs. 14-15). Postvertical and postocular hairs fine, on lower postocular area wrinkled on apical half. Antennae placed on upper 1/3 of face; scape longer than pedicel, shining; pedicel short, globose, with abundant micropilosity, both with dorsal and ventral bristles, the ventral ones longer and thicker; first flagellomere mostly cylindrical, attenuate towards apex, with a minute spine on the basal 1/3 of the dorsal surface; second flagellomere minute; third flagellomere half the length of the first, compressed, pointed (Fig. 15). Proboscis short, cylindrical, blunt. Palpus small, the second segment rounded at apex.

Pronotum and propleura with hairs similar to the hairs of beard. Prosternum dissociated from proepisternum. Mesonotum partially covered with micropilosity; fine long hairs scattered all over mesonotum; dorsocentral bristles indistinct; humeral, postalar and postcallar bristles fine, hair-like, similar to mesonotal hairs. Disc of scutellum with a few fine hairs and 3 pairs of marginal scutellar bristles. Mesopleura with fine long hairs. Anepisternum bare. Mesepisternum with stiff short hairs. Katepisternum with abundant fine and long hairs, wrinkled on apical half.

Legs of similar size, tibiae and basitarsi with long bristles. Claws acute, pulvilli absent.

Wing with cell r_1 open; vein R_4 straight on apical 3/4, ending at wing apex; vein R_5 straight, ending behind apex of wing; cell m_3 open; anal

cell closed. Ambient vein absent from $CuA_2 + A_1$.

Abdomen mostly depressed, as wide as thorax, integument smooth, shining; micropubescence forming well defined pattern; vestiture of abdomen consisting in fine, scattered, short hairs. Eight tergites visible in female (male unknown). Ovipositor with spines on acanthophorites.

The name of this genus refers to the abundant hair on the pronotum.

Type-species, *Nothopogon triangularis*, sp. n.

Nothopogon triangularis, sp. n.

Body length, 4.5 mm; wing length, 3.2 mm.

Face and frons with silvery micropilosity. Mystax with white hairs, extending from base of antennae to oral margin. Frontal bristles fine, white. Frons with scattered, very fine, white hairs, similar to hairs of ocellar triangle. Postvertical bristles white, reclinate. Hairs and bristles of postocular area white, longer on lower part, similar to the hairs of beard and proboscis. Scape shining black, with white bristles; pedicel covered with silvery micropilosity, its bristles white; flagellomeres black. Proboscis shining black.

Prothorax shining black, covered with silvery micropilosity and long, fine, white hairs. Bristles on collar strong, whitish. Mesonotum shining black, with large areas covered with silvery micropubescence; a double central stripe and two spots at each side of mesonotal disc free from micropubescence, shining black, contrasting strongly with the surrounding areas. Mesonotal disc covered entirely with scattered, long, fine, white hairs; the white dorsocentral bristles visible only on postsutural area. Humeral, prealar, postalar and postcallar bristles white, the postcallars longer and stronger. Disc of scutellum covered with micropubescence similar to that of mesonotum, 3 pairs of white, long, marginal scutellars present. Mesopleura black with large areas of silvery micropubescence; hairs white. Katepimeral bristles white. Anepisternum bare, only micropubescent. Mesepisternum with a dense patch of short, stiff, downward directed hairs.

Wing hyaline, veins brownish.

Coxae blackish, with abundant silvery micropubescence and white bristles. Femora shining black with white hairs and bristles, longer on ventral surface. Tibiae and tarsi light-brown, with short, white hairs and long bristles. Claws only a little curved; pulvilli absent.

Abdomen shining black, covered in part by silvery micropubescence. First tergite almost completely shining black, tergites 2-6 with a distinct, large, triangular area (shining black) surrounded by micropubescence. Sides of tergites with a small spot under similar conditions. Vestiture of abdomen consisting of short, white, scattered hairs. Ovipositor with black spines on acanthophorites.

Holotype ♀, ARGENTINA, SALTA: El Carmen, 27 km s. Molinos, 1900 m, 6.x.1968 (L. Peña), in the MZUC.

The name *triangularis* refers to the triangular area, shining black, on tergites 2-6.

Genus *Raulcortesia*, gen. n.

Differs from *Dasycyrtion* Philippi by the narrower face and by the fact that the ambient vein is clearly seen after $CuA_2 + A_1$. From *Ivettea*, gen. n., it differs in the excavated vertex.

Type-species, *Dasycyrtion lanosus* Artigas, 1970.

The generic name represents a homage to Prof. Raúl Cortés Peña, in recognition to his many contributions to Entomology.

Raulcortesia lanosa (Artigas), n. comb.

Dasycyrtion lanosus Artigas, 1970: 98, figs. 79, 490. Type-locality: Chile, Curicó, Palos Negros. HT MZUC.

Genus *Sintoria* Hull

Sintoria Hull, 1962: 197. Type-species, *emeralda* Hull (orig. des.).
Ref. — Wilcox, 1972.

emeralda Hull, 1962: 199. Type-locality: Mexico, Neplanta. Distr. — Mexico (Jalisco, Aguascalientes). HT USNM.

lagunae Wilcox, 1972: 55. Type-locality: Mexico, Baja California Sur, S. Victoria, La Laguna, HT LACM.

rossi Wilcox, 1972: 58. Type-locality: Mexico, Mt. Popocatepetl, north slope, 11,000 ft. HT CAS.

Unrecognized Cyrtopogonini

bullatus Wulp, 1882: 100 (*Holopogon*). Type-locality: "Argentina".

