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# A REVISION OF THE SUBGENUS *EREMOTRICHOMA* SOIKA OF THE SHORE FLY GENUS *ALLOTRICHOMA* BECKER (DIPTERA: EPHYDRIDAE)

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**ABSTRACT**

***The subgenus Eremotrichoma* Soika is revised to include four known species: *A. agens* Collin, *A. kugleri,* new species, *A. perspieiendum* (Becker), the type species for the subgenus, and *A. simplieior* Collin. *Allotrichoma* and *Eremotrichoma* are characterized and the latter is demonstrated to be monophyletic. *Eremotrichoma* is not closely related to *Pseudohecamede* Hendel, a possibility suggested by Collin, but it is placed as a subgenus in the genus *Allotrichoma,* a precedent Collin and Soika established. *Eremotrichoma* occurs in the Middle East and North Africa, where it is associated with oases and other aquatic habitats, especially in desert regions. A key to the genera and subgenera of the tribe Atissini that occur in Israel is also presented.**

***KEY WORDS: Diptera, Ephydridae, Atissini, Allotrichoma, Eremotrichoma, .agens, kugleri, perspieiendum, simplieior,* key, revision.**

Nearly 40 years ago, as part of a report on the Diptera of the Armstrong College Expedition to Siwa Oasis, Egypt, the distinguished English dipterist, J.E. Collin (1949), noted certain characters that had either been overlooked or were in need of re-evaluation in the characterizations of *Allotrichoma* Becker and its related genera, *Elephantinosoma* Becker and *Pseudohecamede* Hendel. Although Collin suggested the possibility of a close relationship between the specimens before him and the neotropical genus *Pseudohecamede,* he left this matter unresolved, not having adequate material available to study. Rather, Collin tentatively chose to describe these specimens as a new species, *A. agens,* and variety of this species, *A. agens* variety *simplieior,* in the genus *Allotrichoma. Allotrichoma* was and remains the oldest and best known genus-group name among those available; it also has the largest number of species.

The blurred relationships between these three genera and the consequent lack of good characterization of each was not investigated further until Soika (1956) erected the subgenus *Eremotrichoma* to include *A. perspieiendum,* as the type species, *A. agens* Collin, and *A. simplieior* Collin. Although Soika provided a brief diagnosis for the subgenus, he did not address Collin's suggestion that these species were closely related to *Pseudohecamede.* This question impinges directly on studies I am conducting on the ephydrid fauna of Israel and has prompted the present study. I am also taking this

opportunity to present a key to the genera and subgenera of the tribe Atissini that are known to occur in Israel based on recent collecting there, mostly by Dr. Amnon Freidberg and myself.

The methods used generally in this study were explained previously by Mathis (1982, 1984, 1985). To better assure effective communication about structures of the male terminalia, I have adopted the terminology of other workers in Ephydridae (see references in Mathis, 1986). Usage of these terms, however, should not be taken as an endorsement of them from a theoretical or morphological view over alternatives that have been proposed (Griffiths, 1972; McAlpine, 1981). Rather, I am deferring to tradition until the morphological issues are better resolved.

Two venational ratios are used commonly in the descriptions and are defined here for the convenience of the user (ratios are averages of three specimens).

1. Costal vein ratio: the straight line distance between the apices of $R_{2+3}$ and $R_{4+5}$ distance between the apices of $R_1$ and $R_{2+3}$.

