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A REVIEW OF THE TRIBE OESTROPHASIINI BRAUER & BERGENSTAMM (DIPTERA, TACHINIDAE)

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SUMMARY

A revision is made of the New World flies of the tribe Oestrophasiini (Tachinidae, Proseninae). The tribe Oestrophasiini is defined and a key to genera is given. Four genera and 14 species are recognized in this complex. The number of species in each genus and the number described as new are as follows: *Euoestrophasia* Townsend, 7 (6); *Jamacaria* Curran, 1; *Oestrophasia* Brauer & Bergenstamm, 3; *Cenosoma* Wulp, 3 (2). *Oestrophasiana* Townsend is treated as synonym of *Oestrophasia* Brauer & Bergenstamm. Distributional data are recorded for each species. The genus *Mesembrinormia* Townsend is not recognized in this complex. The apparent relationship of the Oestrophasiini with the Old World *Dufouriini* sensu Verbeke is suggested.

I. INTRODUCTION

The Oestrophasiini is a small tribe of the New World tachinid flies with tephritid-like wing pattern and head facies reminiscent of the Oestroidea. Systematically the group is very difficult to place and has not been studied in detail. When trying to place this complex into the extant subfamily classifications it soon became obvious that none of the existing systems (Townsend, 1936; Mesnil, 1966) could be used satisfactorily. Townsend (1936), and Sabrosky & Arnaud, in Stone *et al.* (1965) include this group in the tribe Glaurocarini. However, the Old World *Glaurocara* Thomson shows very strong resemblance to the Orniini except for the lack of a grossly inflated prosternum (Crosskey, 1965). Guimarães (1971) regarded the New World forms assigned to Glaucocarini in the tribe Oestrophasiini (Proseninae). The biology of this tribe is practically unknown; Townsend (1936) surmised that *Cenosoma* females larviposit near the host, while *Oestrophasia* females would oviposit on the stems of the host food, the eggs containing the fully formed maggot being swallowed by the host. *Euoestrophasia aperta* (B. & B.) was reared by Parker *et al.* (1950: 25) in Argentina from an adult curculionid of the genus *Listroderes*.

A total of 114 specimens of this complex was available for this work. Most types of previously described species have been examined and reassessed. The paper is based mainly on the collection of the

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Museu de Zoologia, Universidade de São Paulo (MZSP); other collections studied are listed below.

AMNH American Museum of Natural History, New York
USNM United States National Museum, Washington
WIEN Naturhistorisches Museum, Wien
BMNH British Museum (Natural History), London

Thanks are extended to Dr. C. W. Sabrosky (U.S. Department of Agriculture) and Dr. P. Wygodzinsky (AMNH) for criticism and loan of specimens; to Dr. Ruth Lichtenberg (WIEN) who made available some of Brauer & Bergenstamm's types and to Mr. Roger Leeke (BMNH) for the notes on Wulp's types.

RELATIONSHIPS AND SYSTEMATIC STATUS OF THE GROUP

Brauer & Bergenstamm (1889: 146) and (1893: 159) erected the "Gruppe Oestrophasiidae" for two new genera, *Oestrophasia* and *Phasiopteryx*, the latter being regarded now as synonym of *Ormia* Robineau-Desvoidy and placed into a separate tribe Ormiini.

Brauer & Bergenstamm (1893: 218) placed the genera *Cenosoma* Wulp and *Euoestrophasia* Townsend in the synonymy of his *Oestrophasia* and Coquillett (1897) in his Revision of Tachinidae mistakenly regarded *Phasiopteryx* B. & B. as congeneric with *Oestrophasia* B. & B.

Townsend (1915) erected the family Oestrophasiidae for this complex recognizing two subfamilies; Ormiinae (which equals the family Phasiopterygidae Townsend, 1912) and Oestrophasiinae, the latter also including the genus *Phasiops* Coquillett.

Townsend (1936, 1938), in his Manual of Micology, erected the tribe Glaurocarini which together with other tribes, including Ormiini and Aulacephalini, comprised his family Oestridae. The following genera were assigned to the Glaurocarini: *Oestrophasia*, *Oestrocara*, *Oestrophasiana*, *Mesembrinormia*, *Jamacaria*, *Euoestrophasia*, *Doddiana*, *Cenosoma* and *Oestrocharis*. As recognized now the tribe Glaurocarini is confined to the Old World tropics and subtropics and is represented by two genera only, *Glaurocara* Thomson and *Doddiana* Curran (Crosskey, 1973). The New World forms assigned to the Glaurocarini were recently regarded by Guimarães (1971: 19) as belonging to the tribe Oestrophasiini, tentatively assigned to the subfamily Proseninae. The genus *Mesembrinormia* Townsend, monobasic, erected for *Mesembrina quadrilineata* Perty (misident.), a large species (9.5 mm) with arista long, plumose, which certainly does not belongs in this tribe, is probably synonymous of the genus *Huascaromusca* Townsend (Mesembrinellidae).

The male genitalia of the Oestrophasiini are very similar to those of the Old World Dufouriini *s. stricto* (cf. Verbeke, 1972: 106, pl. X), but it will be many years before the interrelationships of this difficult group, of which there is no information on immature stages or hosts, becomes clear.

TRIBE OESTROPHASIINI

Oestrophasiidae Brauer & Bergenstamm (1889): 145 (77) *partim*.
 Glaurocarini Townsend (1926): 529; (1936): 94 *partim*.

Small to medium sized species (4 to 6.5 mm). Eyes bare. Body color usually yellow with black markings. Head profile flattened or nearly disc-like (*Cenosoma*, *Euoestrophasia*, *Jamacaria*) to gently to strongly arcuate (*Oestrophasia*). Male head with the eyes not strongly approximated at vertex; ocelli usually raised; ocellars usually present. Inner verticals present in both sexes, usually convergent or crossed; male without proclinate orbitals; females with two or three pairs of reclinate orbitals. Parafacials bare. Parafrontalia with two or three rows of frontals (*Oestrophasia*) to one (remainder genera). Antennae well separated at bases; first two segments short; third segment once to twice as long as second; arista faintly micropubescent. Eyes not reaching vibrissal level. Epistoma in facial plane. Facialia flattened. Proboscis short. Palpi stout, moderately swollen at tip in female. Vibrissae present, sometimes scarcely differentiated from the peristomal setae (*Oestrophasia*). Wings hyaline, patterned with black markings; cell R 4+5 bare or bristled to *r-m*. Prescutum little over 1/2 length of scutum. Acrostichals 2-3: 3; dorsocentrals 2-3: 3. Sternopleurals 2. Scutellum with three pairs of laterals, one of apicals and discals. Abdomen swollen oval, rounded at tip. Abdominal T 1+2 and T 3 usually with a pair of median marginals to a complete row of marginals (male of *Jamacaria*); T 4 with a row of marginals; T 5 with a row of discals. Median discals on T 1+2 to T 4 are found in *Oestrophasia clausa* Coquillett.

