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The females of Compteromesa oconeensis Saether, 1981, and Prodiamesa olivacea (Meigen, 1818) (syn. Trichodiamesa autumnalis Goetghebuer, 1926, n. syn.)

(Diptera, Chironomidae, Prodiamesinae)

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SAETHER, O. A. (1985): The females of *Compteromesa oconeensis* Saether, 1981, and *Prodiamesa olivacea* (Meigen, 1818) (syn. *Trichodiamesa autumnalis* Goetghebuer, 1926, n. syn.) (Diptera, Chironomidae, Prodiamesinae). – Spixiana, Suppl. 11: 7–13.

The female of *Compteromesa oconeensis* is described for the first time. In addition to the hairy wings it can be separated from other Prodiamesinae by the large, rounded gonocoxite and the clearly divided tergite IX carrying a small anal point. The female shows a close relationship with *Odontomesa* Pagast. Some variation in the male of *C. oconeensis* is given. The female holotype of *Trichodiamesa autumnalis* Goetghebuer is examined and shown to be a junior synonym of *Prodiamesa olivacea*. The females of *P. olivacea* are redescribed.

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The monotypic genus *Compteromesa* Saether with the single included species *C. oconeensis* Saether was recently described from South Carolina (SAETHER 1981: 193). Later the collector, Mr. P. L. Hudson, sent me additional material including 8 males and 4 females. The genus stands out among the Prodiamesinae on the basis of its fully haired wings. However, *Trichodiamesa autumnalis*, described by GOETGHEBUER (1926: 46) on a single female, was said to possess hairy wings. While the male of *Compteromesa* could be distinguished from the other genera of Prodiamesinae in a number of features, *Trichodiamesa* appeared like a *Prodiamesa* Kieff. with hairy wings (SAETHER 1981: 195). A re-examination of the type of *T. autumnalis* and a comparison with females of *Prodiamesa* and *Compteromesa* thus seemed desirable.

Methods and morphology

The mounting procedure used is outlined by SAETHER (1969: 1). The general terminology follows SAETHER (1980). The measurements are given as ranges followed by a mean when four or more measurements are made, followed by the number measured in parentheses (n).

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Compteromesa Saether, 1981: 193

Generic diagnosis

Male imago as in SAETHER (1981: 194). (In additon the distinct elongate humeral pit shown in the female (Fig. 1 A) also is present in the male, but was not visible in the holotype in which the scutum was mounted in dorsal view. Also MCu is more variable making the distance at which it reaches M basad of RM sometimes slightly longer, sometimes slightly shorter than its own length.)

Female imago as in male with the following exceptions and additions:

Antenna with 6 flagellomeres, pedicel with 2 setae, flagellomeres 1–5 each with 1 pair of sensilla chaetica, flagellomere 6 with about 20 sensilla chaetica. Frontal setae occasionally present. Palp with 7–8 sensilla clavata at apex of third segment. Coronal suture incomplete. Wing membrane with numerous setae; setae present in most cells, also in cell r and in cell m basad of MCu. Several relatively long but thin sensilla chaetica present in basal third of hind metatarsus. Gonocoxite very large and rounded, with several setae. Tergite IX rather weak, divided, with setae; with a median weak triangular anal point with a few setae. Gonapophyses VIII divided. Ventrolateral lobe brushlike, with long microtrichia. Dorsomesal lobe large but low. Apodeme lobe indistinct, covered by ventrolateral lobe. Gonapophyses IX about as long as the parallel-sided rami. Labia with weak microtrichia. Coxosternapodeme well developed, simply curved, but with undulations in sclerotization. Seminal capsules ovoid, microtrichia few and very weak. Spermathecal ducts with bends and loops, slightly widened before separate openings. Postgenital plate triangular. Cercus pediform, normal.

Systematics

The female of *Compteromesa* conforms well with the females of the other genera of Prodiamesinae (SAETHER, 1977: 73) and possesses the most important synapomorphy of the subfamily, the parallel-sided rami (SAETHER, 1977: 31, trend 6). Gonocoxite IX, however, is even better developed than in the other genera, and tergite IX is better divided and possesses an anal point. The female genitalia mostly resemble *Odontomesa* Pagast (1947: 502). Most likely *Compteromesa* and *Odontomesa* are sister genera forming the sister group of *Prodiamesa* and *Monodiamesa* Kieff. combined. The remaining genus, *Trichodiamesa* Goetgh., is shown below to be a junior synonym of *Prodiamesa*.