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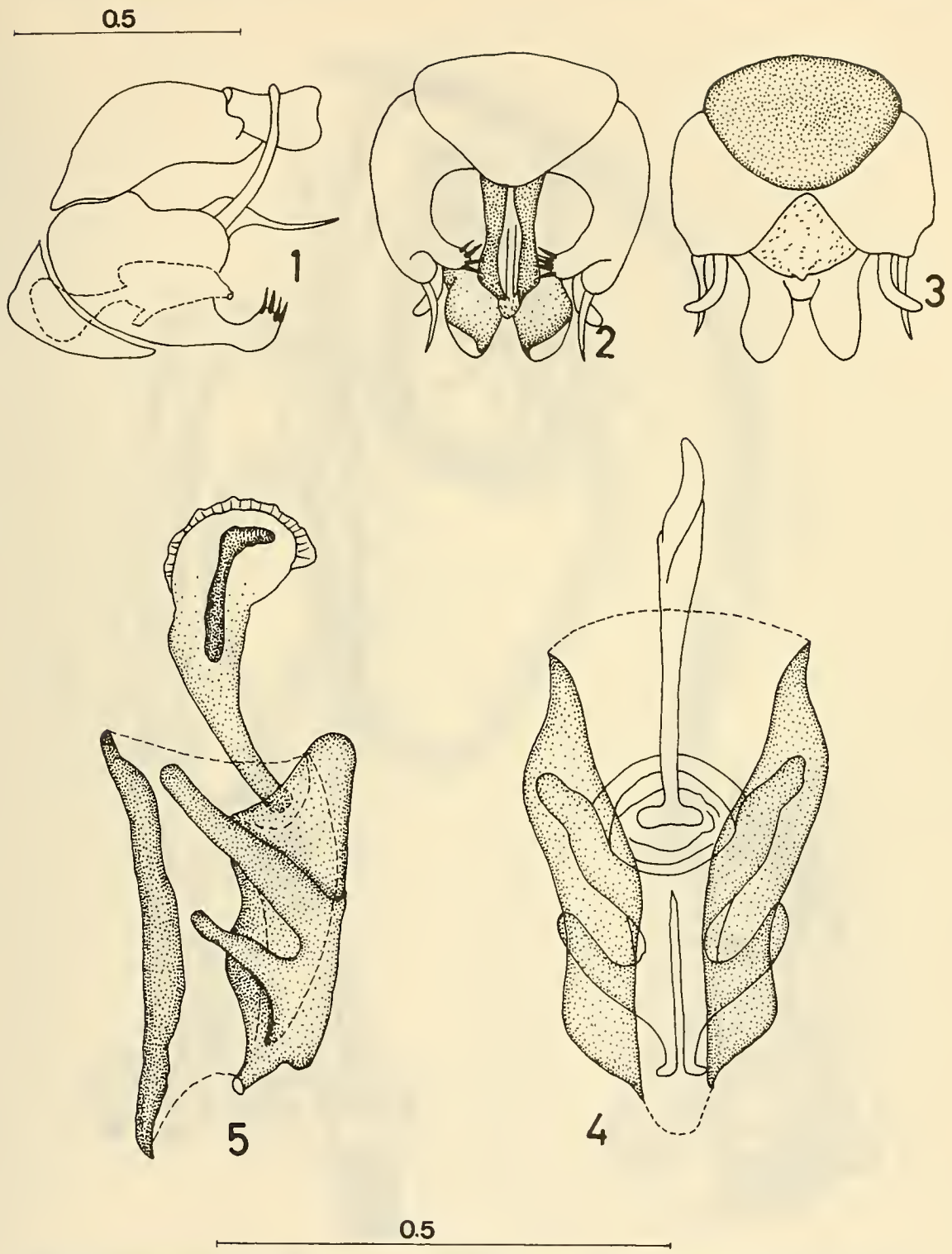
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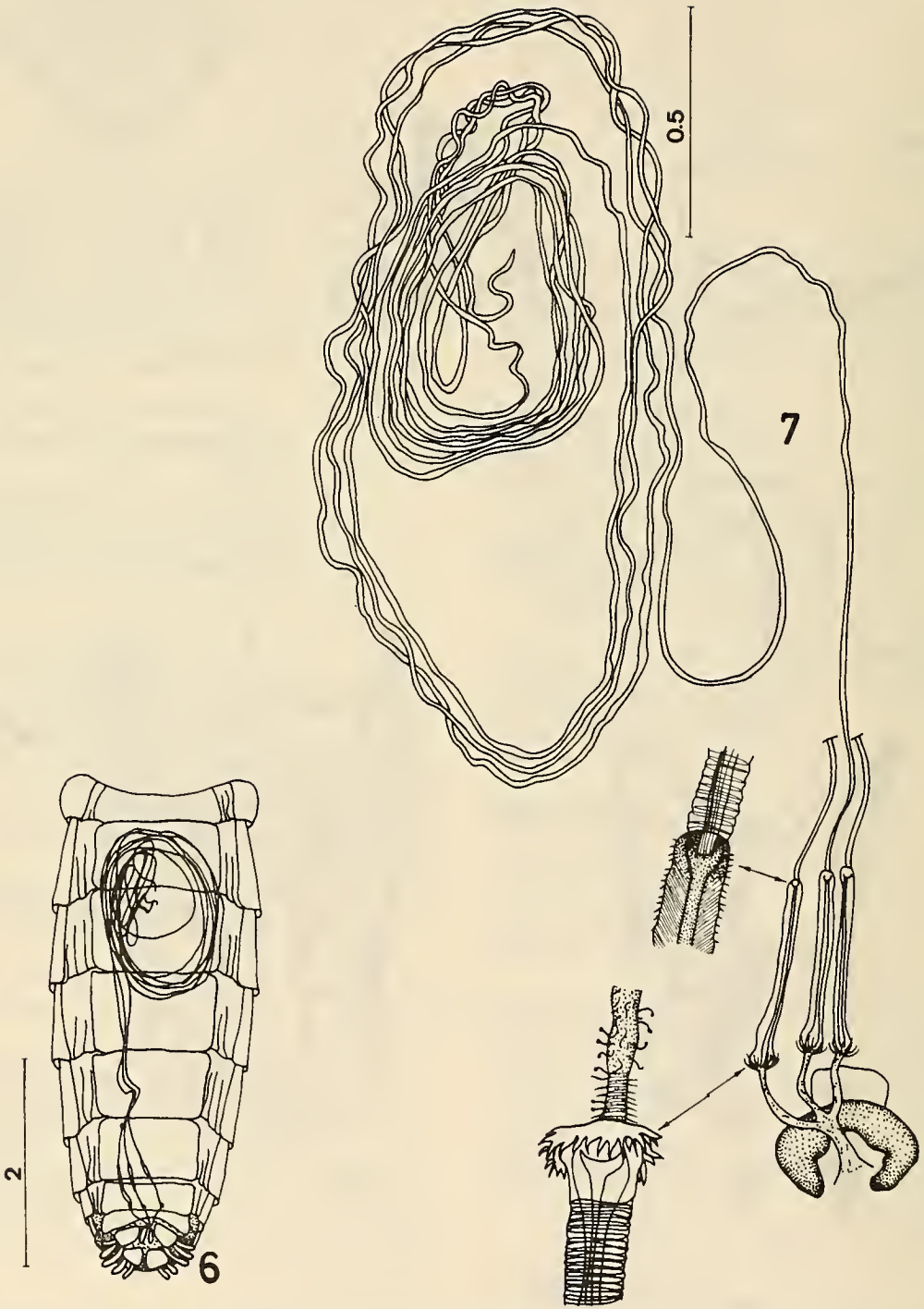
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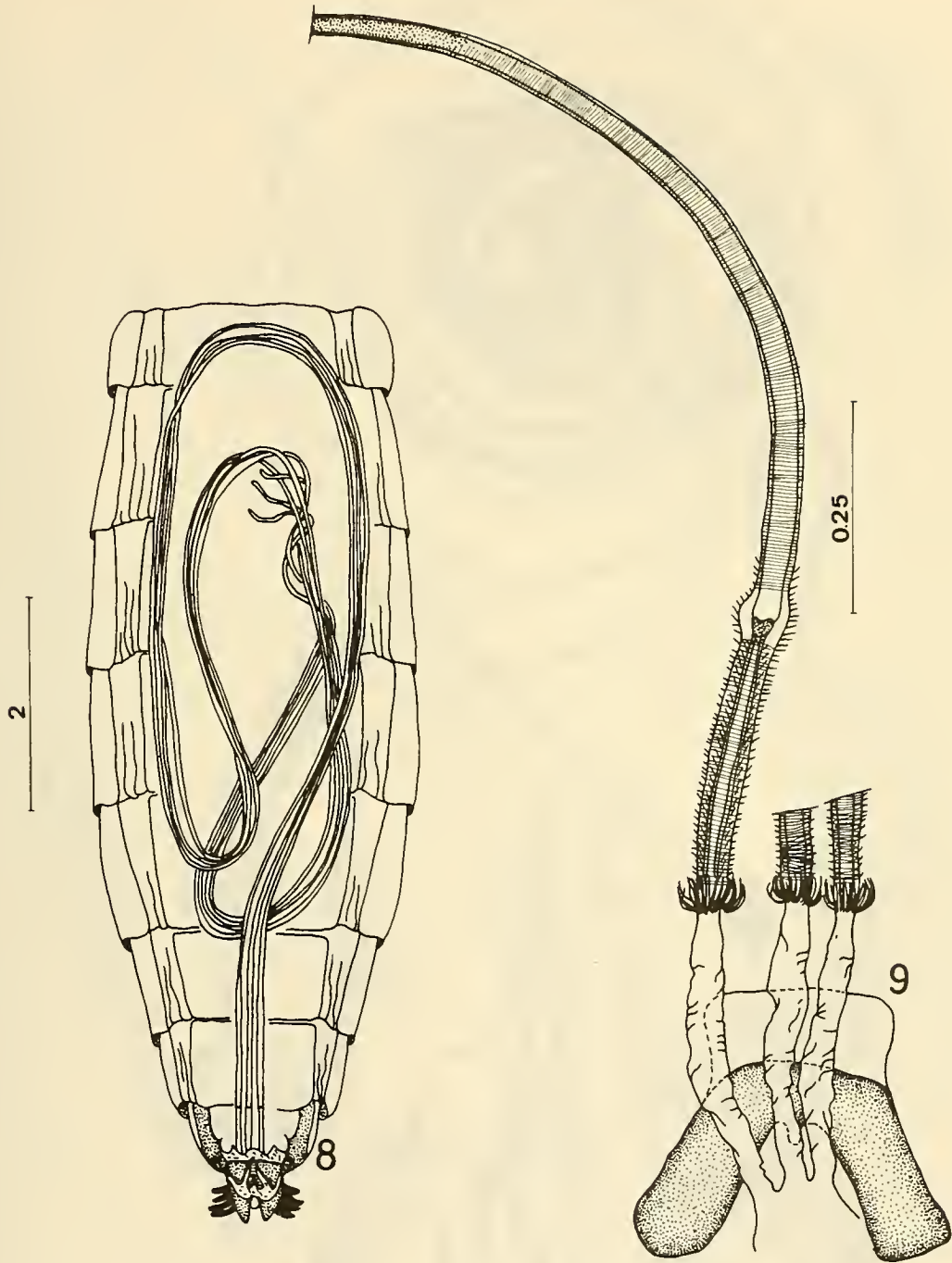