2. M vein ratio: the straight line distance along M basad of crossvein dm-cu/distance apicad of crossvein dm-cu.

## KEY TO THE GENERA AND SUBGENERA OF ATISSINI IN ISRAEL

1. Antennae within deep facial grooves, these widely separated, distance between subequal to antennal length; setae of head either lacking or greatly reduced . . . . . *Asmeringa* Becker
– Antennae at most within shallow facial grooves, not widely separated as above; usually fronto-orbital, ocellar, or vertical bristles present . . . . . 2
2. Arista with numerous short hairs above and below, sometimes appearing brush-like. . . . . 3
– Arista either bare, or if pectinate, branching rays along dorsum only . . . . . 4
3. Eye round to oval, not pyriform; mesofrons a well sclerotized plate and distinct from remainder of frons . . . . . *Homalometopus* Becker
– Eye pyriform; frons uniform, lacking a distinct, well sclerotized mesofrontal plate . . . . . *Glenanthe* Haliday
4. Dorsally branching rays of arista long, subequal to length of 1st flagellomere . . 5
– Dorsally branching rays of arista short, usually about 1/2 length of 1st flagellomere . . . . . 9
5. Face with a shiny tubercle; acrostichal setae in about 8 irregular rows; gena high, much more than 1/2 eye height . . . . . *Hecamede* Haliday
– Face lacking shiny tubercle; acrostichal setae in 4 regular rows; gena low, less than 1/2 eye height . . . . . 6
6. Ocellar setae inserted behind level of anterior ocellus; pseudopostocellar setae lacking . . . . . *Ptilomyia* Coquillett
– Ocellar setae inserted in front of anterior ocellus; pseudopostocellar setae well developed . . . . . 7
7. Proclinate fronto-orbital seta lacking; anterior oral margin virtually flat . . . . . *Elephantinosoma* Becker
– Proclinate fronto-orbital seta present; anterior oral margin shallowly to distinctly emarginate (*Allotrichoma*, sensu lato) . . . . . 8

8. Palpus dark, blackish; presutural bristle present; 1 pair of prescutellar acrostichal setae, well developed; face with 2 large lateral setae . . . . . subgenus *Allotrichoma* Becker

– Palpus pale, yellowish; presutural bristle absent; prescutellar acrostichal setae greatly reduced or absent; face with 1 large lateral seta . . . . . subgenus *Eremotrichoma* Soika

9. First flagellomere bearing long setulae along anterodorsal surface, length of setulae subequal to height of flagellomere . . . . . *Azorastia* Frey

– First flagellomere at most tomentose, not bearin long setulae . . . . . 9

10. Ocellar setae posterior to anterior ocellus, distance between setal bases no more than between posterior ocelli; face in profile concave, most projected at oral margin . . . . . *Atissa* Curtis

– Ocellar setae anterior to anterior ocellur, distance between setal bases greater than between posterior ocelli; face in profile mostly vertical . . . *Schema* Becker

## GENUS *ALLOTRICHOMA* BECKER

*Allotrichoma* Becker, 1896:121 (type species: *Hecamede lateralis* Loew, 1860, by original designation). – Becker, 1926:19-20 (review of palaearctic spp.). – Papp, 1975:21-24 (review of Hungarian spp.). – Cogan, 1984:131-132 (palaearctic cat.).

Diagnosis. Small to moderately small shore flies, length 1.15 to 2.20 mm.

*Head*: Wider than high; frons wider than long, entirely and mostly densely microtomentose, with vestiture of mesofrons undifferentiated except by color; ocellar setae anterior to anterior ocellus; a reclinate fronto-orbital and a proclinate fronto-orbital seta present, reclinate seta inserted slightly anteromediad of proclinate seta; pseudopostocellar setae present, reclinate seta inserted slightly anteromediad of proclinate seta; pseudopostocellar setae present; both inner and outer vertical bristles present; ocelli arranged to form isosceles triangle, with distance between posterior pair slightly larger than between anterior ocellus and either posterior ocellus. Antennae exerted; aristal length subequal to antennal length, arista bearing 5-6 dorsal rays, with basal 3-4 rays longer than apical 1-2. Eye apparently bare of microsetulae (using steromicroscope, 50X). Face with dorsal 1/2-3/4 carinate between antennae; ventral margins curved inward laterally making oral margin narrow, width subequal to narrowest distance between eyes, anterior margin shallowly emarginate; bearing 2 facial setae, the dorsal one very slightly larger, both inserted near parafacial; labella broad, fleshy, shorter than labium.

*Thorax*: Dorsal portion of anepisternum darker colored than medial portion, frequently concolorous with dorsal coloration of scutum, these areas separated by lighter colored band through postpronotal and notopleural areas; chaetotaxy conspicuous, setae dark colored, arranged in well defined setal tracks as follows: acrostichal setulae in 4 rows, 2 median rows better developed, 2 lateral rows attenuated anteriorly; dorsocentral track terminated posteriorly with larger seta; intra-alar setulae irregularly seriated; 1 postpronotal seta; 1 postalar seta; 2 scutellar setae and with sparse, scattered setulae on scutellar disc; 2 notopleural setae, insertion

of posterior one elevated dorsally above anterior one; 2 anepisternal bristles along posterior margin. Wing: vein $R_{2+3}$ extended beyond level of crossvein dm-cu, 2nd costal section at least 1 1/2 times longer than 3rd section.

*Abdomen*: Fifth tergum of male not visible from a dorsal view, telescoped within 4th.