Compteromesa oconeensis Saether, 1981: 195

(Fig. 1)

Male imago (n = 8)

The species was described from a single male. Variation in some measurements are as follows:

Wing length 2.10–2.38, 2.19 mm. AR 1.22–1.39, 1.30. Last flagellomere 624–709, 662 µm long. Dorsocentrals 18–23, 20; prealars 4–9, 6. Squama with 9–17, 12 setae. Sensilla chaetica 0–3, 1 at 0.30–0.36, 0.32 of hind metatarsus. Ninth tergum with 27–37, 33 setae including 3–8, 5 at apex of anal point.

Female imago (n = 4, except when otherwise stated)

Total length 3.36–3.78, 3.56 mm. Wing length 2.19–2.31, 2.27 mm. Total length/wing length 1.46–1.61, 1.57. Wing length/length of profemur 2.37–2.42, 2.39. Coloration brown.

Head: AR 0.35–0.39 (3). Flagellomere lengths (micrometers): 56–75, 67; 60–64, 61; 71–81, 74; 72–92, 86; 71–90, 83; 128–143 (3). Temporal setae 10–12, 11; including 0–1, 0 frontals; 3–4, 3 inner verticals; 3–5, 4 outer verticals; and 3–4, 3 postorbitals. Clypeus with 25–35, 31 setae. Tentorium 169–184, 177 µm long; 34–41, 37 µm wide. Stipes 150–169, 158 µm long; 56–69, 63 µm wide. Palp lengths (mi-

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crometers): 49–56, 53; 56–68, 61; 184–195, 186; 146–167, 161; 210–251, 231. Coronal suture incomplete, 45–68, 56 µm long.

Thorax (Fig. 1A): Antepronotum with 2–5, 3 lateral setae. Humeral pit conspicuous, narrow but long and winding. Dorsocentrals 26–30, 27 biserial, acrostichals 7–9, 8; prealars 8–9, 8; supraalar 1. Scutellum with 22–28, 24 setae.