KEY TO THE GENERA OF OESTROPHASIINI

1. Abdominal T 1+2 and T 3 with a distinct row of marginals in male (fig. 8); body color predominantly dark brown in ground color *Jamacaria* Curran
 Abdominal T 1+2 and T 3 without a row of marginals; body color usually yellow in ground color 2
2. Front in both sexes with one or two rows of numerous proclinate orbitals, the outer row divaricate in female; vibrissae usually weak, hardly differentiated from peristomal setae *Oestrophasia* Brauer & Bergenstamm
 Front in male without fronto-orbitals; female with 3 or 4 strong proclinate fronto-orbitals; vibrissae usually distinct from peristomal setae 3
3. Female with sternotheca; R 4+5 bare or with few bristles at base; male genitalia with surstyli and cerci slender .. *Cenosoma* Wulp
 Female without sternotheca; R 4+5 usually bristled to 1/4 to over 1/2 way to *r-m*; male genitalia with surstyli broad and spathulate at apex *Euoestrophasia* Townsend

Genus **Oestrophasia** Brauer & Bergenstammi

Key to species

1. Abdominal T 1+12 to T 4 with one to three pairs of median discals. Mesonotum predominantly black in ground color. Male with two rows of numerous proclinate fronto-orbitals, the outer row divaricate in female. Epaulet dark brown. (United States)

clausa

- Abdominal T 1+2 to T 4 without distinct median discals. Mesonotum mainly yellow. Male with one row of numerous fronto-orbitals. Epaulet yellow

2

2. Mesonotum, sternopleura and hypopleura usually black in male, yellowish in females. Postscutellum and basiscutellum black in both sexes (United States)

calva

- Mesonotum, sternopleura and hypopleura concolorous with pleura in male. Postscutellum and basiscutellum yellow in both sexes (S. Brazil)

uncana

***Oestrophasia calva* Coquillett**

(Fig. 5)

Oestrophasia calva Coquillett, 1902: 109. Type-locality, Williams, Arizona; Williston, 1908: 364, figs. 26, 27; Townsend, 1938: 230; Sabrosky & Arnaud, in Stone *et al.*, 1965: 979; Cole, 1960: 538; Guimarães, 1971: 20.

Male. Total length 3.5 to 6.0 mm

Head yellow. Front at vertex 0.70 of head width. Parafrontalia with two rows of frontals, the outer row divergent. Ocellar triangle black. Ocellars weak and parallel. Lunula broad. Antennae yellow, well separated at base. Arista brownish, third segment enlarged at basal one-third. Facialia bristled in the lower half. Facial plate flattened. Vibrissae not differentiated from peristomal setae. Genae covered with sparse black setulae. Occiput reddish yellow.

Thorax yellow. Mesonotum usually black in ground color. Postscutellum, basiscutellum and lateral postscutellar plate black; sternopleura and hypopleura mostly black. Legs yellow, claws and pulvilli elongate. Calypteres lightly infuscated. Epaulet yellow. Wings hyaline, patterned with black spots as in fig. 5.

Abdomen yellow, ovoconic. T 1+2 to T 5 with elongate black triangles on posterior margin.

Female. Total length, 4-6 mm

Differs from male in the following characters.

Front at vertex 0.37 of head width. Parafrontalia polished, yellow, with two rows of frontals, the inner row divergent. Inner verticals

about as long as outer verticals. Antennae yellow; third segment reddish. Arista reddish brown. Vibrissae sometimes distinct from peristomal setae. Facialia with few black setulae on the basal one-third. Thorax reddish yellow. Mesonotum and pleura without black markings; postscutellum and basiscutellum infuscated. Abdomen yellow, ovoconic. T 1+2 to T 4 with an elongate black fascia on posterior margin.

This species was described from Williams, Arizona. Recent records are from California to Texas, Michigan to Massachusetts south to Florida, also being recorded in Mexico.

Material examined. CANADA. Quebec, La Trappe (5 females, AMNH). UNITED STATES. Arizona: Cave Cr. Ranch, Cochise Co., Chiricahua Mts. (1 female, USNM); Portal, S.W. Res. Sta. (1 male, USNM). California: Camp Angelus (1 male, USNM); Chino, (1 male, MZSP); Riverside, upper Santa Ana River (1 female, USNM). Florida: Tall Timber Res. Sta. (2 females, USNM). New Jersey: Ocean Co., (1 female, USNM); Princeton (1 female, USNM). New Mexico: White Water Canyon, Catron Co. (1 male, USNM). New York: Riverhead (1 female, USNM). Virginia: E. Fall Church (1 female, USNM). MEXICO. Cuernavaca (1 female, USNM).

Oestrophasia clausa Brauer & Bergenstamm

(Fig. 27)

Oestrophasia clausa Brauer & Bergenstamm, 1889: 146 (1889: 78). Type locality: U.S.A., Colorado; Townsend, 1931: 82 (notes on type).

Oestrophasia setosa Coquillett, 1902: 110. Type-locality: U.S.A., Colorado.

Male. Total length 4.5-6.5 mm

Similar to *calva* in structure and color, except as follows.

Head reddish. Front at vertex 0.05 of head width. Frontals three rows of elongate and slender bristles, the inner pair convergent, outer two pairs divergent and forming two irregular rows (fig. 27). Antennae yellow; third segment brownish red; aristae blackish. Mesonotum usually almost entirely black, except for a small area in front of scutellum (the holotype of *setosa* has it predominantly yellow, with three well separated black spots behind the suture). Abdomen as in *calva*, except for presenting irregular cluster of median discals on T 1+2 to T 4. Legs yellow, tarsi blackish.

This species was designated as the type species of *Oestrophasia* Brauer & Bergenstamm by Townsend (1892). It was described from Colorado and recorded by Sabrosky & Arnaud (1965) from Utah, Idaho, California, Arizona and New Mexico.

Material examined. UNITED STATES. Colorado: Rio Grande County (1 male, USNM).

Genus **Oestrophasia** Brauer & Bergenstamm

Oestrophasia Brauer & Bergenstamm, 1889: 145; (1889: 11); 1893: 159; (1893: 77). Type-species, *clausa* Brauer & Bergenstamm (Townsend, 1892: 133); Brauer & Bergenstamm, 1893: 218, (1893: 130); Giglio-Tos, 1894: 52 (note); Coquillett, 1897: 70 (*partim*); Aldrich, 1905: 439 (*partim*); Williston, 1908: 369, figs. 26, 27; Townsend, 1938: 229; Cole, 1960: 538; Sabrosky & Arnaud, *in* Stone *et al.*, 1965: 974.

Oestrophasiana Townsend, 1931: 320. Type-species, *Dictya uncana* Fabricius (orig. des.). *N. Syn.*; Townsend, 1936: 96; Townsend, 1938: 230; Guimarães, 1971: 20.

Oestrophasiini with the following combination of characters. Reddish brown to yellowish species. Head profile semicircular, frontal profile gently to strongly arcuate, twice as long as facial profile. Parafrontalia swollen, wider than facial plate. Facial plate and facialis flattened. Vibrissae not differentiated from peristomal setae. Facialis with long cilia in the lower two-thirds. Male with two or three rows of frontals in male, the outer two pairs divergent. Female with 4 to 5 strong orbitals. Ocellars long and parallel in male, short and divergent in female. Mesonotum with prescutum little shorter than postscutum. Acrostichals 2:2; dorsocentrals 2:3. Scutellum with laterals 3, apical 1, and a short pair of discals. Wing with cell R 5 narrowly open on wing tip. R 4+5 with few setulae above in the basal one-fourth. Abdomen oval to cylindroconic, with rounded tip. T 1+2 and T 3 usually with a pair of median marginals; T 3 to T 5 with a row of marginals. T 3 to T 4 with two or three pairs of median discals and an incomplete row of discals on T 4 in *Oestrophasia clausa*.

***Oestrophasia uncana* (Fabricius)**

(Figs. 4, 6, 20 and 22)

Dictya uncana Fabricius, 1805: 330. Type-locality: "South America"; Townsend, 1931: 82 (note on type).

Oestrophasia uncana; Townsend, 1931: 320; Townsend, 1936: 96; *idem* 1938: 230; Guimarães, 1971: 20.

Male. Total length 6 to 7.5 mm

Head reddish yellow. Front at vertex 0.10 of head width. Parafrontalia with a row of up to 8 proclinate orbitals. Ocellar weak. Inner verticals convergent; outer verticals divergent. Lunula covered with thin black cilia on upper half. Antennae well separated at base; third segment orange. Arista orange, finely pubescent, enlarged at basal one-third. Vibrissae not distinct from peristomal setae. Occiput reddish yellow.