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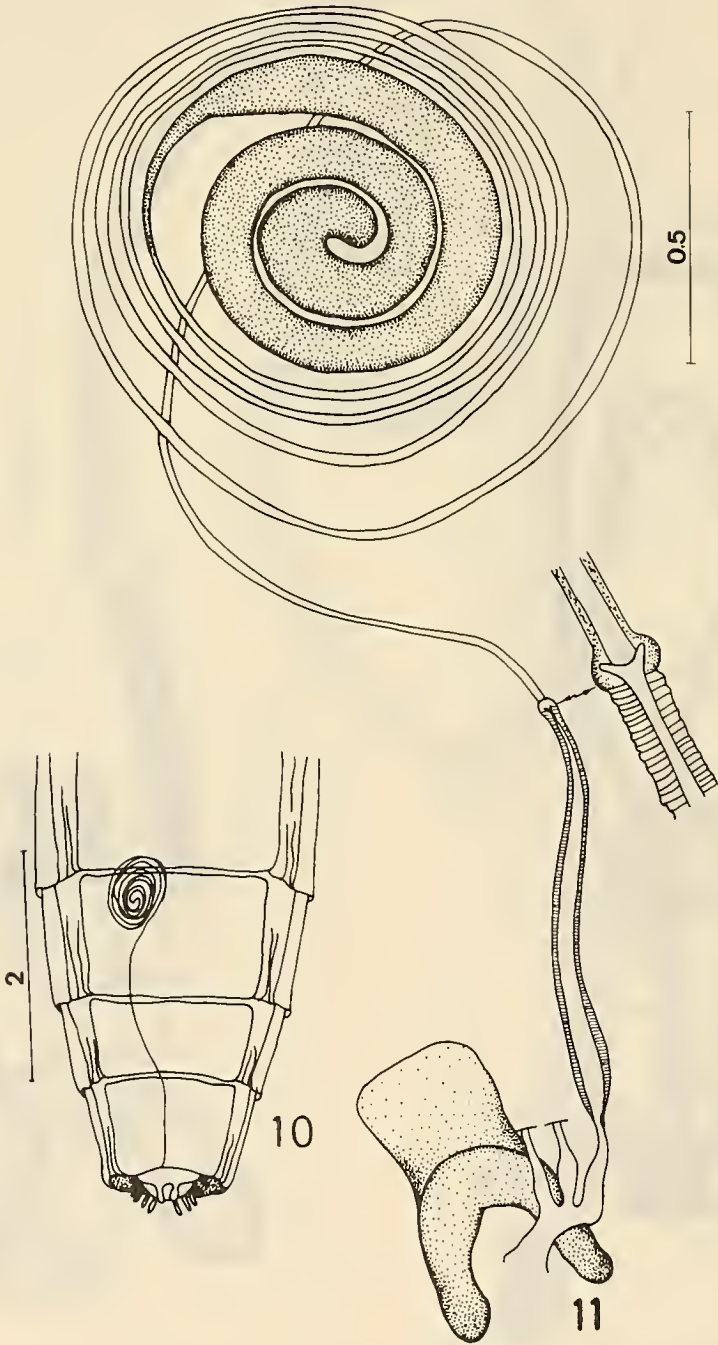
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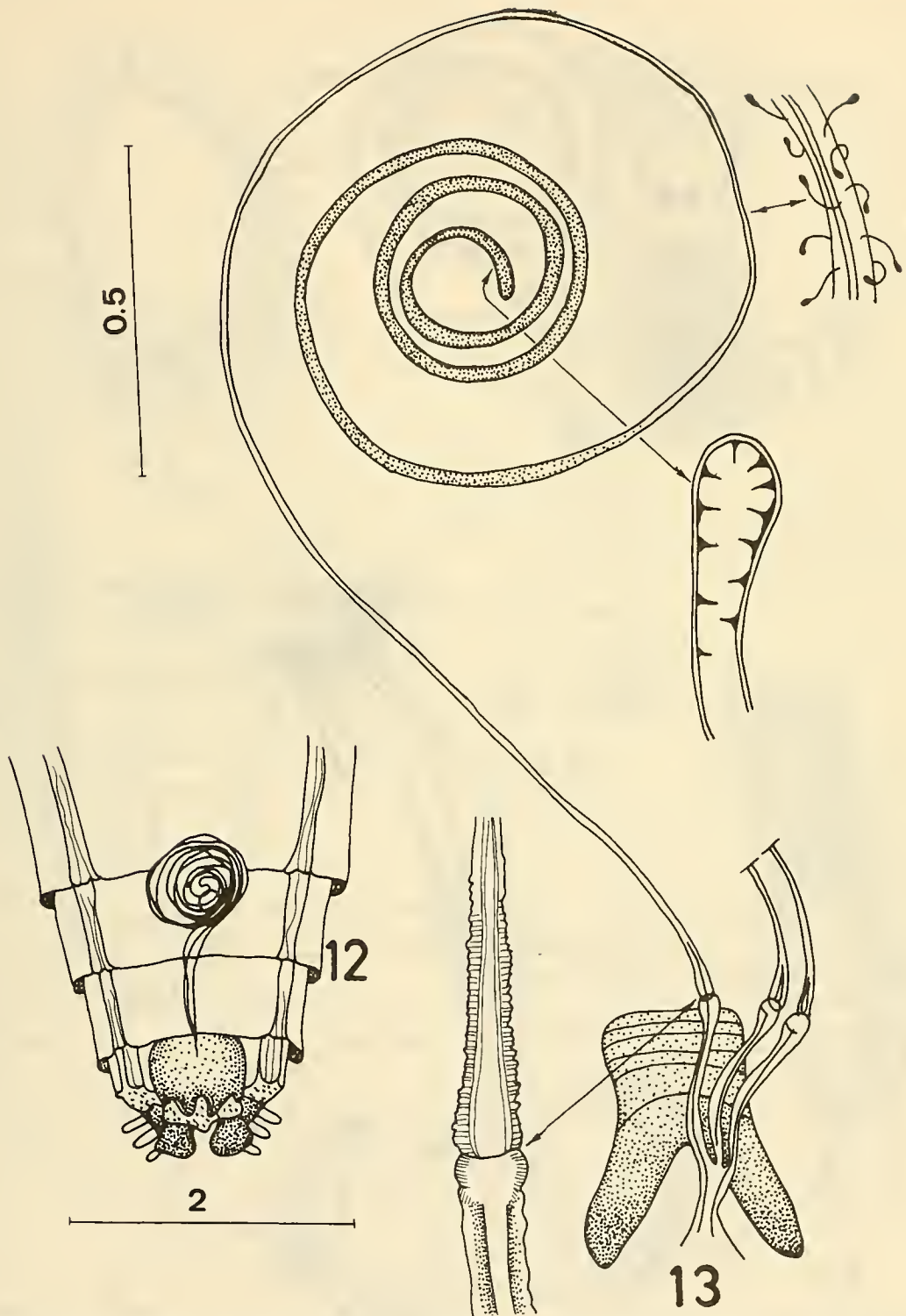
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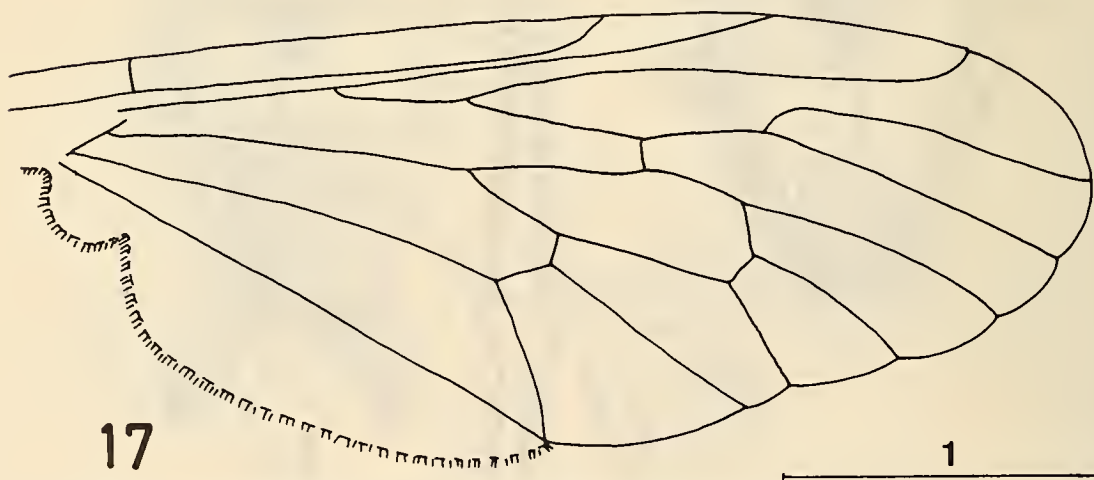