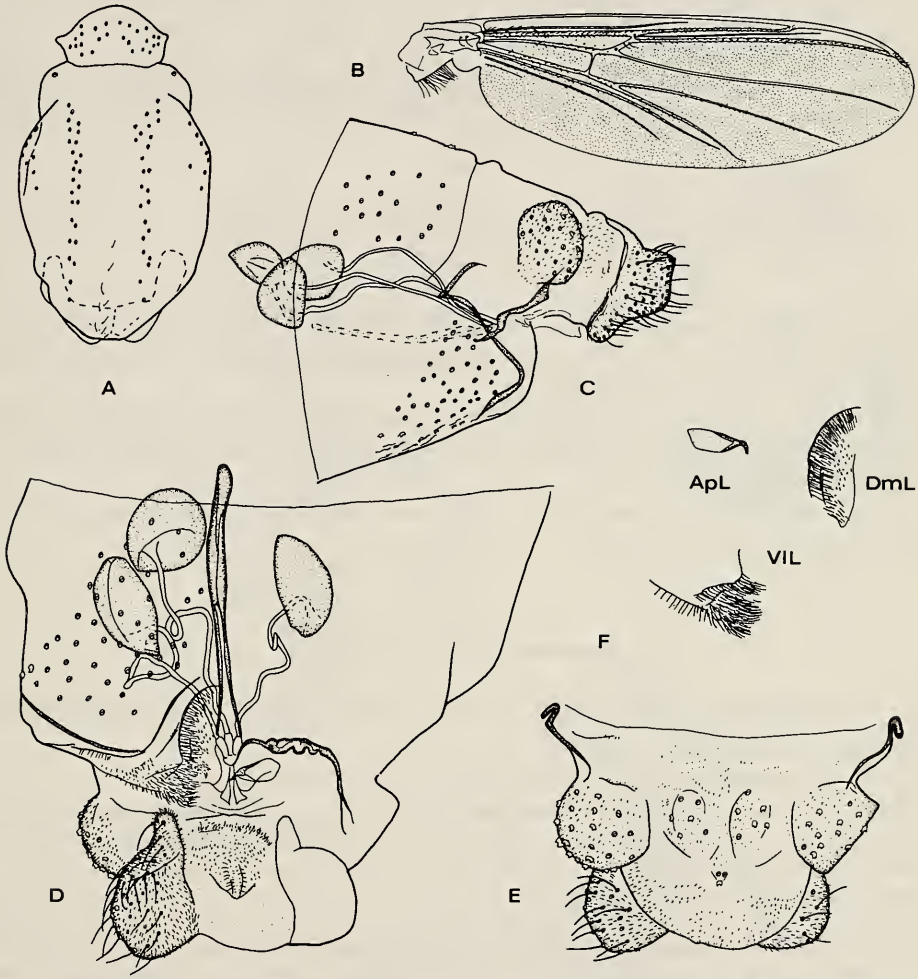

Fig. 1. *Compteromesa oconeensis* Saeth., female imago. – A. Thorax, lateral view. – B. Wing. – C–F. Genitalia; C. Lateral view; D. Dorsal view; E. Ventral view; F. Lobes of gonapophysis VIII (VlL, ventrolateral lobe; ApL, apodeme lobe; DmL, dorsomesal lobe).

Wing (Fig. 1B): VR 1.06–1.10, 1.09. MCu 113–120, 118 µm long; 71–83, 78 µm from RM. Extended part of costa 75–83, 80 µm long. Brachiolum with 2; Sc with 36–53, 43; extended part of costa with 13–15, 14 nonmarginal; R with 60–68, 63; R_1 with 92–102, 97; R_{4+5} with 116–166, 144; RM with 2–6, 4; M with 8–17, 14; M_{1+2} with 95–115, 105; M_{3+4} with 72–95, 82; Cu with 27–43, 34; Cu_1 with 40–56, 49; vannal fold with 55–95, 70; and An with 63–77 (3) setae. Cell r with 2–4, 3; m basad of MCu with 20–38, 29; cell r_{4+5} with more than 600; and cells m_{1+4}, m_{3+4} and an each with more than 400 setae. Squama with 15–20, 17 setae.

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Legs. Spur of front tibia 45–53, 49 μm long; spurs of middle tibia 54–56 μm (2) and 45–49, 47 μm long; of hind tibia 75–86, 79 μm and 41–53, 48 μm long. Width at apex of front tibia 54–60, 57 μm; of middle tibia 60–68, 63 μm; of hind tibia 68–71, 69 μm. Comb of hind tibia with 9–11, 10 setae; shortest seta 34–38, 36 μm long; longest seta 49–68, 58 μm long. Sensilla chaetica 9–10 (2) at 0.10–0.14 (2) to 0.22–0.35 (2) of hind metatarsus. Lengths (micrometers) and proportions of legs:

	fe	ti	ta_1	ta_2	ta_3	ta_4	ta_5
p_1	907– 992, 952	1096–1181,1143	936 (1)	454 (1)	345 (1)	227 (1)	123 (1)
p_2	907– 964, 933	907– 973, 937	491–506,493	255–274,259	198–217,203	132–146,136	85–104,96
p_3	992–1068,1026	1167–1266,1209	662–709 (2)	369–387 (2)	302–321 (2)	175–189 (2)	104–113 (2)

	LR	BV	SV	BR
p_1	0.85 (1)	2.57 (1)	2.14 (1)	2.4 (1)
p_2	0.52–0.54,0.53	3.29–3.46,3.41	3.69–3.84,3.80	1.9–2.6,2.2
p_3	0.56–0.57 (2)	2.97–3.01 (2)	3.26–3.29 (2)	2.2–3.4 (2)

Abdomen. Number of setae on tergites I–VIII as: 50–68, 57; 62–88, 75; 42–72, 62; 49–71, 64; 37–66, 58; 34–60, 46; 46–56, 51; 36–48, 43. Number of setae on sternites I–VIII av: 0; 4–9, 7; 10–24, 19; 18–32, 26; 24–41, 35; 42–50, 47; 48–63, 55; 65–93, 81.

Genitalia (Fig. 1 C–F): Gonocoxite with 25–29, 27 setae. Tergite IX with 12–16, 14 setae including 3–4 (2) on anal point. Cercus 116–146, 129 μm long. Seminal capsule 77–86, 82 μm long; 62–69, 65 μm wide. Notum 101–118, 110 μm long.

Material examined: 8 ♂♂, 4 ♀♀, seep-small stream, Issaquena Forest, Clemson Univ., Pickens Co., South Carolina, U.S.A., 18/4/81, leg. P. L. Hudson.