Thorax reddish yellow; mesonotum with a brown spot behind the suture between the dorsocentrals and postsupraalars. Postscutellum and basiscutellum reddish brown; sternopleura and hypopleura sometimes infuscated on the anterior half. Legs yellow; claws and pulvilli short. Wings as in fig. 20.

Female. Total length 6 mm

Front at vertex 0.38 of head width. Frontalia orange. Ocellars weak and divergent, longer than postocellars; inner verticals convergent. Parafrontalia with two rows of frontals, the outer pair with proclinate and divergent bristles. Lunula with fine slender setae above.

Abdomen yellow, ovoconic. Abdominal T 1+2 and T 3 with a row of marginals; T 4 with a row of marginals; T 5 with a row of discals. T 1+2 with a distinct elongate black spot on middle; T 3 and T 4 with a median triangular spot and a black transversal fascia on posterior one-sixth; T 5 with a dorsal triangular spot on middle just behind the discal row, and two lateral black spots on sides not visible from above.

Material examined. BRAZIL. São Paulo: Estação Biológica de Boracéia, Salesópolis (two males, one female, MZSP); Campos do Jordão, (1 female, MZSP).

Jamacaria Curran

Jamacaria Curran, 1928: 42. Type-species, *albofenestrata* Curran (orig. des.); Townsend, 1936: 96; 1938: 225; Curran, 1934: 461; Guimarães, 1971: 20.
Jamaicaria, error.

Differs from all Oestrophasiini by presenting a row of marginals in all abdominal segments in male (fig. 8). Females not distinct from those of *Euoestrophasia* Townsend.

***Jamacaria albofenestrata* Curran**

(Figs. 2, 8 and 18)

Jamacaria albofenestrata Curran, 1928: 42. Type-locality, Jamaica, Cinchona; Curran, 1934: 461; Guimarães, 1971: 20.

Head, legs and abdomen reddish brown. Thorax shining black; wings brown with hyaline spots (fig. 18).

Male. Total length 5 mm

Head reddish brown. Occiput black. Parafrontalia shining brown, silvery white pollinose. Frontals 10 to 12, not reaching below base of antennae. Front narrow on the upper two-fifths, strongly widened below; ocellars weak; outer verticals almost as long as verticals. Palpi and antennae reddish.

Thorax shining black; humeri, propleura and postscutellum brownish red, the latter darker basally; mesonotum thinly testaceous pollinose from anterior view; pleura brownish gray pollinose, with a pollinose fascia on humeri, notopleura and on either side along the suture. Legs reddish; tibiae somewhat darker; tarsi blackish, except basally. Wings deep brown, with hyaline spots (fig. 18). Squammae brownish.

Abdomen shining brown. Chaetotaxy as in fig. 8.

Female. Total length 3.5 mm

Differs from male in the following characters.

Head at vertex 0.34 of head width. Head profile gently rounded, almost parallel to eye margin; inner verticals long and convergent; parafrontalia brownish red, silvery pollinose with three pairs of reclinate orbita, the middle pair weaker. Frontalia brownish. Ocellar long and divaricate. Parafacialia pale yellow, silvery pollinose; antennae yellow, third segment brownish below arista. Palpi yellow. Occiput blackish above foramen. Legs reddish brown.

Abdomen ovoconic, shining reddish yellow; posterior half of T 4 and T 5 dark brown. T 1+2 with an incomplete row of marginals; T 3 and T 4 with a row of marginals; T 5 with a row of discals. Female genitalia ventrally not ending into a piercing organ.

Material examined. JAMAICA. Cinchona, (1 male, paratype AMNH); Portland, 1 mi E. of Caledonia Park (1 female, USNM).

Genus *Cenosoma* Wulp

Cenosoma Wulp, 1890: 44 (key). Type-species, *signiferum* (sub. mon.; Wulp, 1890: 166); Brauer & Bergenstamm, 1893: 218 (as synonym of *Oestrophasia*); Coquillett, 1897: 70 (as synonym of *Oestrophasia*); Townsend, 1936: 97; Townsend, 1938: 221; Sabrosky & Arnaud Jr., 1965: 979; Cole, 1969: 538; Guimarães, 1971: 19.

Oestrophasiini with the following combination of characters. Head profile very flattened, nearly circular; frontal profile gently arcuate, nearly twice facial; vibrissae well differentiated from peristomal setae. Parafrontalia not swollen, about one-half width of facial plate in male. Facial plate flattened. Frontals, one row in both sexes; two or three proclinate orbita in female. Wings with R 4+5 bare or with few cilia at base. Abdomen oval, with rounded tip; T 1+2 and T 3 with a pair of median marginals; T 4 with a row of marginals; T 5 with a strong row of discals. Female genitalia ending into a pointed piercing organ (sternotheca).

Key to species

1. Male and female with a circular black spot on pteropleura (Fig. 14) (Brazil, Guyana, Trinidad) *thompsoni*, sp. n. Pteropleura yellow 2
2. Abdomen shining black in ground color, yellowish on base; mesonotum reddish yellow (United States, Fla.) ... *sabroskyi* sp. n. Abdomen yellow in ground color; mesonotum yellow to reddish, sometimes with two or four black spots on sides near outer edge (figs. 10 and 11). (Mexico, Central America, United States) *signiferum* Wulp

Cenosoma thompsoni, sp. n.

(Figs. 10, 14 and 19)

A small yellow fly. Mesonotum with four distinct black spots (fig. 10). Pteropleura with a round black spot (fig. 14).

Male. Total length 5.5 mm

Head yellow. Front at vertex 0.11 of head width. Ocellar triangle prominent, dark brown. Antennae yellow; third segment orange. Occiput yellow, tinged with brown on upper half, covered with sparse black cilia.

Thorax yellow. Mesonotum with five black spots; two circular on sides of prescutum and three subtriangular on scutum. Wings hyaline (fig. 19). Pteropleura with a circular black spot. Postscutellum tinged with brown. Sternopleura and hypopleura tinged with brown. Legs yellow; claws and pulvilli yellow.

Abdomen yellow. T 1+2 to T 4 with an interrupted black fascia on posterior margin.

Female. Total length 3 to 5.5 mm

Differs from male in the following characters.

Parafrontalia and parafacialia polished yellow. Front at vertex 0.40 of head width. Ocellars proclinate and divergent. Inner verticals convergent. Frontals 6 to 8, the upper pair strong and reclinate. Proclinate orbitals 3 or 4, the upper two pairs weak. Lunula covered with small black cilia on middle. Antennae yellow; second segment about 0.40 length of third; arista yellow, micropubescent, enlarged on basal one-fifth. Vibrissae well differentiated. Occiput yellow, without black markings.

Mesonotum as fig. 10. Pleura yellow. Pteropleura with a round brown spot on anterior half (fig. 14). Postscutellum and basiscutellum infuscate but not deeply black as in other forms. Wings as in *signiferum*, R 4+5 bare or with few cilia at base.

Abdomen yellow. T 1+2 with a pair of median marginals, sometimes absent.

Holotype female. BRASIL. São Paulo: Barueri, 8.III.1966, Karol Lenko col. (MZSP). Paratypes. 2 females, same data as holotype, 1.III.1966, 13.IV.1957, (MZSP); 1 female, BRAZIL. São Paulo: Cássia dos Coqueiros, Cajuru, X.1954, M. P. Barreto (MZSP); 1 female, São Paulo: Imbariê, VII.1961, M. Alvarenga (MZSP); 1 male GUYANA, Parrish col. (USNM).

Cenosoma sabroskyi, sp. n.