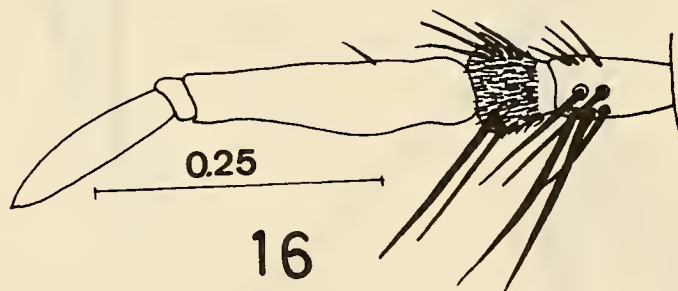
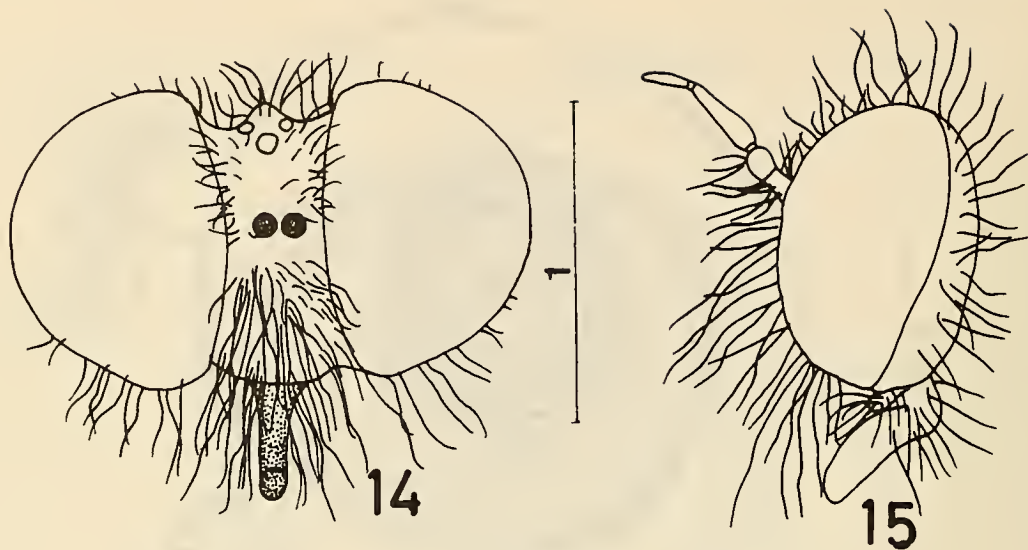
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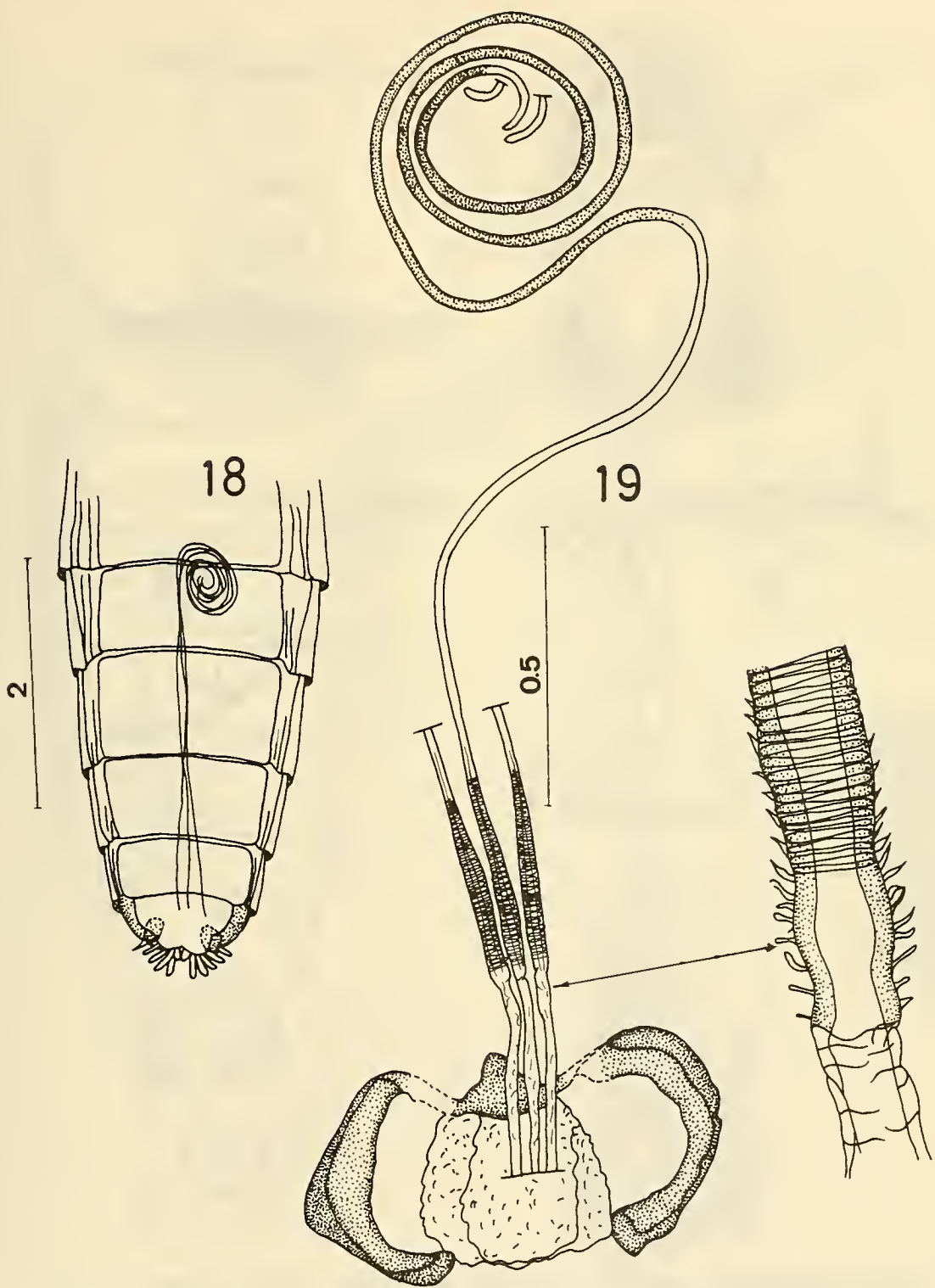
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