Prodiamesa Kieffer, 1906: 37

Type-species: *Diamesa praecox* Kieffer, 1900 (= *Chironomus olivaceus* Meigen, 1818), by original designation

Trichodiamesa Goetghebuer, 1926: 45, syn. nov.
Type-species: *Trichodiamesa autumnalis* Goetghebuer 1926: 46 by orig. des.

The holotype of *Trichodiamesa autumnalis* Goetghebuer, 1926: 46 was examined. It was covered with loose setae on the wings and the thorax from some other insect, but none of the setae were attached to the wing membrane. The description by GOETGHEBUER (1926) thus is in error and the species fits into *Prodiamesa* in all details.

The species according to size and chaetotaxy appears to be identical to *P. olivacea,* the female of which has been described in some details in Russian by RODOVA (1969). However, since Rodova gives very few measurements and the description is in Russian a redescription of *P. olivacea* and a comparison with *T. autumnalis* was deemed necessary. The specimens of the two species were identical except for some minor details and *T. autumnalis* is shown to be a junior synonym of *P. olivacea.*

Prodiamesa olivacea (Meigen, 1818)
(Fig. 2)

Trichodiamesa autumnalis Goetghebuer, 1926: 46, syn nov.

Female imago (n = 3 except when otherwise stated)

Total length 6.10–7.10 mm. Wing length 4.39–4.62 mm. Total length/wing length 1.35–1.56. Wing length/length of profemur 2.68–2.94. Coloration light brown with dark brown vittae and markings.

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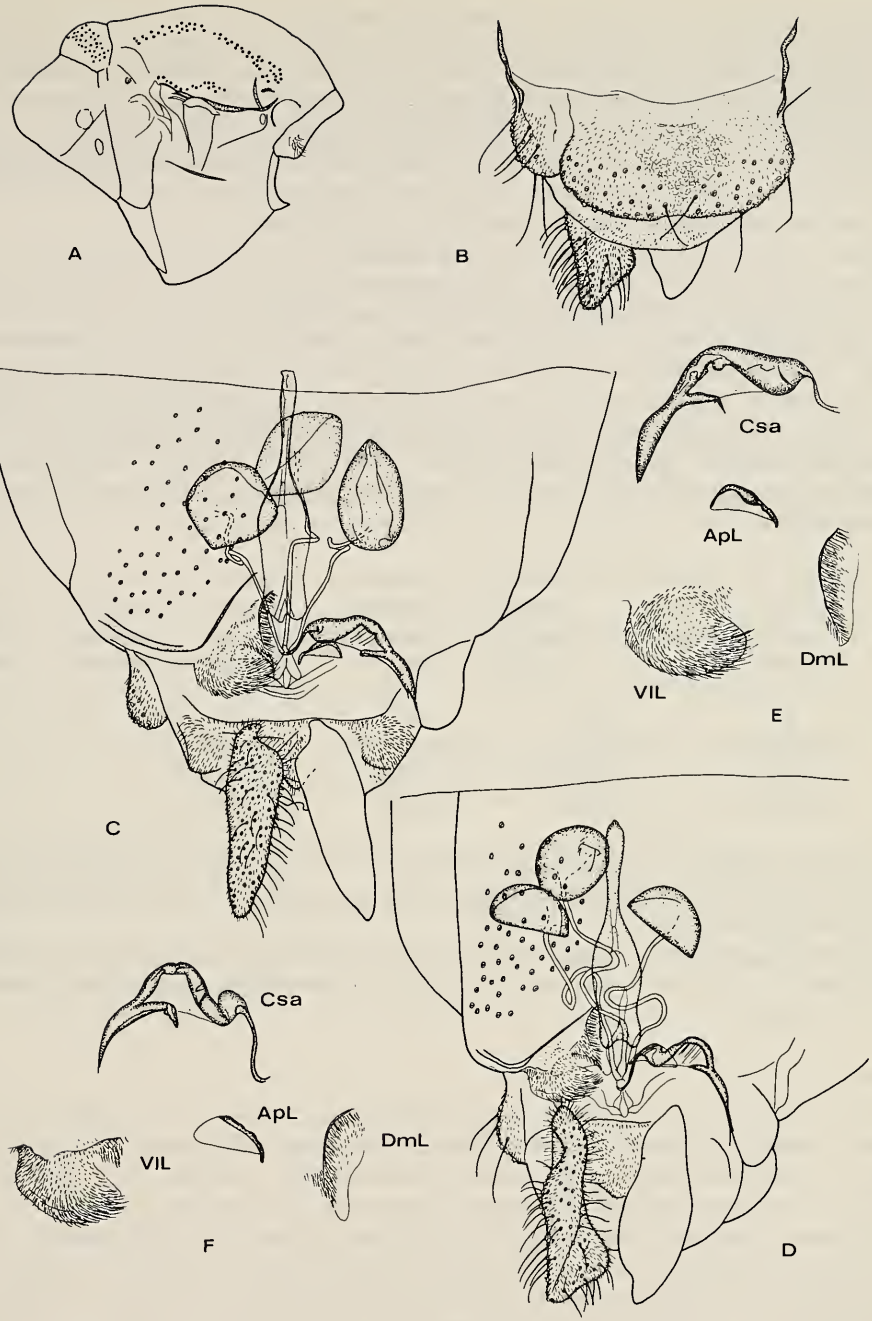

