

A DESCRIPTION OF THE ADULT AND IMMATURE STAGES OF
ECTECEPHALA CAPILLATA (COQUILLET)
(DIPTERA: CHLOROPIDAE)

J. C. DEEMING

Department of Zoology, National Museum of Wales, Cathays Park, Cardiff CF1 3NP, United Kingdom.

Abstract.—*Ectecephala capillata* is redescribed from adults of both sexes, larva and puparium from material collected in and reared from shoots of the grass *Paspalum fasciculatum* from Trinidad, the larval description being the first for a species of this genus. The larva is compared with those of species of *Pachylophus*.

During 1981 F. D. Bennett observed heavy shoot fly damage to *Paspalum fasciculatum* Willd. ex Fluegge (Poaceae) sward at Curepe, St. George Co., Trinidad. From the grass shoots showing "deadheart" he reared a number of species of acalyptrate Diptera, most prevalent amongst which was *Sepsisoma erythrocephalum* (Schiner) (Richardiidae). The immature stages of this species are to be described by the identifier, Mr. G. Steyskal. Four species of Chloropidae were reared, being *Trigonomma albipes* (Wiedemann), *Elachiptera* sp., an unidentified species of Oscinellinae and *Ectecephala capillata* (Coquillett). It has not been possible to determine whether any of these Chloropids causes primary damage to the grass or whether any had predaceous larvae. As no information on hostplants and no larval description exists for any species of *Ectecephala* Macquart, a description of *E. capillata* is worthwhile.

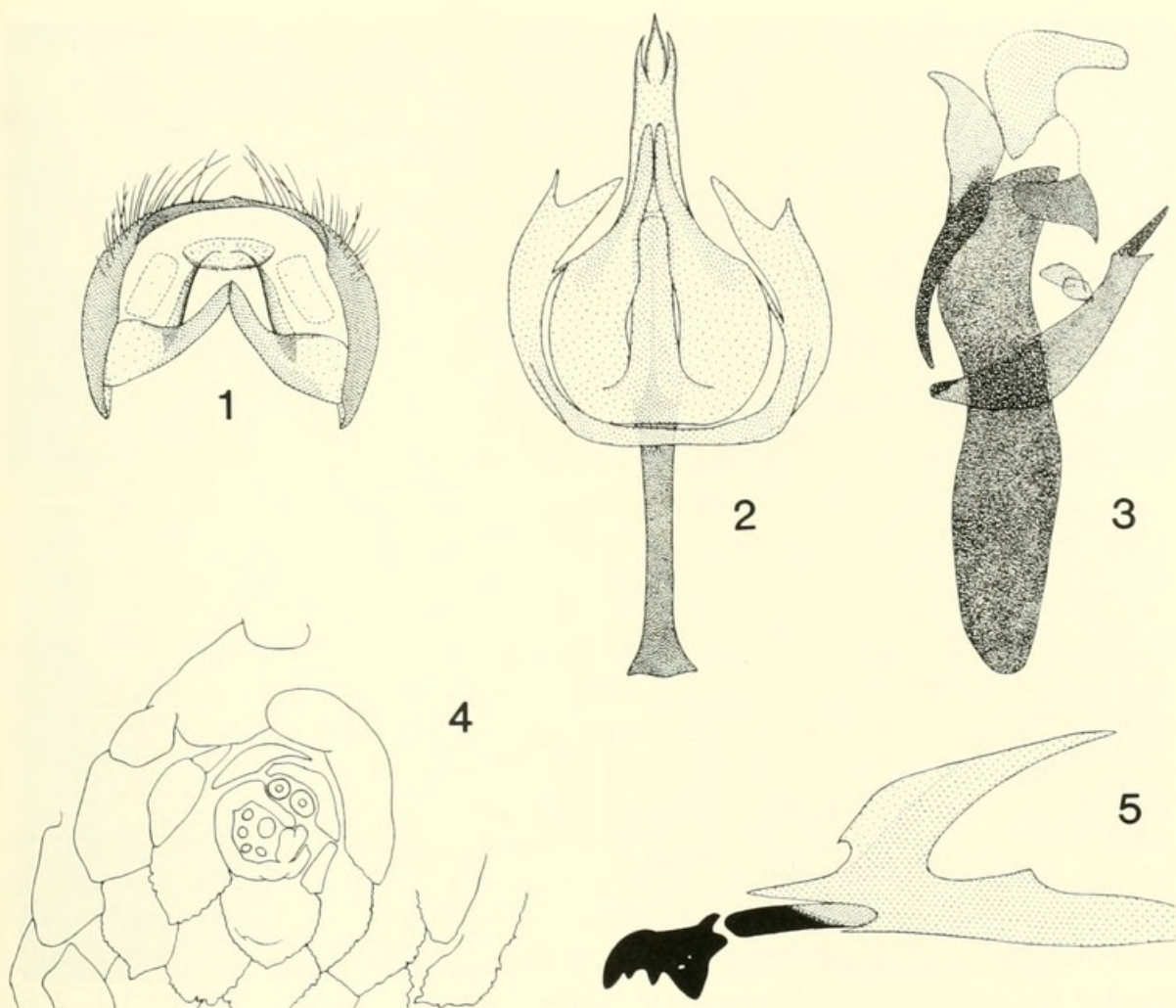
Stereoscan micrographs were made from a single larva, which was originally preserved in alcohol and was prepared by critical point drying in a Samdri-780 prior to electron microscopy at the National Museum of Wales.