Discussion. I accept the broadened generic concept of Cresson (1942), Collin (1949), Soika (1956), and Cogan (1984) because of the close relationships between the included lineages, here proposed as subgenera. In keeping with this concept, I suspect that *Pseudohecamede* should also be treated as a subgenus of *Allotrichoma* (see Runyan and Deonier, 1979; Mathis, revision of *Pseudohecamede* in preparation).

## SUBGENUS *ALLOTRICHOMA* BECKER

*Allotrichoma* Becker, 1896:121 (type species: *Hecamede lateralis* Loew, 1860, by original designation).

Diagnosis. Small to moderately small shore flies, length 1.15 to 2.10 mm.

*Head*: Frontal coloration mosty unicolorous, at most with narrow, anterior fronto-orbits slightly lighter in color, lacking distinctively colored ocellar triangle; pseudopostocellar setae subequal in length to ocellar setae. 2nd antennal segment with well developed, proclinate, dorsal seta. Facial coloration sexually dimorphic, males unicolorus and darker; face with dorsal 2/3 between antennal grooves shallowly carinate, becoming more prominent ventrad of facial grooves, slightly tuberculate; clypeus usually mostly microtomentose, dull colored; maxillary palpus dark, blackish.

*Thorax*: Mesonotum generally dark brown; chaetotaxy generally well developed; prescutellar acrostichal setae much larger than other acrostichal setae and more widely set apart; presutural seta well developed, length subequal to notopleural setae; katepisternal seta well developed, conspicuous. Wing: membrane mostly milky white; veins behind costa dark, brownish; alular marginal setulae short, less than 1/2 alular height. Legs: tibiae dark, concolorous with femora.

*Abdomen*: Fifth tergum elongate and well sclerotized and with 5th sternum as a ventrally projected process (see Runyan and Deonier, 1979, for discussion and illustrations).

Distribution. This subgenus occurs primarily in northern temperate regions (16 palaearctic species, Cogan, 1984; 7 nearctic species, Wirth, 1965) but with a few species in the Afrotropical (3 species, Cogan, 1980), Oriental (4 species, Cogan and Wirth, 1977), and Australian (2 species, Mathis, catalog in preparation) regions. No species are known from the neotropics, where species of *Pseudohecamede* have apparently replaced those of *Allotrichoma*, sensu stricto. Although the genus is now primarily holarctic, I anticipate that with comparable study of the afrotropical, Oriental, and Australian faunas, many more species will be found there also.

Discussion. The concept of this subgenus, as characterized here, is in keeping with Hendel (1936) or Wirth's (1965) treatment of *Allotrichoma* as a genus, not including *Pseudohecamede* or the following subgenus.

## SUBGENUS *EREMOTRICHOMA* SOIKA

*Elephantinosoma* Becker, in part, 1903:179. – Cresson, 1946:248-249 (review). – Cogan, 1980:657 (afrotropical cat.).

*Allotrichoma* (in part): Collin, 1949:203-206. – Cogan, 1984:131 (palaearctic cat.).

*Eremotrichoma* Soika, 1956:104 (type species: *Elephantinosoma perspiciendum* Becker, 1903, by original designation).

Diagnosis. Small to moderately small shore flies, length 1.20 to 2.20 mm.

*Head*: Fronto-orbits distinctive, usually lighter in color, more silvery white than mesofrons; mesofrons frequently with distinctively colored ocellar triangle, more lightly colored and more densely microtomentose than anterolateral portions of mesofrons; pseudopostocellar setae about 2/3-3/4 length of ocellar setae. 2nd antennal segment with poorly developed, proclinate, dorsal seta. Facial coloration similar in both sexes; face with dorsal area between antennal grooves shallowly carinate, not extended below ventral level of antenna or slightly tuberculate, shallow carina and antennal grooves golden tan; clypeus mostly bare, black; maxillary palpus pale, yellowish.

*Thorax*: Mesonotum generally light colored, tan to silvery white; chaetotaxy generally moderately well developed; prescutellar acrostichal setae undifferentiated or lacking; presutural seta greatly reduced or lacking; katepisternal seta poorly developed, inconspicuous. Wing: membrane mostly hyaline; veins behind costa pale, yellowish to whitish yellow; alular marginal setulae long, over 1/2 alular height. Legs: tibiae pale, concolorous with yellowish, basal tarsomeres.