Fig. 2. *Prodiamesa olivacea* (Meig.), female imago. – A. Thorax. – B–F. Genitalia; B. Dorsal view; C–D. Ventral views holotype of *Trichodiamesa autumnalis* Goetgh. (C) and of female from Hardangervidda (D); E–F. Coxosternapodeme (Csa) and lobes of gonapophysis VIII (VlL, ventrolateral lobe; ApL, apodeme lobe; DmL, dorsomesal lobe) of holotype of *T. autumnalis* (E) and of female from Hardangervidda (F).

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Head. AR 0.34–0.38. Flagellomere lengths (micrometers): 169–180, 98–105, 116–120, 98–109, 150–195. Pedicel with 4 setae. Temporal setae 21–27, including 1–3 frontals, 7–10 inner verticals, 6–11 outer verticals, and 4–6 postorbitals. Clypeus with 45–56 setae. Tentorium 304–323 µm long, 49–60 µm wide. Stipes 293–308 µm long, 98–124 µm wide. Palp lengths (micrometers): 90–101, 113–124, 225–281, 266–300, 364–544. Coronal suture incomplete, 60–79 µm long.

Thorax (Fig. 2A): Antepronotum with 14–21 lateral setae. Humeral pit elongate, consisting of several circular pits. Dorsocentrals 52–64 in 2–4 rows, acrostichals absent, prealars 18–21, supraalar 1. Prescutellum with depression or pit. Scutellum with 60–68 setae.

Wing. VR 0.99–1.00. MCu 180–206 µm long, 98–124 µm from RM. Extended part of costa 51–62 µm long. Brachiolum with 16–17 sensilla coeloconica at base, 3–5 below setae and 13–14 at apex, 1 at base of subcosta, 1 at base of R_1, anf 1 at base of R_{2+3}. Brachiolum with 5–8, costal extension with 3–8 non-marginal, R with 33–45, R_1 with 48–61, and R_{4+5} with 47–59 setae. Squama with 51–62 setae.

Legs. Spur of front tibia 98–116 µm long, spurs of middle tibia 94–98 µm and 92–94 µm long, of hind tibia 108–131 µm and 98–101 µm long. Width at apex of front tibia 94–109 µm, of middle tibia 109–113 µm, of hind tibia 116–120 µm. Comb of hind tibia of 14 setae, shortest seta 49 µm (2) long, longest seta 94–98 µm long. Sensilla chaetica 28–30 (2) at 0.08–0.11 (2) to 0.26–0.28 (2) of metatarsus of middle leg, 39–42 at 0.09–0.10 to 0.28–0.30 of metatarsus of hind leg. Lengths (micrometers) and proportions of legs:

	fe	ti	ta_1	ta_2	ta_3	ta_4	ta_5
p_1	1517–1713	1924–2158	1478–1736	774–845	563–680	352–481	223–258
p_2	1666–1853	1783–1971	821– 914	446–481	352–387	188–233	176–199
p_3	1760–1900	2194–2487	1114–1290	669–704	493–563	246–305	211–235

	LR	BV	SV	BR
p_1	0.77–0.80	2.48–2.60	2.23–2.37	1.6–2.5
p_2	0.46–0.47	3.45–3.74	4.08–4.20	1.9–2.0
p_3	0.51–0.52	3.07–3.14	3.40–3.55	1.8–2.0

Abdomen. Number of setae on tergites I-VIII as: 128–140 (2), 150–158, 95–140, 84–96, 82–110, 60–112, 75–155, 101–129. Number of setae on sternites I–VIII as: 0, 10–13, 42–44, 37–64, 59–84, 60–103, 85–139, 65–114.