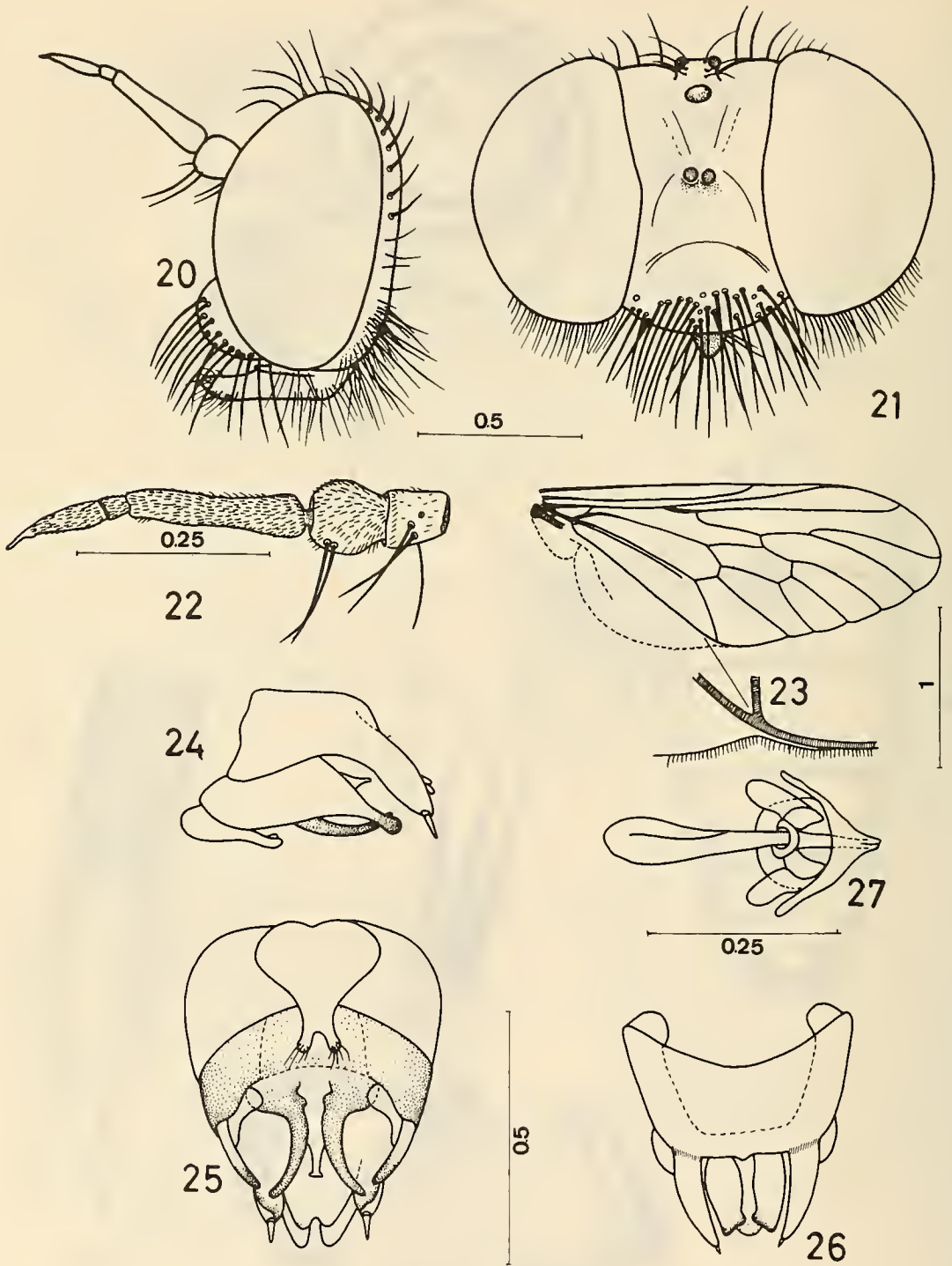
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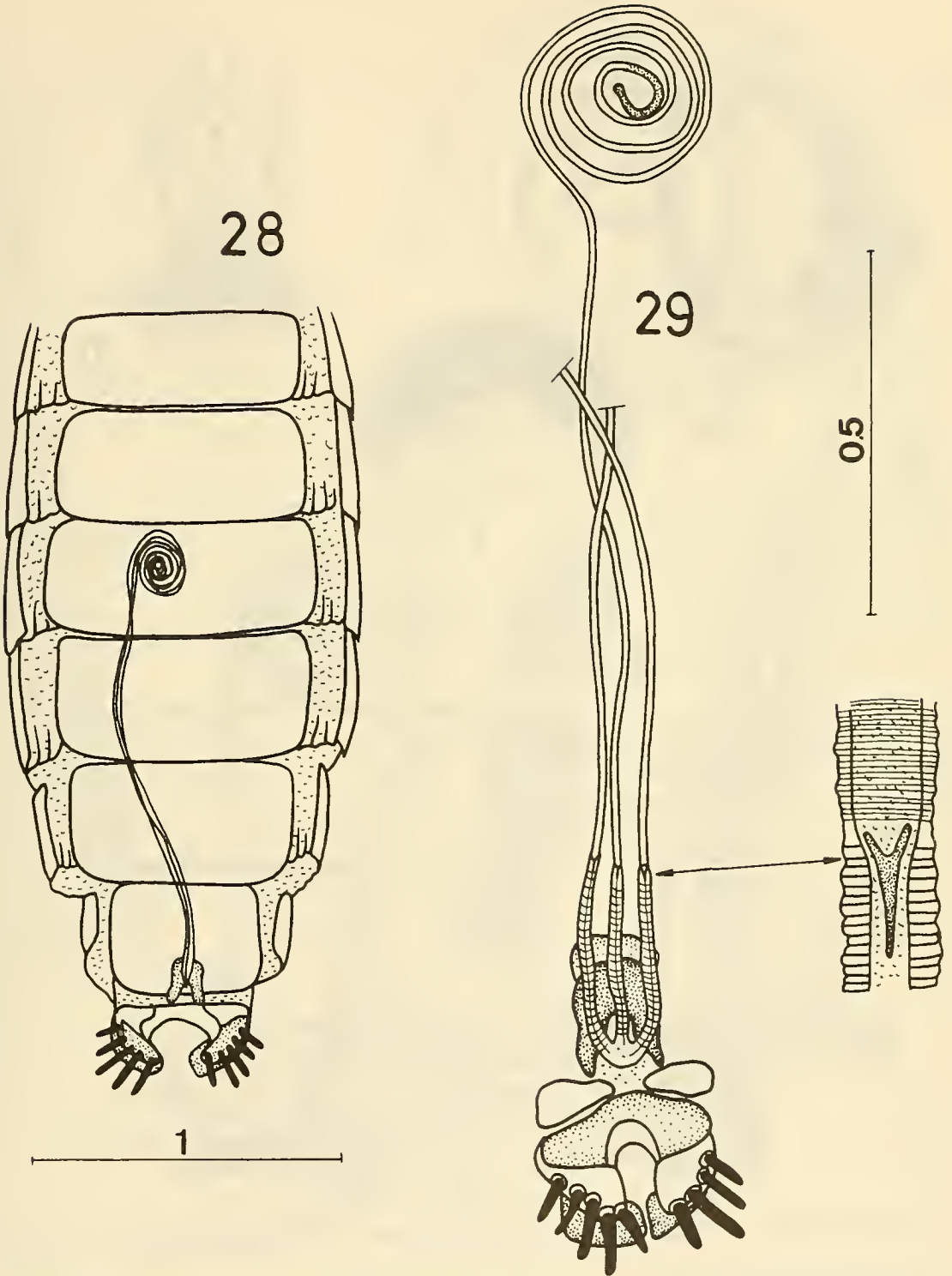
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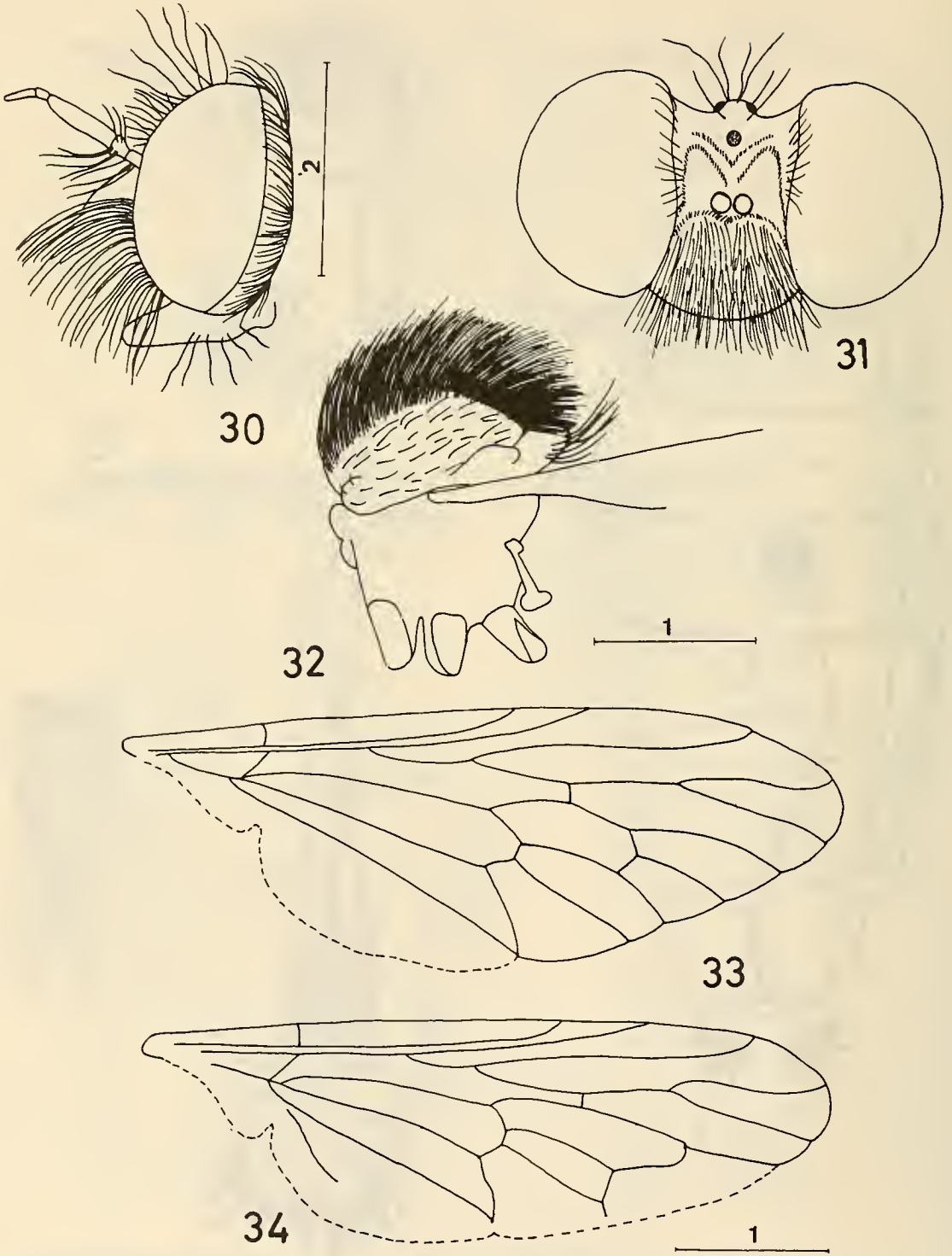