*Abdomen*: Fifth tergum of male only slightly longer than 3rd, becoming more sclerotized and better pigmented posteriorly and bearing more prominent setae along posterior margin, with large, robust, paired apodemes that project anteriorly into 4th, these longer than 5th tergum. Male terminalia as follows: Cerci separate from epandrium, ventral margin bearing 2-3 much longer setae; surstyli as distinct ventral projections of epandrium; aedeagal apodeme well developed, triangular. Fifth tergum of female visible dorsally, length subequal to that of 2nd.

Distribution. Old World. Southern palaearctic (Mediterranean: Egypt, Israel, Sudan).

Natural History. Associated with oases and other aquatic habitats, especially in desert regions. Some of these habitats are saline or alkaline.

Discussion. The taxa comprising this subgenus form a distinctive, monophyletic lineage that is characerized by the following apomorphic characters: (1) face shallowly carinate on dorsal half between antennae; (2) maxillary palpus pale, mostly yellowish; (3) mesonotal chaetotaxy generally moderately well developed; (4) presutural seta either greatly reduced (undifferentiated) or lacking: (5) katepisternal seta poorly developed, inconspicuous; (6) tibiae pale colored; (7) fifth tergum of male with two large digit-like apodemes that extend anteriorly into fourth tergum; and (8) characters of the male terminalia and abdomen, especially the shortened fifth tergum (not a long telescoping tube as in the subgenus *Allotrichoma*), reduced epandrium, and prominent, ventrally projected surstyli.

The relationship of *Eremotrichoma* within *Allotrichoma* is not totally resolved,

but the following observations are offered now. Runyan and Deonier (1979) gave character evidence that *Pseudohecamede* is the sister group to the *yosemite* group within *Allotrichoma*, sensu stricto, and that these lineages together are a monophyletic assemblage. Assuming this relationship to be correct, *Eremotrichoma* cannot be closely related to *Pseudohecamede*, as it does not share the apomorphic characters that were used as a basis for this hypothesis. Instead, I suspect that *Eremotrichoma* is the sister group to this lineage (*Allotrichoma* plus *Pseudohecamede*), although evidence to support this relationship has not been demonstrated. The character evidence, such as that used in the generic characterization, will need to be analyzed from the perspective of the tribe Atissini and its included taxa.

KEY TO SPECIES OF THE SUBGENUS *EREMOTRICHOMA*
(best for males – one couplet only for males)

1. Silvery-gray fronto-orbital band narrow, not much wider than an ocellus, coloration contrasted with golden-tan facial coloration dorsally and inbetween antennal bases. Surstylus bilobed, with deep ventromedial cleft . . . . . .*A. perspiciendum* (Becker)
– Silvery-gray fronto-orbital band broad, much wider than an ocellus, and coloration concolorous with facial coloration dorsally and inbetween antennal bases. Male terminalia not as above . . . . . .2
2. Notopleural coloration not distinct from that of mesonotum, both silvery gray . . . . . .*A. simplicior* Collin
– Fascia through notopleuron distinctly silvery gray, contrasted with light brown to lightly golden brown coloration dorsally (on mesonotum) and ventrally (dorsal portion of anepisternum) . . . . . .3
3. Surstylus, in posterior view, gradually becoming broad ventrally, asymmetrically spatulate, ventral margin evenly and shallowly rounded, bearing 3-5 thin setulae along ventral margin . . . . . *A. kugleri*, new species
– Surstylus, in posterior view, abruptly becoming broad laterally, ventral margin conspicuously and asymmetrically sinuate, lateral lobe pointed and bearing a few long, apically curved setulae . . . . . *A. agens* Collin

## *Allotrichoma (Eremotrichoma) perspiciendum* (Becker)

Figs. 1-2

*Elephantinosoma perspiciendum* Becker, 1903:180 – Becker, 1926:95 (review; figs.). – Cresson, 1946:249 (review). – Cogan, 1980:657 (afrotropical cat.).

*Allotrichoma perspiciendum*. – Collin, 1949:203-205 (dis.). – Cogan, 1984:132 (palaearctic cat.).

*Allotrichoma (Eremotrichoma) perspiciendum*: Soika, 1956:104 (combination).

Diagnosis. Small shore flies, length 1.20 to 1.90 mm.

*Head*: Silvery-gray fronto-orbital band narrow, not much wider than an ocellus, its coloration contrasted with golden-tan facial coloration dorsally and inbetween antennal bases.