Genitalia (Fig. 2B–F): Gonocoxite with 17–20 setae. Tergite IX with indication of division, with 52–60 setae. Cercus 225–270 µm long. Seminal capsule 124–146 µm long, 79–109 µm wide. Notum 176–184 µm long.

Remarks

The only differences which could be significant between the holotype of *T. autumnalis* and the other female *P. olivacea* are found in the shorter ultimate flagellomere, the longer ultimate palpal segment and in the somewhat differently sclerotized coxosternapodeme. Although there are differences in a number of other measurements, the differences between the other two females are equally large or larger. However, as shown by Michailova (1977, 1980) and Makarchenko (1982) there are at least two species closely related to *P. olivacea, P. bureschi* Michailova and *P. levanidovae* Makarchenko and there may be more sibling species. The slight differences in the female genitalia could indicate that *T. autumnalis* not is conspecific with the examined females. These females, however, are from the Norwegian high mountains, and are likely to differ slightly from *P. olivacea* of a Central European population. There is thus little doubt about the synonomy of the two species.

Material examined: 1♀, holotype of *Trichodiamesa autumnalis* Goetghebuer, 1926: 46, Ballange (Malmedy), Belgium, 21/9/23 (22/9 in publication), G. Severin (R. I. Sc. N. B. 18.073); 2♀♀, 880–900 m. a. s. l., Viveli, Eidfjord, Hardangervidda, 21/7 and 24/8/67, T. Nielsen and E. S. Holmefjord.

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References

GOETGHEBUER, M. 1926: Une espèce nouvelle du groupe *Diamesa* (Chironomide). – Encycl. ent. Sér. B.-II, Diptera **3:** 45–47

KIEFFER, J. J. 1900: Observations sur le groupe *Chironomus* avec description du quelques espèces nouvelles. – Annls Soc. ent. Fr. **68:** 821–830

— — 1906: Diptera Fam. Chironomidae. – Genera Insect. **42:** 1–78

MEIGEN, J. W. 1818: Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. Erster Teil. – Aachen

MAKARCHENKO, E. A. 1982: Novyi vid *Prodiamesa* Kieff. (Diptera, Chironomidae) iz basseina reki Amur (A new species of the genus *Prodiamesa* Kieff. (Diptera, Chironomidae) from the Amur river basin) – Zool. Zh. **61:** 305–307

MICHAILOVA, P. 1977: Karyotaxonomische Charakteristik der *Prodiamesa olivacea* Meigen und *Prodiamesa bureschi* sp. n. (Diptera, Chironomidae). – Zool. Beitr. **3:** 387–404

— — 1980: Cytotaxonomic features of species of the subfamily Orthocladiinae (Diptera, Chironomidae) from Bulgaria. – Genetica **52/53:** 263–266

PAGAST, F. 1947: Systematik und Verbreitung der um die Gattung *Diamesa* gruppierten Chironomiden. – Arch. Hydrobiol. **41:** 435–596

RODOVA, R. A. 1969: Samki khironernid III. *Prodiamesa olivacea* Meig. (Diptera, Chironomidae) (Chironomid females III.) – Inf. Byull. Inst. Biol. vnutr. Vod **3:** 27–30 (In Russian)

SAETHER, O. A. 1969: Some Nearctic Podonominae, Diamesinae, and Orthocladiinae (Diptera: Chironomidae). – Bull. Fish. Res. Bd Can. **170:** 1–154

— — 1977: Female genitalia in Chironomidae and other Nematocera: morphology, phylogenies, keys. – Bull. Fish. Res. Bd Can. **197:** 1–209

— — 1980: Glossary of chironomid morphology terminology (Diptera: Chironomidae). – Ent. scand. Suppl. **14:** 1–51

— — 1981: *Compteromesa oconeensis* gen. n., sp. n., a new Prodiamesinae (Diptera: Chironomidae) from South Carolina. – Aquat. Insects **3:** 193–198