***Ectecephala capillata* (Coquillett)**

Figs. 1-12

The type series of *Chlorops capillata* consists of the type female from Granada, Nicaragua and two further specimens from Georgia and North Carolina, U.S.A. Sabrosky recognized the two U.S.A. specimens to belong to *Chlorops unicolor* Loew and transferred that species (1965: 791) to *Ectecephala* Macquart. Seemingly without having seen the type of *capillata*, the species was placed in new combination by Becker (1912: 151) as *Ectecephala capillata* (Coquillett). In that paper Becker cited a wide distribution within the Americas. Sabrosky & Paganelli (1984: 36) restrict this distribution to Central America and Mexico.

Through the great kindness and help of C. W. Sabrosky and C. H. Paganelli I have been able to arrive at an identification for the Trinidad material. Dr. Sabrosky has furnished me with a male from the collections of the National Museum of

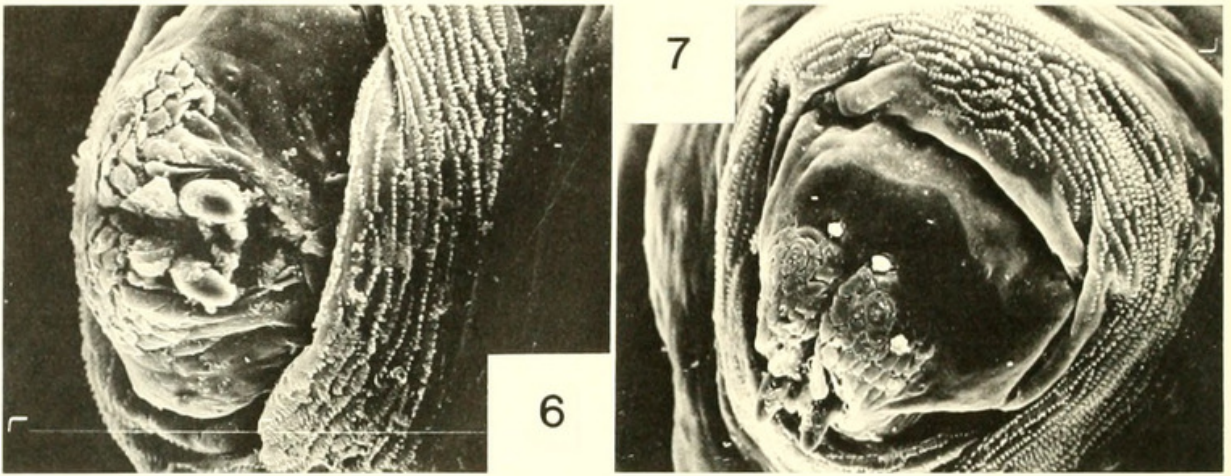


Figs. 1-5. *Ectecephala capillata* (Coquillett) from Trinidad. 1, Male, epandrium and surstyli, ventral. 2, Male phallic complex and hypandrium, ventral. 3, Male phallic complex and hypandrium in profile. 4, Third instar larva, frontal papilla and surrounding rami. 5, Third instar larva, cephalopharyngeal skeleton.