*Thorax*: Mesonotal coloration light tan to slightly golden, gradually becoming more grayish ventrolaterally through postpronotum and notopleuron. Costal vein ratio

0.46; M vein ratio 0.49.

*Abdomen*: Lateral margins of terga 1-3 frequently pale, yellowish to faintly pinkish, otherwise terga gray. Male terminalia (Figs. 1-2) as follows): Surstylus bilobed, with deep ventromedial cleft, lateral lobe rounded, medial lobe becoming narrower and truncate apically, apex bearing 2 large apical setulae.

Type material. The lectotype male, here designated, is labeled "Assuan 44557 I. (handwritten)/Lectotypus (red)/Zool. Mus. Berlin/perspiciendum (handwritten on a folded label)/Allotrichoma (Eremotrichoma) perspiciendum (Becker) det. WNMathis 1986 (species name and date handwritten; black submargin). The lectotype is double mounted (minute nadel in composition rectangular block), is in good condition (some setae missing), and is in the Humboldt Universität, East Berlin. A male and female paralectotype are also designated. I dissected the abdomen of the male paralectotype.

Other specimens Examined. EGYPT. Sinai: Dahab Junction, 14.III.1982, A. Freidberg (4♀; TAU). Ras Umm Burka, 5.IX.1976, A. Freidberg (1♂; TAU). ISRAEL. Ras Feshkha, 22.XI.1976, A. Freidberg (1♀; TAU). En Gedi, 20.IX.1971, J. Kugler (1♂, 4♀♀; TAU). Ne'ot HaKikkar, 21.III.1980, W.N. Mathis and A. Freidberg (1♂; USNM). En Mor, 30.X.1984, A. Freidberg (2♀; TAU). Hazeva, 25.III.1981, 15.VIII.-1970, 8.IX.1974, A. Freidberg, F. Kaplan, and J. Kugler (3♂, 5♀♀; TAU, USNM). Nahal Ramon, 30X.1984, A. Freidberg (♂, 1♀; TAU). Yotvata, 23.IX.1962, J. Kugler (1♂, 20♀♀; TAU). Timna, 16.III.1982, A. Freidberg (3♂♂, 8♀♀; TAU, USNM). Elot, 6.IX.1974, A. Freidberg (2♂♂, 5♀♀; TAU, USNM).

Distribution. Egypt, Israel, Sudan (Cresson, 1946:249).

Natural History. The specimens from Sudan, see reference above, were found "breeding in wet refuse at river edge facing cleaning plant."

Remarks. Cresson (1929:176) originally considered Becker's placement of this species in *Elephantinosoma* to be incorrect and transferred the species to *Allotrichoma*. The change was based on specimens Cresson studied from the collection in Wien that bore Becker's determination label "Eleh. chnumi Beck. det Becker." Almost two decades later, however, Cresson (1946:250) examined specimens of what he considered to be the "true *perspiciendum*" and renamed his former *perspiciendum* as *Allotrichoma aegyptium*. Cresson's later correction was either unnoticed or unaccepted, and Collin (1949:203-205) and Cogan (1985:465) followed his earlier precedent and kept this species in *Allotrichoma*. Regardless of the misidentification and its generic placement on that basis, this species is assigned to *Allotrichoma*.