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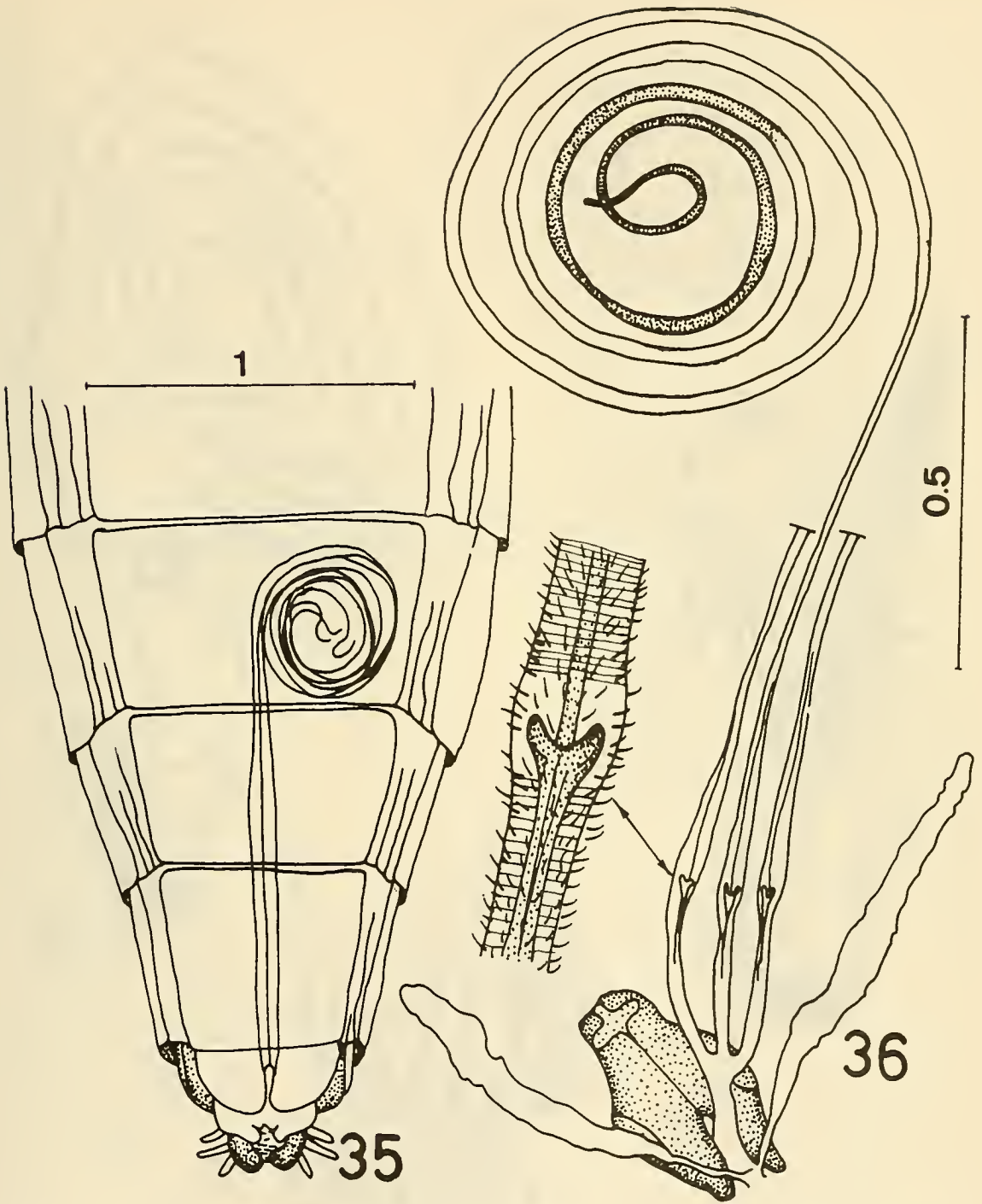
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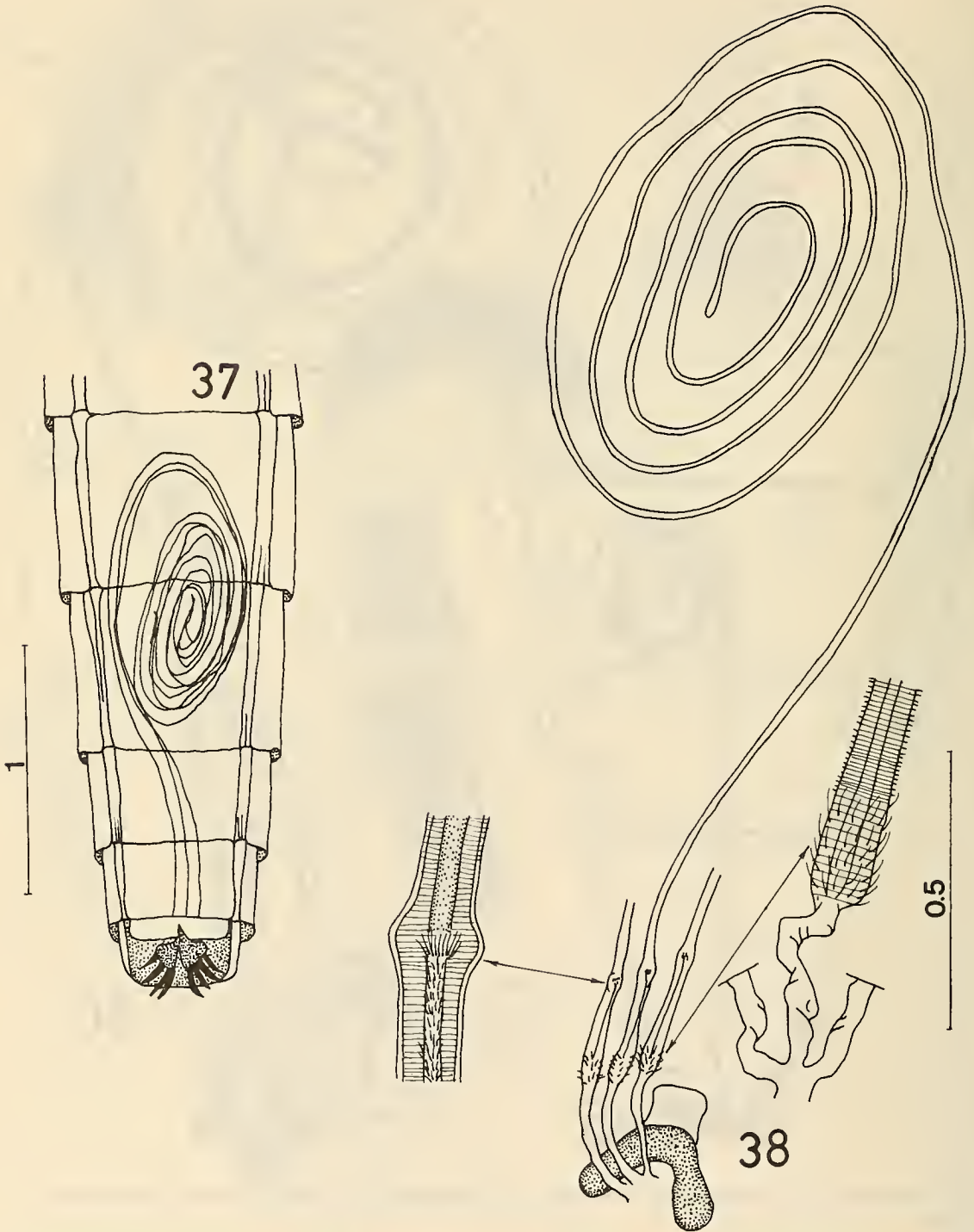
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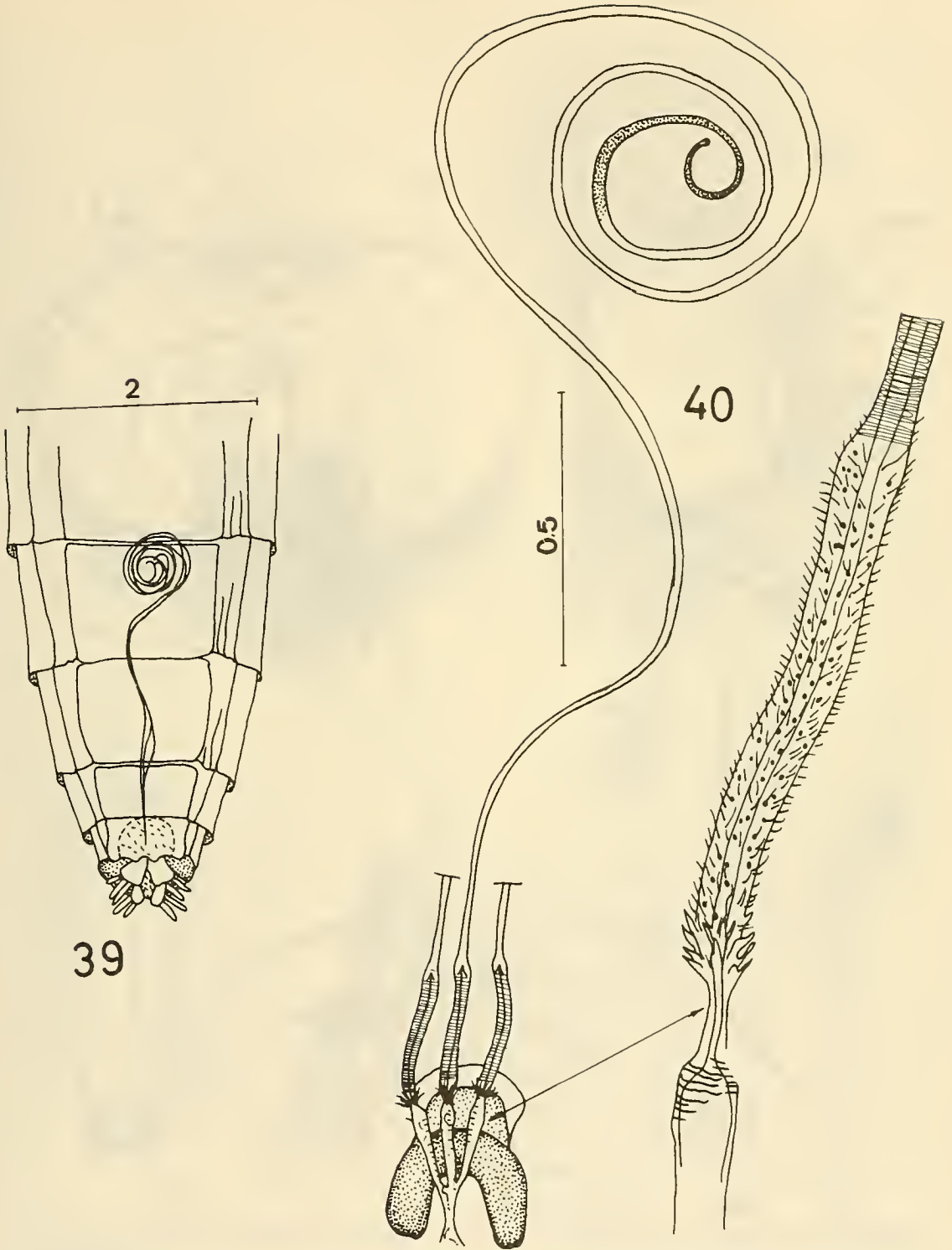