Natural History in Washington, D.C. labelled "Higuito, San Mateo, CR (Costa Rica), Pablo Schild Coll., *Ectecephala capillata* Coq. det. Sabrosky" and Miss Paganelli has availed me of one of the genitalia figures she has made from a Mexican male (Chiapas, 9 mi. sw Teopisca Hwy.), which specimen she had compared with the type of *E. capillata*. Both the Higuito male (Fig. 12) and Miss Paganelli's figures of the Chiapas male show the postgonites in profile to be apically more strongly recurved and of a "vulture-headed" shape. In all other respects, however, the Trinidad specimens agree with these other specimens and I do not consider that such a single minor difference merits the erection of a separate taxon.

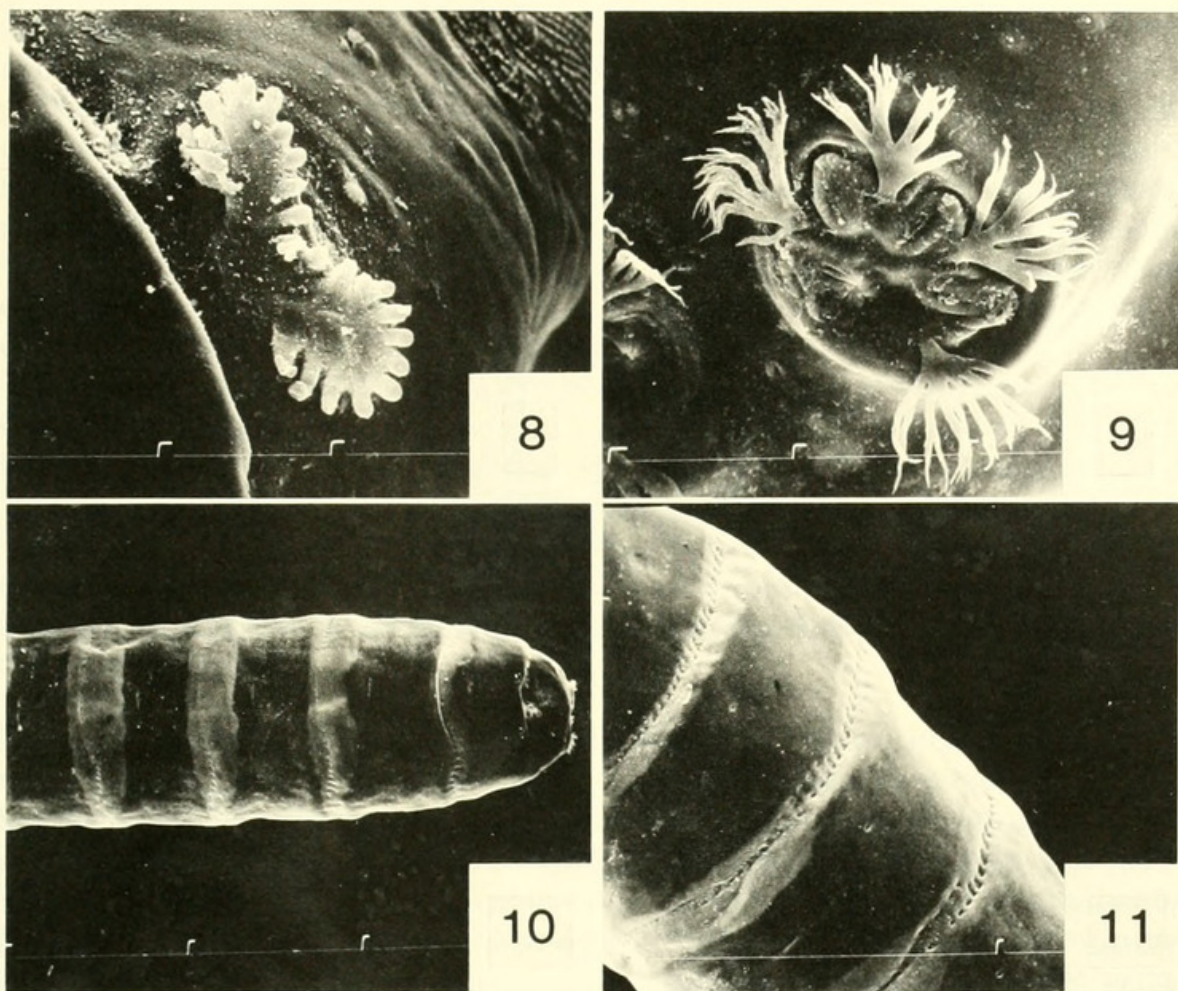
Diagnosis.—A predominantly yellow species with mesopleuron totally devoid of hairs, broad frontal triangle, the antenna not strikingly elongate with a large sensory pit on outer surface of third segment, the notopleural bristles long and much longer and stronger than the humeral, the preapical scutellar marginal bristle more than half as long as the apical, characterized by the structure of the male genitalia.