(Fig. 25)

Small species. Head and thorax reddish yellow. Abdomen shining black, yellowish on base. Wings hyaline with two transverse black fascia (fig. 25). Legs yellow; middle and hind tibiae infuscate.

Female. Total length 4 mm.

Head reddish yellow. Front at vertex 0.32 of head width. Ocellar triangle black. Ocellars slender and divergent. Parafrontalia and parafacialia polished yellow. Parafrontalia with a row of four proclinate black cilia on upper half. Lunula with few black cilia on middle. Antennae yellow; arista infuscate, as long as antennae.

Thorax reddish. Postscutellum infuscate. Wings hyaline, patterned with black fascia as in fig. 25. Upper squamiae white; lower squamiae brownish. Legs yellow, middle and hind tibiae infuscated. Abdomen black, yellowish on sides of T 1+2.

Holotype female. UNITED STATES. *Florida*: Monroe Co., 26.III. 1971, W. H. Pierce (USNM); Paratypes. 1 female, Coral Gables, 3.VIII.1964, W.M.S. Blanton (USNM).

***Cenosoma signiferum* Wulp**

(Figs. 11 and 19)

Cenosoma signiferum Wulp, 1890: 167. Type-locality: Mexico, Guerrero, Chilpancingo; Townsend, 1931: 83 (notes on type); 1938: 221; Sabrosky & Arnaud Jr., in Stone *et al.*, 1965: 979; Guimarães, 1971: 19 (host).

Oestrophasia signifera; Brauer & Bergenstamm, 1893: 159; Coquillett, 1897: 70; Aldrich, 1905: 440.

Small yellow fly. Mesonotum yellow. Female sometimes with two or four black spots on sides of mesonotum near outer edge (fig. 11). Sternopleura, hypopleura, basiscutellum and postscutellum usually tinged with brown in male. Pteropleura yellow in both sexes.

Male. Total length, 4.5 mm.

Head yellow. Frontalia orange. Front at vertex 0.12 of head width. Ocellar triangle dark brown, ocellars weak. Antennae yellow; third segment orange; arista finely pubescent; third segment slightly thickened at base. Occiput yellow, sometimes tinged with brown on upper half.

Thorax yellow to orange in ground color. Mesonotum sometimes with one or two small black spots on sides. Postscutellum, basiscutellum, sternopleura and hypopleura sometimes tinged with brown. Legs yellow, middle tibiae infuscated. Wings hyaline (fig. 19), with a brown band near apex, a much narrower band from R 1 to Cu 1 enclosing *r-m* where it blends with a band extending from the wing base along Cu₁. Epaulet black.

Abdomen yellow, with one to three spots or fasciae above, close to hind margin of T 3 and T 4; T 5 sometimes with three rounded black spots on apex when viewed from behind.

Female. Total length 4.5-5.5 mm.

Differs from male in the following characters.

Front at vertex 0.34-0.37 of head width. Parafrontalia with three or four proclinate orbita. Mesonotum yellow to orange, without black spots.

Material examined. UNITED STATES. *California*: S. Fork Sta. Ana (1 female, USNM). *Delaware*: Water Gap (2 females, AMNH). *Florida*: Gainesville (1 female, USNM). *Georgia*: Atlanta (1 female, USNM). *New York*: Rahway (1 female, USNM), Cold Spring Harbor (1 female, 1 male, USNM), Inwood Park (1 male, AMNH). *Nevada*: Mercury (1 male, USNM). *New Hampshire*: Franconia (1 male, AMNH). *North Carolina*: L. Toxaway (1 female, AMNH). *Pennsylvania*: German Town (2 females, USNM). *Virginia*: Great Falls (2 females, USNM). COSTA RICA. La Suiza de Turrialba (1 male, USNM).

The pattern of black spots occurring on mesonotum of males is highly variable. The type specimen from Guerrero, Mexico, in the British Museum has a small black spot on sides of scutum. In a series of four specimens from Costa Rica, this character ranges from two to four black spots to no spot. This character was not observed in specimens occurring in North America. Similarly the brown infuscation of postscutellum basiscutellum, sternopleura and hypopleura varies of intensity, being absent in some specimens.

In the files of the U.S. National Museum there is a record of *Cenosoma signiferum* as reared from *Colaspis pini* Barber (Col., Chrysomelidae) at Clinton, Lake Charles, and Baton Rouge, La, June 14, July 11, 1961, H.W. Echols (det. C.W. Sabrosky). Apparently this is the only host record for the entire tribe in the Nearctic region (see Guimarães, 1971: 19).

Genus *Euoestrophasia* Townsend

Euoestrophasia Townsend, 1892: 123. Type-species, *aperta* Brauer & Bergenstamm (mon.); Brauer & Bergenstamm, 1893: 130 (*partim*); Coquillett, 1897: 70; Townsend, 1936: 97; Townsend, 1938: 223; Guimarães, 1971: 14.

Oestrophasiini with the following combination of characters. Yellowish to reddish brown species. Head profile semicircular. Frontal profile slightly arcuate and nearly twice as long as facial profile. Facialia flattened. Vibrissae well differentiated from peristomal setae. Inner verticals strong and decussate in female; outer verticals strong and divergent in male, small and slender in female. Male with a row of slender and convergent frontals. Female with a row of about 8-10 cruciate frontals, the upper pair reclinate. Parafrontalia with two proclinate orbita in female. Frontalia slightly wider than parafacialia at antennae level. Ocellars slender and proclinate. Acrostichals 2:3; dorsocentrals 3:3; posthumerals 2; intraalars 2; supraalars 2; postalars 2. Scutellum with three pairs of laterals, one strong pair of apicals and discals. Sternopleurals 2. Wings hyaline; R 4+5 bristled 2/3 way to *r-m*. Abdomen ovate. T 1+2 with a small pair of median marginals usually present; T 3 with a strong pair of median marginals; T 4 with a row of marginals; T 5 with a row of discals. Female genitalia not forming a pointed piercing organ.

Key to species

1. Mesonotum with six broad, usually coalescent, black spots (fig. 9); sternopleura and hypopleura tinged with black; postscutellum and basiscutellum black (fig. 13) (S. Brazil) *aperta* (B. & B.)
Mesonotum yellow without black markings 2
2. R 4+5 bare or with few black setulae dorsally at base; middle and hind tibiae reddish brown to black 3
R 4+5 bristled 1/4 to over 1/2 way to *r-m*; middle and hind tibiae concolorous with femur 4
3. Abdomen black in ground color; postscutellum and basiscutellum yellow; ocellars absent. (Puerto Rico) *portoricensis*, sp. n.
Abdomen yellow in ground color; postscutellum and basiscutellum black to brownish in males, yellowish in females; ocellars present (Panama) *panamensis*, sp. n.
4. Sternopleura and hypopleura yellow 5
Sternopleura and hypopleura tinged with black; postscutellum and basiscutellum tinged with brown (S. Brazil) *crosskeyi*, sp. n.
5. Postscutellum and basiscutellum yellow (S. Brazil) *plumanni*, sp. n.
Postscutellum and basiscutellum tinged with brown 6
6. Wings with *r-m* encircled by a black spot (S. Brazil) *townsendi*, sp. n.
Wings with a transverse black fascia on middle, enclosing *r-m*. (Guatemala) *guatemalensis*, sp. n.

***Euoestrophasia aperta* (Brauer & Bergenstamm)**

(Figs. 3, 7, 9, 13 and 14)

Oestrophasia aperta Brauer & Bergenstamm, 1889: 146, (1889: 78).

Type-locality, Brazil, Rio Grande do Sul (holotype examined).

Euoestrophasia aperta; Townsend, 1931: 83.

Small to medium sized species. Mesonotum mostly black above, with six broad black vittae (fig. 9). Sternopleura, hypopleura, postscutellum and mediotergite black.

Male. Total length 4.5 to 6.5 mm.