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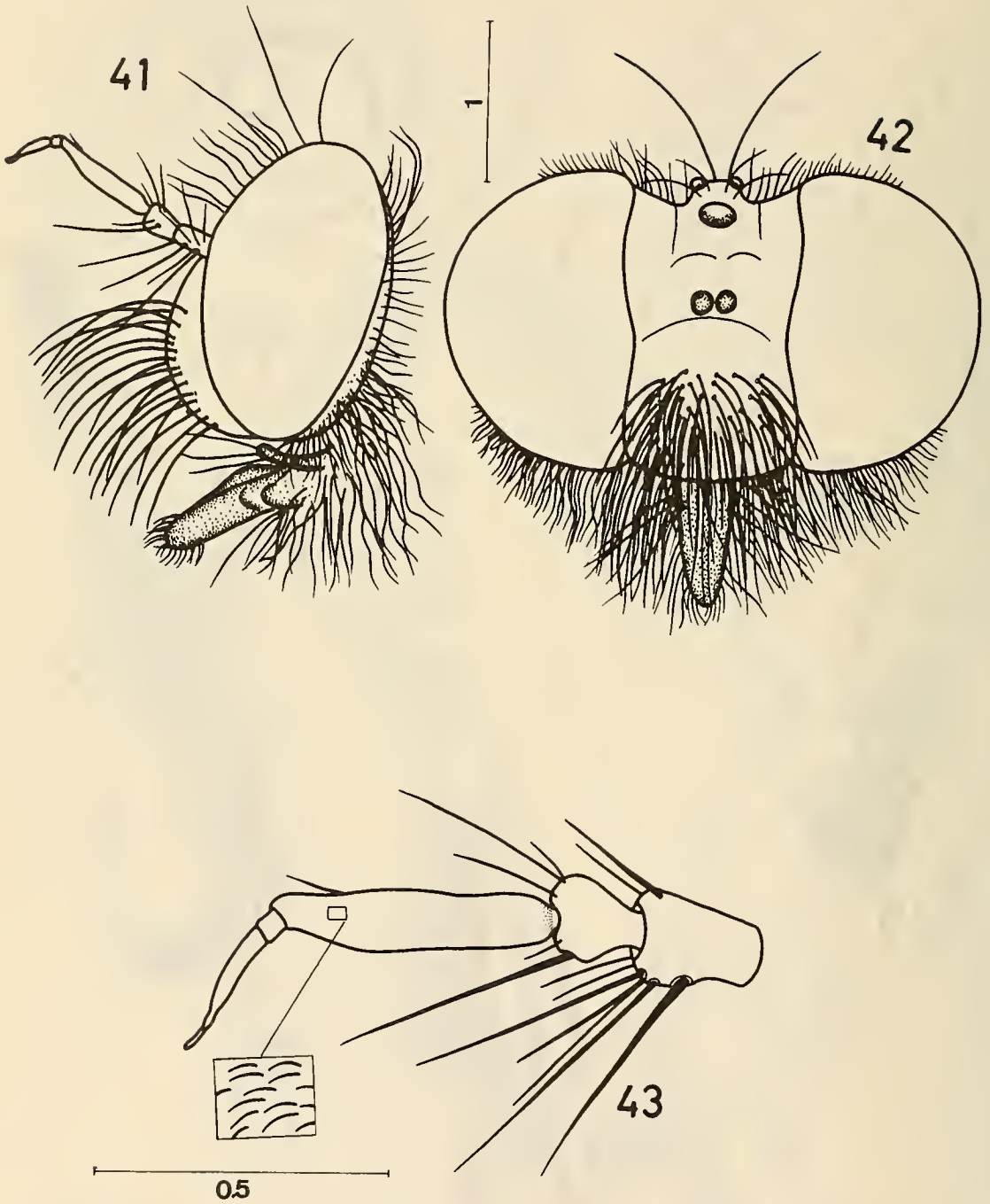
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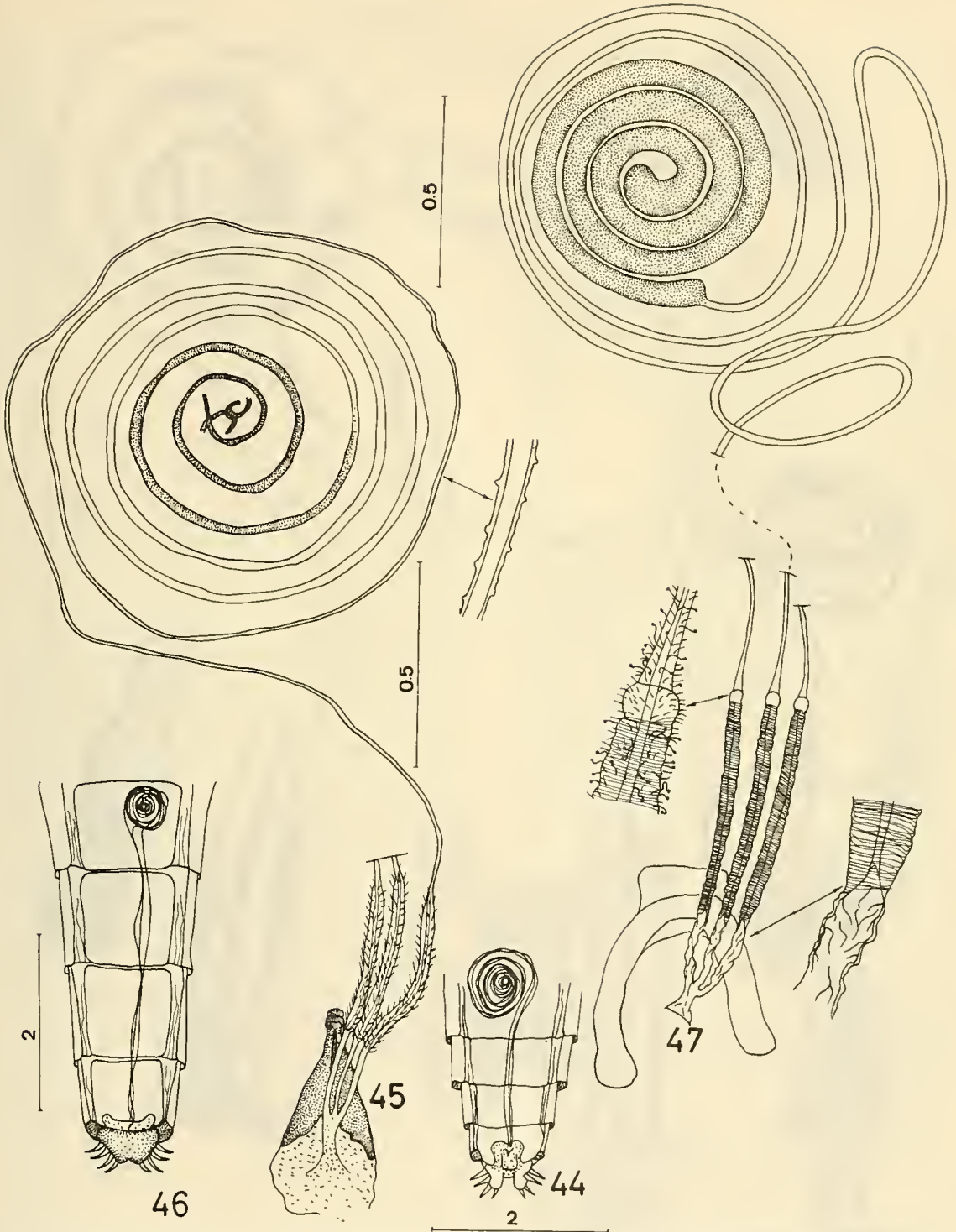
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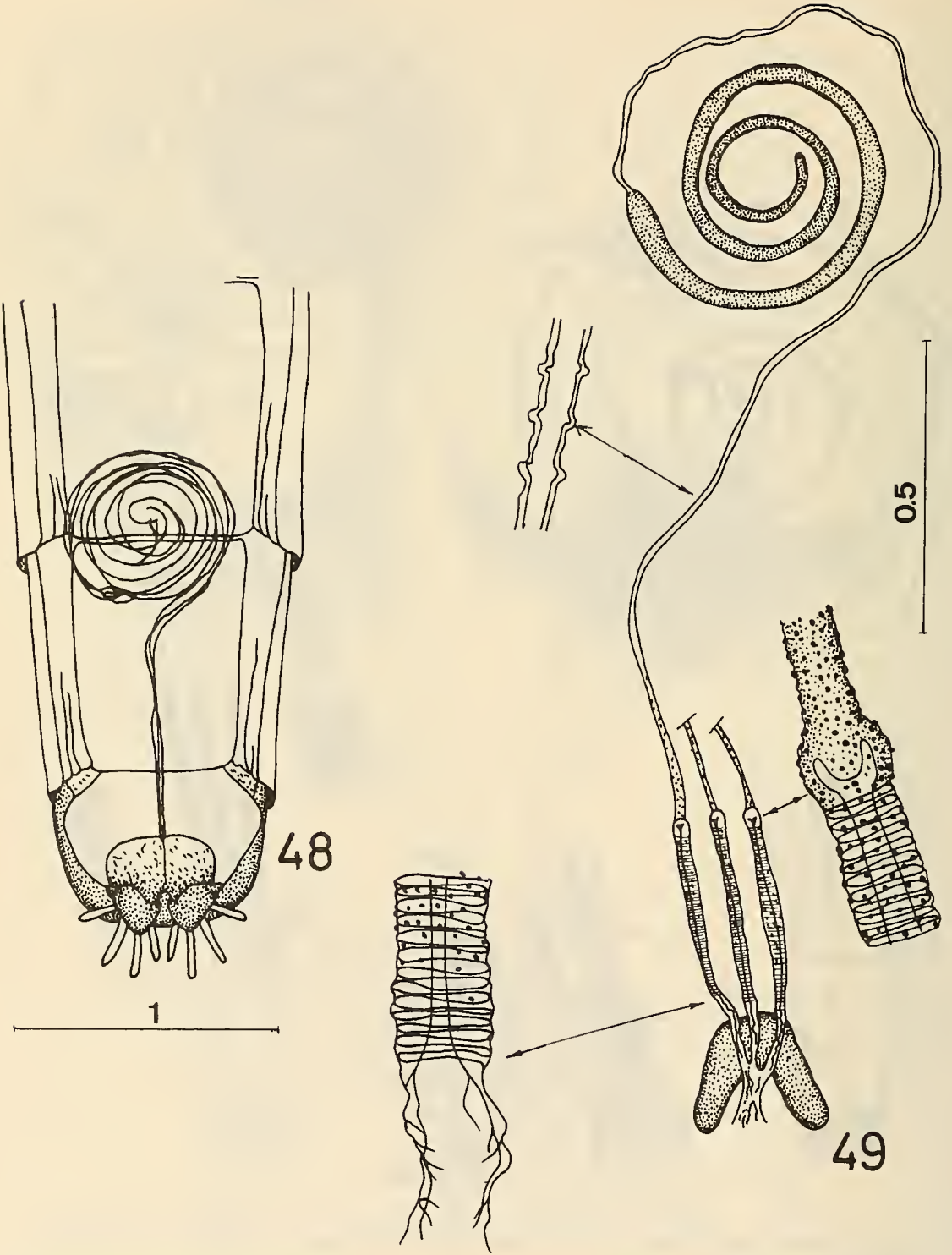