Male.—Head in ratio of width: length: height 27:20:18, yellow, very faintly



Figs. 6-7. *Ectecephala capillata* (Coquillett) third instar larva from Trinidad. 6, Facial mask, ventral. 7, Head and first thoracic segment, anterior.

brownish laterally and anteriorly on frontal triangle with ocellar prominence black and sides of frons anteriorly golden and of a silken texture; frons at narrowest point $0.7 \times$ width of head, projecting in front of eye for a distance equal to $\frac{1}{4}$ head length; frontal and upper occipital chaetotaxy black, that of the gena yellow; frontal triangle reaching front of frons as a point, posteriorly weakly concave sided, anteriorly more strongly convex sided, with 2-3 rows of proclinate hairs laterally situated extending forward from level of anterior ocellus, the ocellar and postvertical bristles proclinate, only slightly longer than these and much shorter than the subequal vertical bristles; vibrissa distinct; gena weakly haired on mouth margin and in a line extending from the postocular hairs, at narrowest part $0.22 \times$ vertical height of the obliquely oval eye, the height of which is $0.75 \times$ that of the head; mouth margin laterally raised, devoid of the fine pale dusting present elsewhere on face, gena and occiput; vibrissal angle rounded, forming an angle of 122° between face and mouth margin; occiput convex with a distinct vertical ridge on either side abutting the humerus; palpus simple, yellow; antenna slightly less than $\frac{1}{2}$ length of head, somewhat hooded by the frons, the second segment $0.73 \times$ length of third, brownish with hairs black dorsally and yellow ventrally; third segment with dorsal edge in length only $1.1 \times$ its greatest depth, apically roundedly angulate but appearing more strongly so due to the convergence of pile, yellow with dorsal edge and apex black, more extensively black on outer surface than inner, on outer surface with a deep round sensory pit which in area is equal to 4 eye facets; arista white with swollen base yellow. Thorax slightly narrower than head, yellow, vaguely reddish on three raised mesonotal lines, the median of which extends backwards only as far as wing base, on humerus, a large triangular mark on katepisternum, on lower half of meron, more strongly darkened on notopleural ridge and a round spot at anterior spiracle; pleura dusted only posterior to wing base; notopleuron covered in short dense pale pilosity; scutum shining, dorsally covered in short fine hairs which are longer than the intervals between them, their bases situated on slight elevations, giving a rugose appearance; slope of scutum in front of scutellum densely yellow pilose, chaetotaxy black, the single dorsocentral bristle short, shorter than the single postalar and the 1 + 2 notopleurals, but stronger than the weak humeral; scutellum rounded, finely pilose,