Head yellow. Front at vertex 0.16 of head width. Ocellar triangle black; ocellars long and proclinate, more robust than inner verticals; frontals 10 to 12, long and convergent. Parafrontalia pale yellow, somewhat bulged above antennae, shining on lower half (figs. 3 and 7). Antennae yellow; third segment orange. Arista brown, finely pubescent; third segment enlarged on basal one-fifth. Lunula with scattered black cilia. Vibrissae long, convergent, well differentiated above epistoma. Gena covered with long and thinly black cilia. Occiput yellow with U-shaped black markings around occipital foramen.

Thorax reddish yellow. Mesonotum with six broad, coalescent black vittae (fig. 9). Pteropleura somewhat infuscated at level of lower mesopleurals (fig. 13). Wings as in *townsendi* sp. n. (fig. 17). R 4+5 ciliate beyond middle way to *r-m*. Legs yellow, last two tarsal segments reddish brown; claws and pulvilli elongate.

Abdomen yellow, ovoconic, with a median black triangular spot on each segment. Chaetotaxy as in *uncana*, except for lacking median marginals on T 1+2. Genitalia as in fig. 24.

Material examined. BRAZIL. *São Paulo*: Barueri (5 males, MZSP). *Santa Catarina*: Nova Teutônia (8 males, MZSP). *Rio Grande do Sul*: (1 male, WIEN). ARGENTINA. *Buenos Aires*: Tigre (1 male, MZSP).

Through the kindness of Dr. Ruth Lichtenberg, Naturhistorisches Museum, Wien, it has been possible to study the type-specimen of *Oestrophasia aperta* Brauer & Bergenstamm and confirm its identity. The specimen is somewhat molded, with the right wing damaged and labelled as follows: Stieglmayr, Rio Gr. do Sul / *aperta* det. B. B.

***Euoestrophasia guatemalensis*, sp. n.**

Medium sized species. Sternopleura and hypopleura yellow; postscutellum and basiscutellum tinged with brown. Wings with a transverse black fascia on middle, enclosing *r-m*.

Male. Total length 5.0 mm

Front at vertex 0.12 of head width. Head yellow, thinly white pollinose. Occiput with black spot on middle. Antennae orange yellow; arista with third segment finely pubescent, distinctly swollen at base.

Thorax shining yellow. Postscutellum, basiscutellum and lateral postscutellar plate tinged with black. Wings hyaline, with apical black spot on apical third and transverse median fascia enclosing *r-m*. Legs yellow, hind femora little infuscate.

Abdomen yellow. Abdominal T 3 and T 4 with a transverse black fascia on posterior third; T 5 rounded, with a black triangular spot on apex and two rounded black spots laterally.

Holotype male. GUATEMALA: Antigua, X.1965. N.H.L. Krauss (USNM).

***Euoestrophasia portoricensis*, sp. n.**

(Fig. 26)

Small species. Head and thorax yellow. Legs yellow, femora and tarsi brownish. Epaulet yellow. Abdomen shining black.

Female. Total length 3.5 mm.

Head yellow, front at vertex 0.27 of head width. Ocellar triangle yellow; ocellars absent. Inner and outer verticals well developed. Frontalia reddish. Antennae yellow; arista reddish brown, longer than antennae. Occiput yellow, with scattered bristles on lower two-thirds.

Thorax yellow, without black markings. Wings mostly black patterned, as in fig. 26. Squammae black. Base of costa, regimium and epaulet yellow. Legs yellow; tibiae and tarsi brownish.

Abdomen oval, shining black. Abdominal T 1+2 without median marginals.

Holotype female. PUERTO RICO: Maricao, VIII.10.1968, D. Galindo Tayo (USNM).

Euoestrophasia panamensis, sp. n.

Medium sized species. Thorax yellow without black markings. Wings with R 4+5 with few black cilia on base. Middle and hind femora reddish brown; front femora infuscate.

Male. Total length 6 to 6.5 mm.

Head yellow. Front at vertex 0.10 of head width. Ocellar triangle black. Parafrontalia and genae shining yellow. Antennae yellow. Arista brownish; third segment finely pubescent and little enlarged on basal one-fourth. Occiput mostly black on upper half.

Thorax yellow. Postscutellum, basiscutellum, and part of lateral postscutellar plate tinged with black. Legs yellow, middle and hind femora reddish brown. Wings hyaline, black markings as in *twinsendi* sp. n. (fig. 17); R 4+5 with four or five bristles at base; *r-m* encircled with a black spot. Epaulet black.

Abdomen yellow. T 1+2 with a slender pair of median marginals; T 4 with black spots on posterior margin; T 5 with two rounded black spots on sides.

Female. Total length 5 mm.

Differs from male in the following characters.

Head at vertex 0.34 of head width; middle and hind femora brownish. Abdomen ovoconic. T 3 and T 4 with black fascia on posterior one-fourth. T 5 with three distinct round spots, when viewed from behind.

Holotype male. PANAMA. *Canal Zone*: Loma Borracha, 18.VI.1952 F.S. Blanton (USNM). Paratypes. 1 male Ft. Gulick, *Canal Zone*, 2.VIII.1952, F.S. Blanton; two females, Loma Borracha, *Canal Zone*, 29.XI.1952, 6-18.VI.1952, F.S. Blanton (USNM); 1 female, Barro Colorado, *Canal Zone*, 1-2.II.1941, K.W. Cooper (USNM).

Euoestrophasia crosskeyi, sp. n.
(Fig. 15 and 21)

Small yellowish fly. Mesonotum without black markings. Postscutellum and basiscutellum dark brown. Lateral postscutellar plate with a black streak close to halteres. Hypopleura with a black spot on lower half. Sternopleura infuscated on anterior half.

Head yellow. Front at vertex 0.17 of head width. Parafrontalia with a row of 10 to 12 thin frontals. Ocellar triangle black; ocellars thin and parallel; postocellars as long as ocellars; inner verticals about as long as outer verticals. Antennae orange yellow; second segment 0.70 of length of third. Arista yellow, finely pubescent. Vibrissae well differentiated from the peristomal setae. Gena covered with thin elongate bristles. Occiput with a transverse black stripe close to occipital foramen.

Thorax yellow in ground color; mesonotum and scutellum without black markings. Acrostichals 3:3; dorsocentrals 3:3. Pleura yellow with a small brown spot on the lower half of hypopleura (fig. 15). Sternopleura infuscated on anterior half; postscutellum brown on the lower half; basiscutellum brown; lateral postscutellar plate with a black streak. Legs yellow; claws and pulvilli elongate. Wings hyaline, faintly yellow on base, patterned as in fig. 21; apical cell narrowly opened in wing tip.

Abdomen yellow, somewhat longer than wide, with a small triangular black spot on middle of T 1+2 to T 5.

Holotype male. BRAZIL. *Minas Gerais*: Serra do Caraça, 24.II. to III.1972. Martins, Demets, & Vanin (MZSP). Paratype. 1 male BRAZIL. *Rio de Janeiro*: Teresópolis, I.1940. Travassos & Freitas (MZSP).

Euoestrophasia plaumanni, sp. n.
(Figs. 1, 16)

Yellow fly. Mesonotum pleura without black markings; postscutellum and basiscutellum yellow.

Female. Total length 4.0 to 5.5 mm.

Head yellow (fig. 1). Parafrontalia and parafacialia shining yellow. Front at vertex 0.34 of head width. Inner verticals convergent, a little longer than outer verticals; frontals 8. Parafrontalia with three proclinate orbita, the upper pair divergent. Ocellars robust and divergent, longer than postocellars. Vibrissae well differentiated from peristomal cilia. Occiput yellow. Antennae light orange yellow; second segment 0.70 length of third.

Thorax and legs yellow, without black markings. Wings as in fig. 16.