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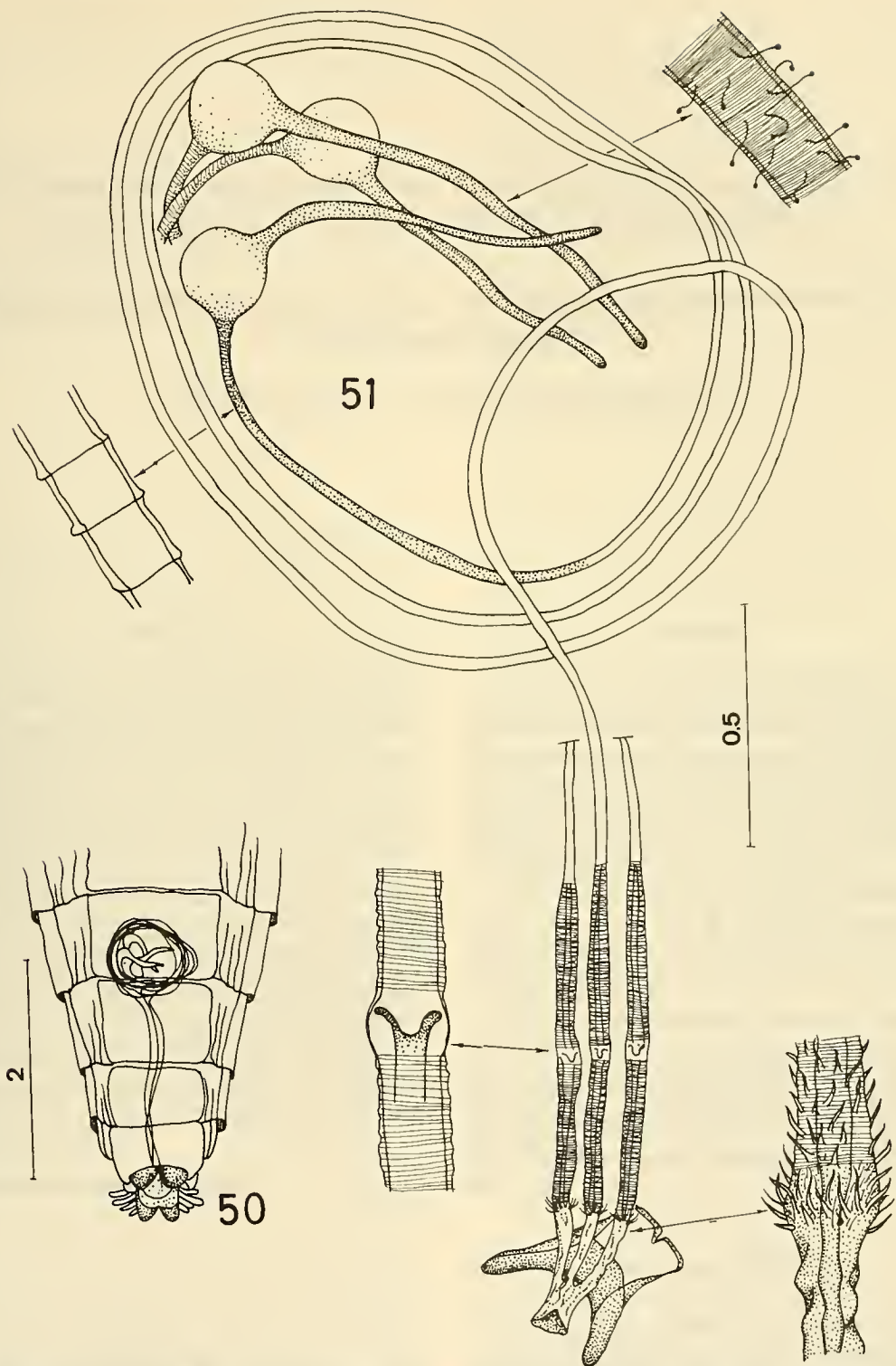


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