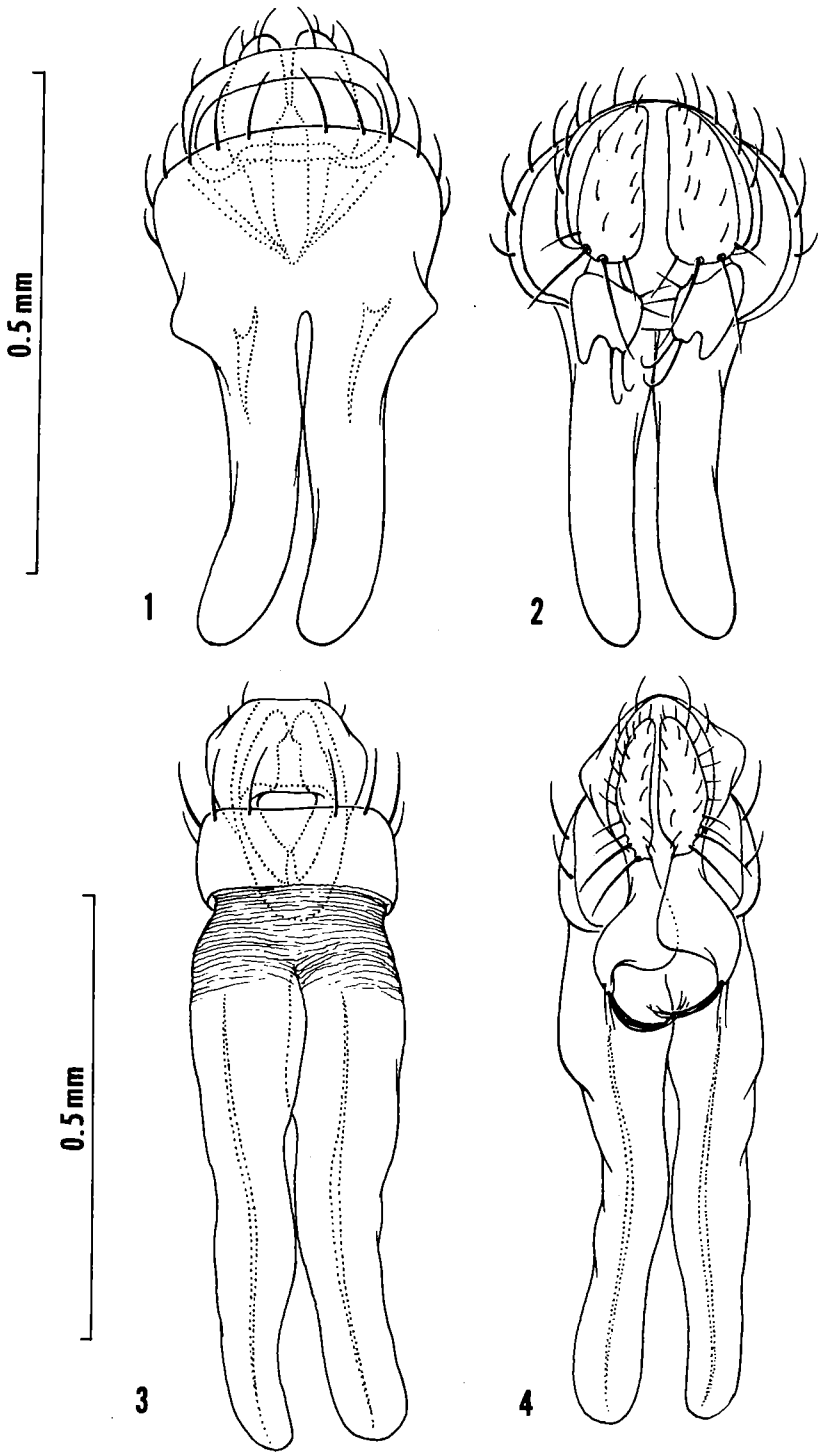
This species is distinguished from others of this subgenus by the narrow silvery-gray fronto-orbits, which contrasts with dorsal golden-tan facial coloration, light tan mesonotum, and bilobed surstylus of the male.

## *Allotrichoma (Eremotrichoma) simplicior* Collin

*Allotrichoma agens* variety simplicior Collin, 1949:206.
*Allotrichoma (Eremotrichoma) simplicior*: Soika, 1956:104 (combination).

Diagnosis. Small shore flies, length 1.45 mm (based on the single female sy ntype).

*Head*: Silvery-gray fronto-orbital band broad, much wider than an ocellus, and




Figs. 1-4. Male terminalia. 1. *A. perspiciendum*, dorsal view. 2. *A. perspiciendum*, ventral view. 3. *A. agens*, dorsal view. 4. *A. agens*, ventral view. Scale equals 0.5 mm.

its coloration concolorous with facial coloration inbetween and above antennal bases.

*Thorax*: Coloration of notopleural area not distinct from that of mesonotum, both silvery gray. Costal vein ratio 0.43; M vein ratio 0.44.

*Abdomen*: Terga mostly silvery gray. Male terminalia as follows (based solely on the illustration Collin provided): Surstylus irregularly clavate, with a very shallow emargination along the venter, the median margin nearly straight, and the ventral margin bearing 7-10 long setulae ventrolaterally. These setulae longest at ventrolateral curvature.