Abdomen yellow. Abdominal T 1+2 with a small black median spot; T 3 with a triangular black spot on level of median marginals; T 4 with a median triangular black spot on margin; T 5 with an elongate median yitta and two elongate spots on sides not visible from above.

Holotype female. BRAZIL. *Santa Catarina*: Nova Teutônia, IV.1967. F. Plaumann (MZSP). Paratypes. 1 female, *São Paulo*: Itaquaquecetuba, 22.X. C.H.T. Townsend (USNM); 1 male, *São Paulo*: Raiz da Serra, IV.1923, Spitz (MZSP); 1 female, *Minas Gerais*: Serra do Caraça, 24.II-3.III.1972, Martins, Demets & Vanin (MZSP); 10 females; *Santa Catarina*: Nova Teutônia, V.1960, VIII.1963, I.1965, XII.1965, I.1966, II.1966, XI.1966, IV.1967, IX.1967, F. Plaumann (MZSP); 1 female, ARGENTINA. *Buenos Aires*, III.1957 (USNM).

Euoestrophasia townsendi, sp. n.
(Figs. 17 and 23)

Small yellow fly. Mesonotum and pleura without black markings. Postscutellum and basiscutellum black.

Male. Total length 4 mm.

Head yellow. Front at vertex 0.12 of head width. Ocellar triangle black; parafrontalia with a row of 9 slender frontals. Inner verticals convergent, shorter than outer verticals. Antennae light orange yellow; second segment 0.70 length of third. Arista light yellow, finely pubescent, slightly enlarged at base. Vibrissae long and decussate. Palpi yellow. Occiput tinged with brown around occipital foramen.

Mesonotum yellow. Postscutellum and basiscutellum black. Lateral postscutellar plate tinged with brown just above halter. Legs yellow; claws and pulvilli elongate. Wings faintly infuscate, patterned as in fig. 17. R 4+5 ciliated to r_m .

Abdomen yellow in ground color. T 1+2 with a black median spot; T 3 and T 4 with a median triangular spot and two lateral elongate markings on posterior margin; T 5 with elongate spots on sides. Genitalia as in fig. 23.

Female. Total length 5.0 to 6.0 mm

Differs from male in following characters.

Front at vertex 0.38 of head width. Arista brown. Claws and pulvilli short. Parafrontalia with three strong reclinate orbita. Abdomen as in male, except for lacking the lateral round spots on sides of T 5.

Holotype male. BRAZIL. Santa Catarina: Nova Teutônia, VII.1963. F. Plaumann (MZSP). Paratypes. 2 females, Rio de Janeiro: Serv. Febre Amarela, MES, X.1938, (USNM); 1 male, 3 females, Santa Catarina, Nova Teutônia, VII.1963, IV.1966 and IV.1971, F. Plaumann (MZSP); 1 female, URUGUAY: Montevideo, S. A. Paras. Lab. 19. X.1942, Silveira (USNM).

REFERENCES

ALDRICH, J. M.

1905. A catalogue of North American Diptera. *Smithson. Misc. Coll.* 46 (2): 1-680.

BRAUER, F. & J. E. VON BERGENSTAMM

1889. Die zweiflügler des Kaiserlichen Museum zu Wien. IV Vorarbeiten zu einer Monographie der Muscaria Schizometopa (Exclusive Anthomyidae). Pars I. *Denksr. Akad. der Wissen., Wien, Math.-Nat. Cl.* 56 (1): 69-180, 11 pls. (also published separately in Wien, 1889, 112 pp.).

1893. *Ibidem* 60: 89-240.

COLE, F. R.

1969. *The Flies of Western North America* 603 pp. illus., University of California Press, Berkeley & Los Angeles.

COQUILLETT, D. W.

1897. Revision of the Tachinidae of America north of Mexico. A family of parasitic two-winged insects. *Proc. U. S. Dept. Agric., Div. Ent., Tech. Ser.* 22: 249-270.

CROSSKEY, R.

1965. The immature stages and affinities of the tachinid fly *Glaurocara flava*, a parasite of the African bush-cricket *Homocoryphus nitidulus vicinus*. *Proc. zool. Soc. Lond.* 144: 203-217.

CURRAN, C. H.

1928. Records and descriptions of Diptera mostly from Jamaica. In C. C. Gowdey: Catalogus insectorum jamaicensis. *Ent. Bull. Dept. Agric. Jamaica* 4 (3): 29-45.

1934. *The families and genera of North America Diptera*. 512 pp., 235 figs., New York.

GIGLIO-TOS, E.

1894. *Ditteri del Messico*. Pt. 3, 76 pp., 1 pl., Torino (also published in *Mem. R. Acad. delle Sci. Torino* 44: 473-546, 1 pl., 1894).

GUIMARÃES, J. H.

1971. Família Tachinidae (Larvaevoridae). In Museu de Zoologia, Universidade de São Paulo. *A catalogue of the Diptera of the Americas South of the United States*, 104: 1-333.

MESNIL, L. P.

1966. Larvaevoridae (Tachininae) [cont.]. Fam. 64 g. pp. 881-928. (= Lfg. 263). In Lindner, E. ed., *Die Fliegen der Palaearktischen Region*, Stuttgart.

PARKER, H., P. A. BERRY & A. SILVEIRA

1950. Vegetable weevils and their natural enemies in Argentina and Uruguay. *U. S. Dept. Agr., Tech. Bull.*, 1016: 1-28, 8 figs.

SABROSKY, C. W. & P. H. ARNAUD JR.

1965. Tachinidae (Larvaevoridae). In Stone, A. et al. A catalog of the Diptera of America north of Mexico. *Agric. Handb.* 276, U. S. Department of Agriculture, 1696 pp.

TOWNSEND, C. H. T.

1892. The North American genera of Calyptrate Muscidae. Paper II. *Trans. Amer. Ent. Soc.*, 19: 133-134.

1912. Descriptions of new genera and species of muscoid flies from the Andean and Pacific coast regions of South America. *Proc. U. S. Natl. Mus.*, 43 (1931): 301-367.

1915. The family Oestrophasiidae and other notes. *Proc. ent. soc. Washington*, 17: 53-54.

1926. New muscoid flies of the Oriental, Australian, and African faunas. *Philipp. Journ. Sci.* 29(4): 529-544.

1931. New genera and species of American Oestromuscoid flies. *Rev. Ent.*, São Paulo, 1: 313-354.

1936. *Manual of Myiology, in twelve parts*. Part 3. Oestroid classification and habits (Gymnosomatidae to Tachinide). 250 pp., São Paulo.

1938. Ibidem pt. 7., 434 pp., São Paulo.

VERBEKE, J.