Figs. 8-11. *Ectecephala capillata* (Coquillett) third instar larva from Trinidad. 8, Left anterior spiracle. 9, Left posterior spiracle. 10, Ventral surface of posterior half. 11, Lateral surface of mid abdominal segments.

devoid of setulae on a semicircular basal patch, elsewhere dorsally with hairs slightly longer and more widely spaced than on scutum, the strong apical bristles separated by a distance equal to $\frac{1}{3}$ length of scutellum, these much longer and stronger than the 2 pairs of lateral bristles; metanotum dusted. Legs yellow, with foretarsus and apical 2 segments of other tarsi black, pale dusted and predominantly dark haired with coxae pale haired, the apical ventral bristle of midtibia black; forefemur with a row of close set minute studs anteroventrally on apical $\frac{3}{5}$ of length, hindtibia lacking a sensory area. Wing faintly brown fumose with dark brown veins; ratio of length of second: third: fourth costal sectors 45:30:16 and of lengths of penultimate sections of $R^{4+5}:M$ 13:21; posterior crossvein somewhat oblique; squama grey with dark margin and fringe; haltere yellow. Abdomen yellow with indistinct darker areas especially on ventrally facing edges of tergites, subshining through weak pale dust, with tergites dark haired and sternites pale haired; epandrium and surstyli (Fig. 1); phallic complex (Figs. 2-3). Length about 3.5 mm, of wing 2.9 mm.

Female.—Resembling male except in abdominal structure. Sternite 1 short, straplike; sternite 2 droplet shaped, but with basal margin straight, tapering backwards to a fine point; sternites 3-5 narrow oval; sternite 6 roundedly trapezoidal,

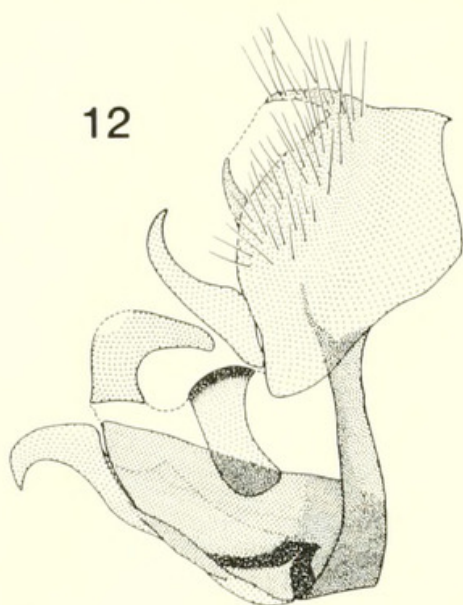


Fig. 12. *Ectecephala capillata* (Coquillett) from Costa Rica, External male genitalia in profile.

with apical margin twice length of basal; sternite 7 hardly sclerotized, indicated only by a transverse line of 4 hairs between the spiracles; sternite 8 much more heavily sclerotized and darkened than any other, medially divided into a pair of roundedly triangular plates which basally are widely and apically narrowly separated, subanal sclerite black; hairs on sternites 2–4 moderate, yellow, on 5 moderate, yellow and black, on 6 and 7 moderate, black, and on 8 minute, black; cercus simple.

Third instar larva.—5.8 mm in length, 1.1 mm in greatest width, yellowish white; anterior spiracle (Fig. 8) of transverse rosette shape, bearing 21–24 digitations; posterior spiracles (Fig. 9) separated by about one half their individual widths, very little raised above surrounding cuticle, with rimlike edges and each with 4 scales resembling kelp fronds and 3 spiracular openings; facial mask (Fig. 6) with frontal rami formed by overlapping plates, some of which are serrate; maxillary ring (Figs. 4, 7) broken, with the usual arrangement of papillae; cephalopharyngeal skeleton (Fig. 5) with mandibular sclerite and anterior half of hypostomal sclerite black, posterior half of the latter brown and pharyngeal sclerite dirty yellow; first thoracic segment (Figs. 6, 7) ringed by 12–14 rows of course spicules, the more anterior rows of which are shorter, more curved and broken, this the only spicular zone present on integument; abdomen (Figs. 10, 11) with 9 rings, incomplete ventrally and doubled laterally, of quadrate indentations, all but the last of which have a single lateral pore behind; anal plate (obscured by dirt in specimen) narrow oval.