Type Material. A syntype female is labeled "Type (on a disk with a red border)/♀ (handwritten on a blue disk)/EGYPT: Baharein (apparently a mispelling on the label. Bahrein is the spelling Collin and gazetteers use. This locality is an oasis in the Libyan Desert or Plateau in western Egypt). 12.VI.1935 (12 Jun 1935). J. Omer-Cooper./Armstrong College Expedition. B. M. 1935–354." A male (?) syntype bears the same locality and expedition labels but is labeled as a "Para-type (disk with yellow border)." I am assuming that this specimen is a male based on what Collin reported to be the syntype series of one female and two males. As the first syntype noted here is a female, I am assuming that this specimen and the apparently lost specimen are males. The female syntype is intact and is in fair condition (several legs are missing). The male syntype is in poor condition (some legs are missing and most of its abdomen has been removed). The whereabouts of the second male is not known. Both examined syntypes are in the BMNH.

As the identity of species of this subgenus is mostly based on structures of the male terminalia and as no male syntype could be found with its abdomen intact or associated with structures of the dissected terminalia, I have not designated a lectotype.

Distribution. This species is known only from the type locality of Bahrein (sometimes as El Bahrein), Egypt.

Remarks. Although Collin proposed this species as a variety of his *A. agens*, he clearly considered it to represent a "local race" or possibly a "distinct species", to use Collin's original wording (1949:206). Collin was hesitant to adopt the latter possibility because of the few specimens of *A. simplicior* and because these specimens were from a locality that was not known to be sympatric with A. agens. He did point out, however, that the "hypopygial appendage", here called a surstylus, was "less developed" than in *A. agens*. Collin illustrated the surstylus of this species, drawn presumably from one of the male syntypes. As the abdomen is missing from the only male examined, I am assuming that it was removed for purposes of dissection and illustration. These structures, unfortunately, have not been found. Thus, assuming Collin's illustration to be accurate, I am of the opinion that these specimens represent a valid species.

In addition to the differences in the shape of the surstylus, the mesonotum of this species is silvery gray, similar to the coloration through the notopleural region. In specimens of *A. agens* and *A. kugleri* the mesonotum is light tan.

## *Allotrichoma (Eremotrichoma) agens* Collin

Figs. 3-4

*Allotrichoma agens* Collin, 1949:205. – Cogan, 1984:131 (palaearctic cat.).
*Allotrichoma (Eremotrichoma) agens*: Soika, 1956:104 (combination).

Diagnosis. Small shore flies, length 1.25 to 2.20 mm.

*Head*: Silvery-gray fronto-orbital band broad (much wider than an ocellus) and concolorous with facial coloration above and inbetween antennal bases.

*Thorax*: Lateral, silvery-gray band through notopleuron distinct, contrasted from light brown to lightly golden brown coloration on dorsum of mesonotum and on dorsal portion of katepisternum. Costal vein ratio 0.49; M vein ratio 0.40.

*Abdomen*: Terga 1-2 lightly tan to faintly golden tan on dorsum, lateral margins and other terga gray to silvery gray. Male terminalia (Figs. 3-4) as follows: Surstylus, in posterior view, more abruptly becoming broad laterally, ventral margin conspicuously and asymmetrically sinuate, lateral lobe pointed and bearing a few long, apically curved setulae.

Type Material. The male lectotype, here designated, is labeled "Type (on disk with red border)/♂ (handwritten on a blue disk)/EGYPT: Fayoum. L. Karun. 2-23.IX.1945. (2-23 Sep 1945) R.L. Coe. B.M. 1946-39." The specimen is double mounted (minute nadel in a celluloid rectangular piece), is in excellent condition, and is in the BMNH. Although this specimen is labeled "Type", there is also a female "Type" and a large series of "paratypes". In fact, all of these specimens are syntypes, hence the lectotype designation here. The female type and paratypes are designated as paralectotypes.

Other Specimens Examined. ISRAEL. En Akrabim, 22.III.1980, W.N. Mathis and A. Freidberg (1♂, 14♀♀; TAU, USNM).

Distribution. Egypt and Israel.

Remarks. Collin (1949) provisionally placed this species in *Allotrichoma* after noting that: (1) this species was different from *E. chnumi*, the type species of *Elephantinosoma*; (2) the status and characterization of *Pseudohecamede* needed revision, and his species might possibly be placed in this genus after further investigation. Indeed, *A. agens*, as well as other species of *Eremotrichoma* generally, is similar to *Pseudohecamede*, but this genus is a monophyletic lineage that does not include this group (Runyan and Deonier, 1979; Mathis, in preparation).

This species is distinguished from others of the subgenus by the lightly tan coloration of the mesonotum, the wide fronto-orbits, and the shade of the surstylus of the male terminalia.