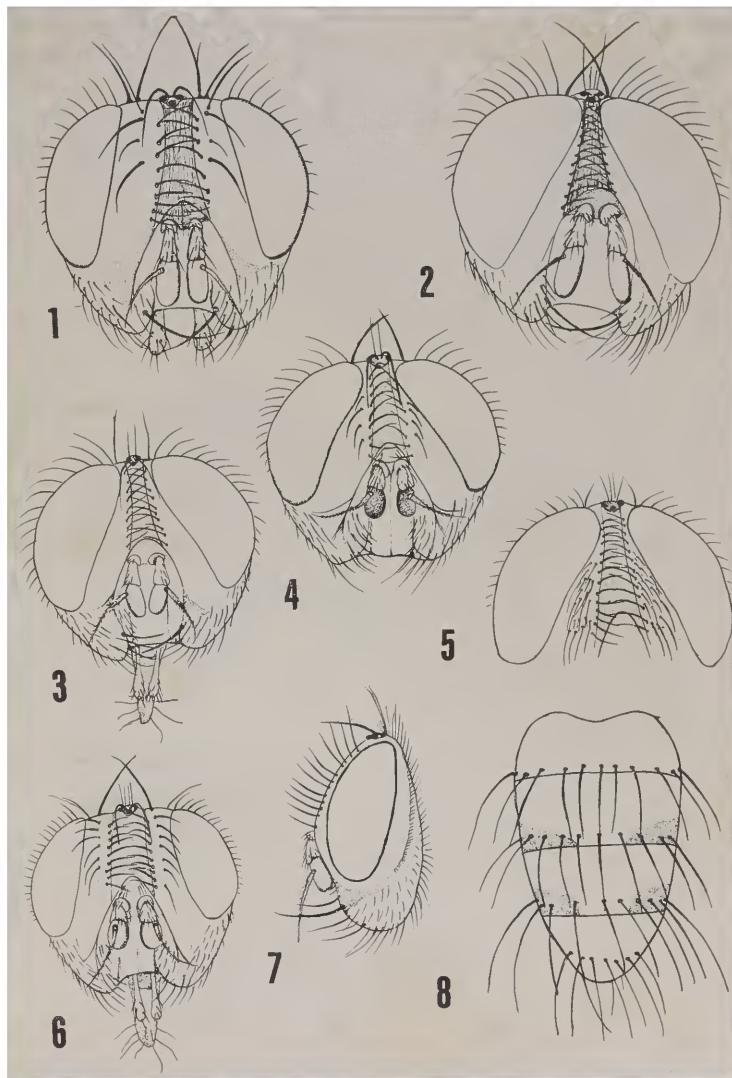
1962. Contribution à l'étude des Tachinidae africains (Diptera). 1. Description et valeur taxonomique des genitalia males. 2. Imitomyini, Palpostomatini et Ethyllini nouveaux ou peu connus. *Expl. Hidr. Lacs Kivu Edouard et Albert* 3(4): 79-187, 28 pls.

WILLISTON, S. W.

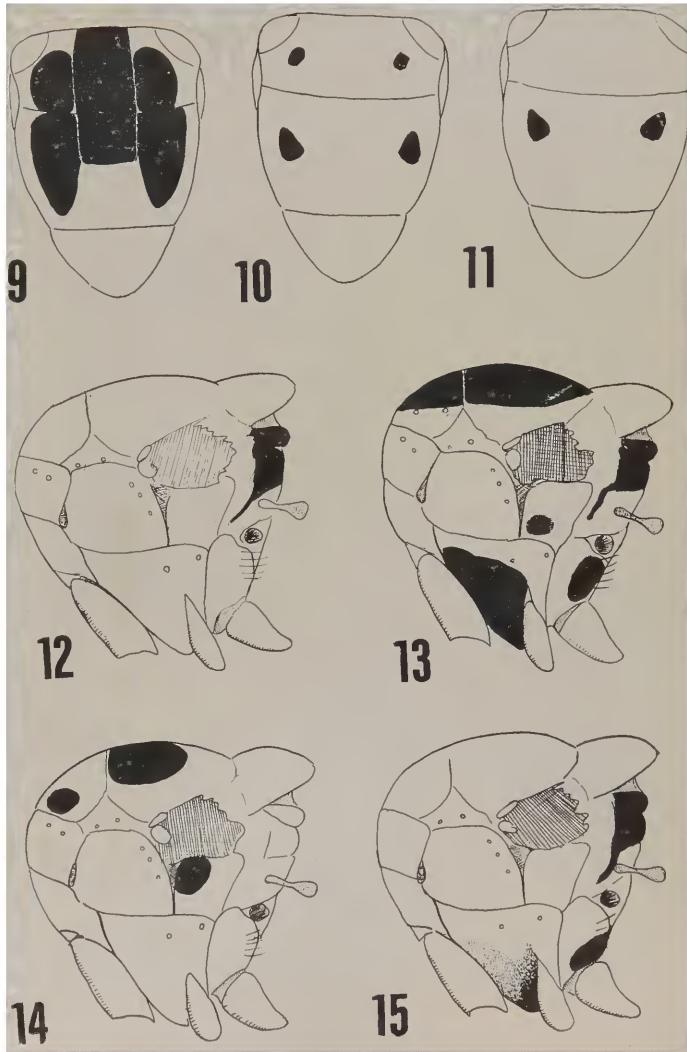
1908. *Manual of North American Diptera*, 3rd Ed., 405 pp., illus., New Haven, Conn.

WULP, F. M. VAN DER

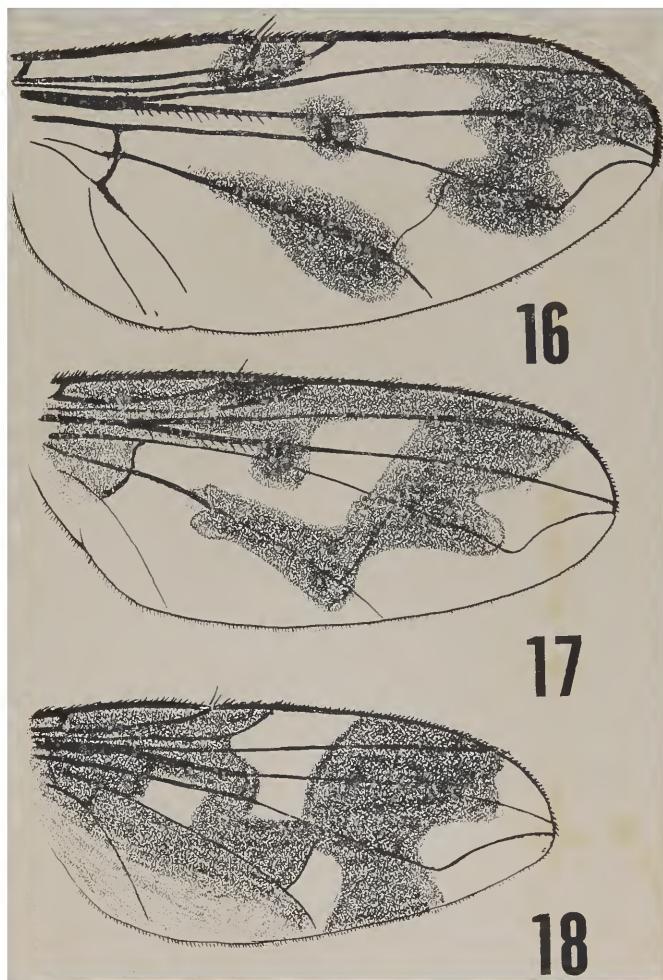
1890. Fam. Muscidae, pp. 273-281 (cont.). In Godman, F. O. & Salvin, O. eds., *Biologia Centrali Americana, Zoologia, Insecta-Diptera*, Vol. 2, illus., London.