Puparium brown, shining, resembling larva in general shape but more dorso-ventrally flattened, intensively finely transverse ridged; posterior spiracles lacking rim, abdominal pores strikingly evident, with cuticular thickening and darkening marking their immediate positions.

Material examined.—6 ♂, 3 ♀, 2 pharate adult ♀ TRINIDAD: St. George Co., Curepe, ex shoots *Paspalum fasciculatum* Willd. ex Fluegge (Poaceae), reared vi, viii, xi.1981, iii.1982, (F. D. Bennett). All the above with individual puparia. One

third instar larva (same locality and hostplant) mounted on EM stub. All the above deposited in National Museum of Wales, Cardiff.

This species most resembles *Ectecephala brasiliensis* Becker from Santa Catarina, Brazil which has a striking black spot under the anterior spiracle and a leaf-shaped black spot on lower mesopleuron, the surstylus with distinct hairs and the apices of the postgonites in profile deeply U-shaped emarginate, in ventral view broader and not coming into contact with one another. A full description of *E. brasiliensis* is to be published by Miss Paganelli in her revision of Neotropical chloropine genera.

The larva of *Ectecephala capillata* most resembles those of *Pachylophus beckeri* Curran and *P. lugens* Loew (described by Deeming, 1973: 155 and 1977: 327) in having the anterior spiracle of a transverse rosette shape and spicular zones restricted to the first 2 (*beckeri*) or first only (*lugens*) thoracic segments. Furthermore, a puparium of *P. pellucidus* Becker from Kenya shows, though difficult to discern, the lateral row of abdominal pores described for *capillata*. However, both these described larvae lack the rings of quadrate abdominal indentations and have very different facial rami.

ACKNOWLEDGMENTS

My sincere thanks are due to F. D. Bennett, Commonwealth Institute of Biological Control, Curepe for entrusting me with the study of this interesting material, to Celuta Paganelli, Museu de Zoologia da Universidade de São Paulo for kindly supplying me for purposes of comparison with descriptive notes and figures of the male genitalia of *Ectecephala capillata* (Coquillett) and *brasiliensis* Becker, and to Curtis W. Sabrosky, Washington, D.C. for specimen loan and for his critical scrutiny of the manuscript of this paper.

LITERATURE CITED

- Becker, T. 1912. Chloropidae. Eine monographische Studie V. Teil. Neotropische Region. Ann. Hist. Nat. Magyar Nemzeti Muz. 10: 121–122.
- Coquillett, D. M. 1904. New Diptera from Central America. Proc. Entomol. Soc. Wash. 6: 90–98.
- Deeming, J. C. 1973. Notes on immature stages of *Pachylophus beckeri* Curran (Dipt., Chloropidae). Entomol. Mon. Mag. 109: 155–157 (1974).
- . 1977. The immature stages of *Elachiptereicus abessynicus* Becker and *Pachylophus lugens* Loew (Diptera: Chloropidae). Bull. Entomol. Res. 67: 325–328.
- Sabrosky, C. W. 1965. Chloropidae, pp. 773–793. In Stone, A. et al, eds., A Catalog of the Diptera of America north of Mexico. Agr. Handbook 276. Washington, D.C. iv + 1696 pp.
- Sabrosky, C. W. and C. H. Paganelli. 1984. 81. Family Chloropidae, 63 pp. In A Catalogue of the Diptera of the Americas South of the United States. Univ. São Paulo, Brazil.



Deeming, J C. 1985. "A description of the adult and immature stages of *Ectecephala capillata* (Coquillett) (Diptera: Chloropidae)." *Proceedings of the Entomological Society of Washington* 87, 402–407.

View This Item Online: <https://www.biodiversitylibrary.org/item/54866>

Permalink: <https://www.biodiversitylibrary.org/partpdf/55817>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Smithsonian

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Entomological Society of Washington

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.