## *Allotrichoma (Eremotrichoma) kugleri* Mathis, new species

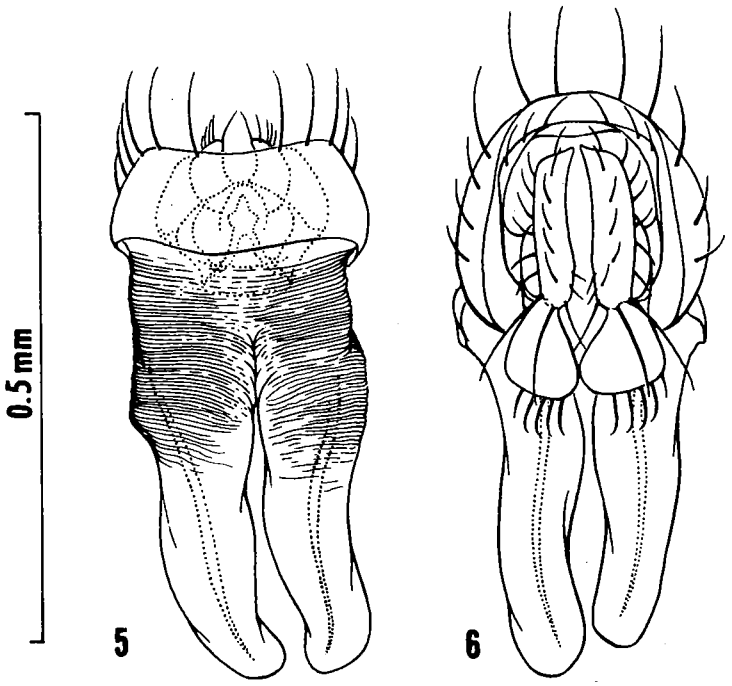
Figs. 5-6

Diagnosis. Small to moderately small shore flies, length 1.60 to 2.00 mm.

*Head*: Silvery-gray fronto-orbital band broad (much wider than an ocellus) and concolorous with facial coloration above and inbetween antennal base.

*Thorax*: Lateral, silvery-gray band through notopleuron distinct, contrasted from light brown to lightly golden brown coloration on dorsum of mesonotum and on dorsal portion of katepisternum. Costal vein ratio 0.49; M vein ratio 0.40.

*Abdomen*: Terga 1-2 lightly tan to faintly golden tan on dorsum, lateral margins




Figs. 5-6. Male terminalia. 5. *A. kugleri*, dorsal view. 5. *A. kugleri*, ventral view. Scale equals 0.5 mm.

and other terga gray to silvery gray. Male terminalia (Figs. 5-6) as follows: cercus allantoid, ventrolateral margin bearing 2-3 larger setulae, these 2-3 times longer than other cercal setulae; surstylus broadly spatulate ventrally from posterior view, ampulliform, bearing 3-5 pale and apically curved setulae along ventral margin.

Type Material. The holotype male is labeled "ISRAEL: Ein Avdat 29.III.1980. (W.N.) Mathis & (A.) Freidberg coll(ector)s." The allotype female and 52 paratypes (12♂♂, 40♀♀; TAU, USNM) bear the same label data as the holotype. Other paratypes are as follows EGYPT. Sinai: Dahab, 23.V.1981, A. Freidberg (1♂, 2♀♀; TAU). ISRAEL. En Boqeq, 20.IX.1971, J. Kugler (9♂♂, 20♀♀; TAU, USNM). En Mur, 31.III.1981, A. Freidberg (2♂♂, 4♀♀; TAU, USNM). Elat, 6.IV.1973, A. Freidberg (1♂; TAU). Haifa, 21.VIII.1976, . Freidberg (1♂, 2♀♀; TAU). Park HaYarden, 30.IX.1982, A. Freidberg (1♂; TAU). The holotype is double mounted (minute nadel in a plastic block), is in good condition, and is deposited in the Smithsonian Institution.

Distribution. Egypt and Israel.

Etymology. The specific epithet is a Latinized patronym to honor the Israeli dipterist, Dr. J. Kugler, to whom this Festschrift is dedicated in recognition of his numerous contributions to entomology, especially of Israel.

Remarks. This species is very similar to *A. agens* and *A. simplicior* but is differentiated from either by the shape of the surstylus, which is broadly spatuate and bears 3-5 pale, ventrally curved setulae along the ventral margin. It is further differentiated from *A. simplicior* by the light tan mesonotum. in *A. simplicior* the mesonotum is uniformly silvery gray.

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