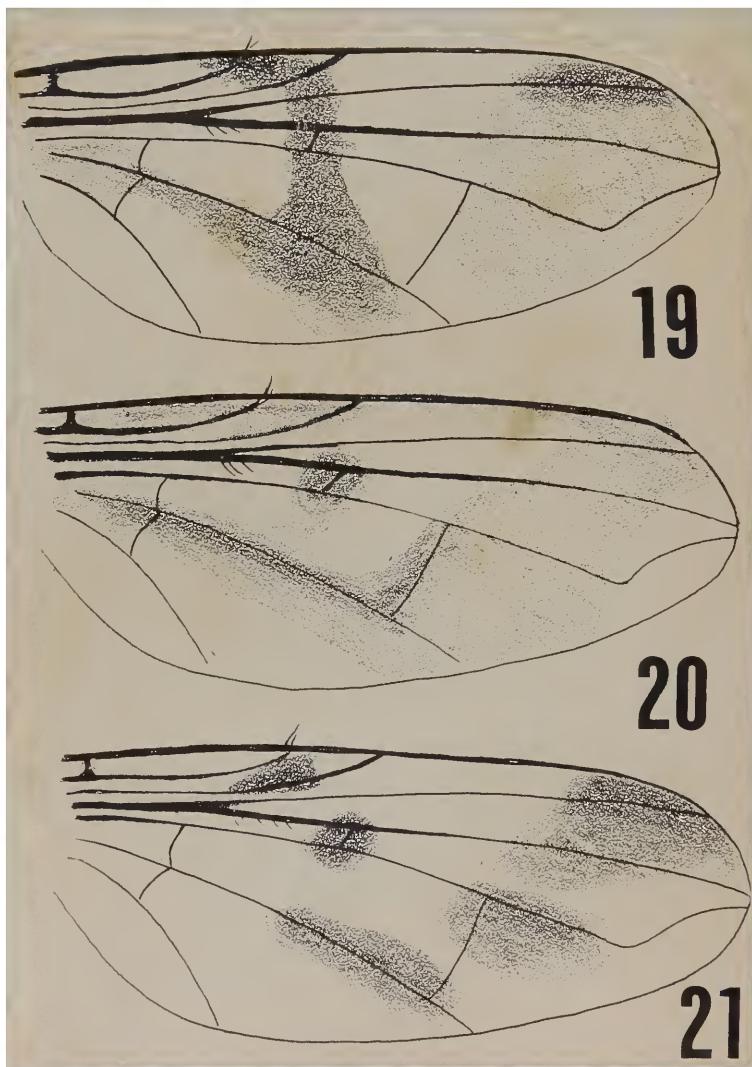
Figs. 1-6: Head, frontal view, of *Euoestrophasia plaumanni* (1), *Jamaicaria albofenestrata* (2, ♂), *Euoestrophasia aperta* (3, ♂), *Oestrophasia uncana* (4, ♂), *O. calva* (5, ♂; detail), and *O. uncana* (6, ♀). Fig. 7: *Euoestrophasia aperta*, ♂ head, lateral view. Fig. 8: Abdomen of *Jamaicaria albofenestrata* (♂).



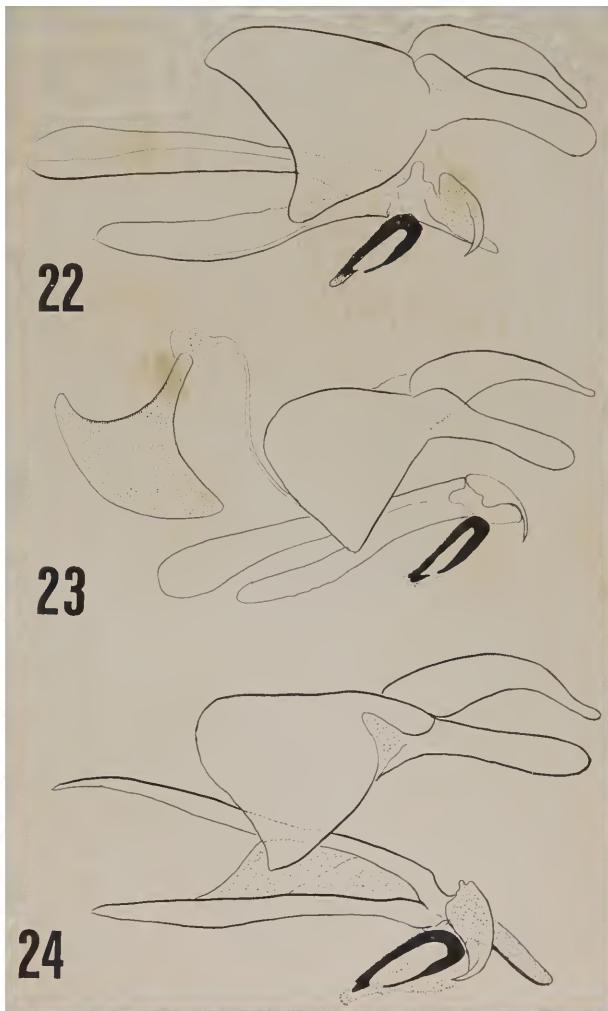
Figs. 9-11: Mesonotum, dorsal view, of *Euoestrophasia aperta* (9), *Cenosoma thompsoni* (10), and *C. signiferum* (11). Figs. 12-15: Thorax, lateral view, of *Euoestrophasia townsendi* (12), *E. aperta* (13), *Cenosoma thompsoni* (14) and *Euoestrophasia crosskeyi* (15).



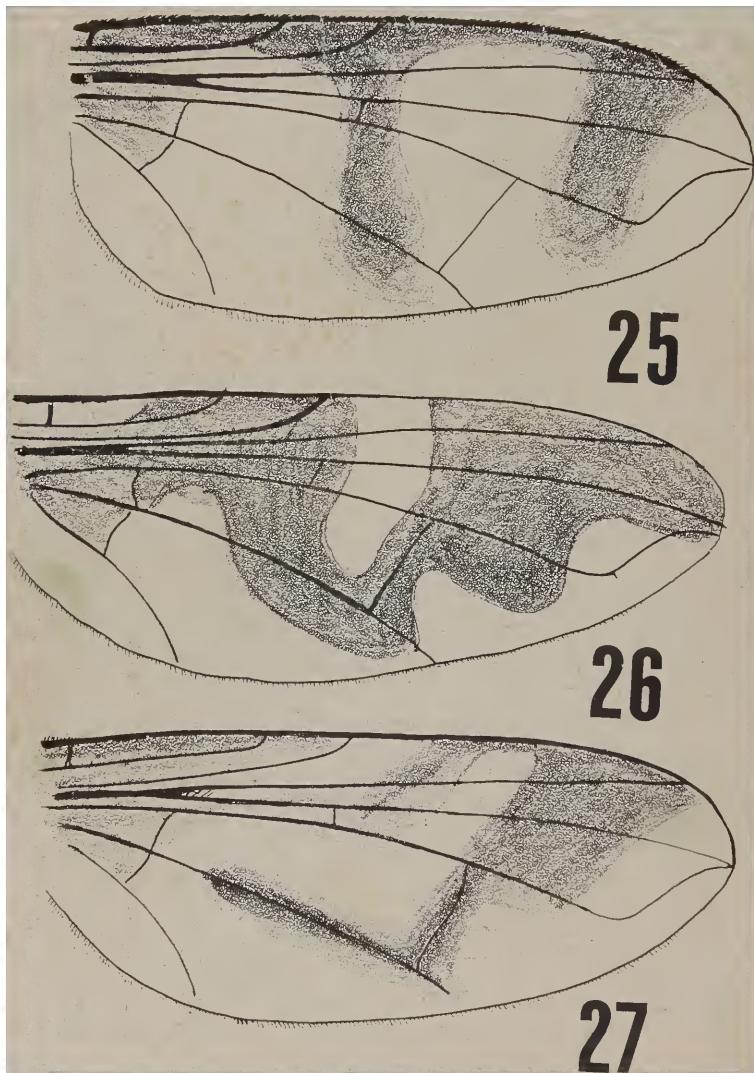
Wings. Fig. 16: *Euoestrophasia plaumanni*. Fig. 17: *E. townsendi*.
Fig. 18: *Jamacaria albofenestrata*.



Wings. Fig. 19: *Cenosoma signiferum*. Fig. 20: *Oestrophasia uncana*.
Fig. 21: *Euoestrophasia crosskeyi*.



Male genitalia. Fig. 22: *Oestrophasia uncana*. Fig. 23: *Euoestrophasia townsendi*. Fig. 24: *E. aperta*.



Wings. Fig. 25: *Cenosoma sabroskyi*. Fig. 26: *Euoestrophasia portoricensis*. Fig. 27: *Oestrophasia clausa*.