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Archaeotinodes ivanovi sp. nov., a New Fossil Species of Ecnomidae (Insecta: Trichoptera) from the Baltic Amber

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Abstract—*Archaeotinodes ivanovi* sp. nov., a new species of the fossil genus *Archaeotinodes*, is described from the Eocene Baltic amber. The new species is generally similar to *A. pauper* Ulmer, 1912 and *A. igneusaper* Melnitsky, 2009 from the Baltic amber and to *A. reveraverus* Melnitsky et Ivanov, 2010 from the Rovno amber.

Keywords: Trichoptera, Baltic amber, new species, *Archaeotinodes*, Ecnomidae

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INTRODUCTION

A little less than 200 caddisfly species of 22 families are known from the Late Eocene Baltic and coeval Rovno ambers (Ivanov and Melnitsky, 2013; Melnitsky and Ivanov, 2013a). The fauna of the Paleogene ambers of Europe is the richest known fossil caddisfly fauna, both in number of species and in number of inclusions (Wichard, Groehn, and Seredszus, 2009). The genus *Archaeotinodes* is represented by 20 fossil species from the Rovno (one species), Baltic (18 species), and Saxon (one species) ambers (Ulmer, 1912; Mey, 1988; Melnitsky, 2009; Melnitsky and Ivanov, 2010; Melnitsky and Ivanov, 2013b). This genus is phylogenetically heterogeneous, and four of the species included in it strongly differ in the structure of the genitalia from the type species, *Archaeotinodes priscus* Pictet, 1856 (Melnitsky, 2009).

In the course of processing the collection of Baltic amber stored in the Zoological Institute, Russian Academy of Sciences, St. Petersburg (ZISP), a new species of the genus *Archaeotinodes* was discovered.

MATERIAL

The type material is stored in ZISP.

SYSTEMATIC PALEONTOLOGY

Suborder Annulipalpia

Superfamily Psychomyioidea Walker, 1852

Family Ecnomidae Ulmer, 1903

Genus *Archaeotinodes* Ulmer, 1912

***Archaeotinodes ivanovi* Melnitsky, sp. nov.**

Plate 10, figs. 1–3

Etymology. In honor of the noted Russian trichopterist V.D. Ivanov.

Holotype. ZISP, no. BA-0002, male; Baltic amber, Late Eocene.

Description (Fig. 1). The abdomen is yellowish. The head, thorax, and legs are brown. The wings are light brown and covered with abundant small setae. The head is covered with dark setae. Maxillary palpomere 3 is longer than palpomeres 2 and 4 and somewhat shorter than palpomere 5. The entire surface of the apical maxillary palpomere is distinctly ringed. In the forewing all five bifurcations are present. In the hindwing the first bifurcation is absent. The antenna is no longer than the forewing. The anterior margin of abdominal sternite V has a clearly pronounced area of strong cuticle, probably associated with the excretory duct of the pheromone gland. Abdominal sternite V

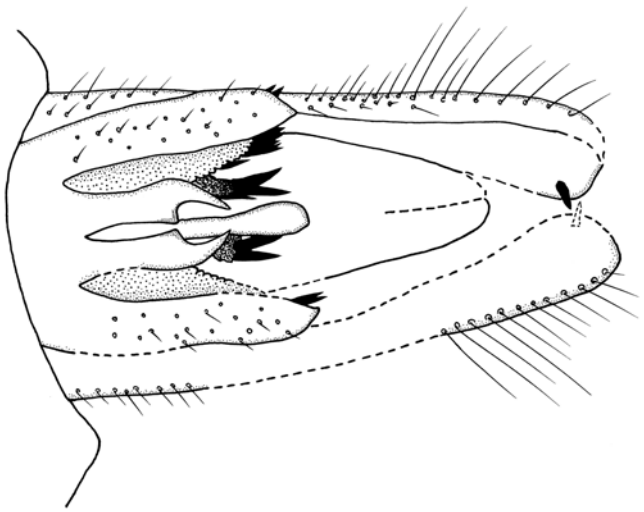

Fig. 1. Genitalia of *Archaeotinodes ivanovi* sp. nov., holotype ZISP, no. BA-0002.

Plate 10


1


2


3

Explanation of Plate 10

Archaeotinodes ivanovi sp. nov., holotype ZISP, no. BA-0002: (1) habitus in ventral view, ×25; (2) habitus in dorsal view, ×19; (3) genitalia in ventral view, ×112.

has a peculiar finely reticulate structure formed by the uneven cuticle. The spur formula is 3.4.4.

Male genitalia (Fig. 1). The inferior appendages (gonopods) are strongly sclerotized, represented by dorsal and ventral lobes (branches). The dorsal lobes of the inferior appendages are long; their apical parts are narrower than their basal parts. The external surface of the dorsal branches is covered with numerous setae. The internal surface of these appendages bears numerous strong dark spines (at least eight) situated in the apical part. The ventral (internal) branches of the inferior appendages form a single, unified structure; the right and left branches are fused basally, but a deep medial slit is preserved between them. The ventral branches of the gonopods have a complex shape; their apical part is pointed apically. These appendages are less than half as long as the dorsal branches. The preanal appendages (cerci) are very long, more than twice as long as the dorsal lobes of the inferior appendages. The external surface of the preanal appendages is covered with numerous long pale setae. The apical part of each cercus is dilated and bears a robust short spine. Segment X is weakly sclerotized and deeply cut into two elongate lobes. Segment X is longer than the dorsal branches of the inferior appendages and shorter than the preanal appendages. Ventral to segment X there are paired elongate and narrow appendages, ending apically in two long strong spines. The basal parts of these appendages are weakly sclerotized. The aedeagus is strongly sclerotized, long, rounded and dilated apically in ventral view.

Measurements, mm. Body length, 3.9; forewing length, 4.2.

Comparison. The new species is similar to the species *A. pauper* Ulmer, 1912 and *A. igneusaper* Melnitsky, 2009 from the Baltic amber and *A. reveraverus* Melnitsky et Ivanov, 2010 from the Rovno amber. It differs from *A. pauper* in the shape of the ventral branches of the gonopods and presence of robust spines on ventral appendages of segment X. From *A. igneusaper* the new species differs in the shape and proportions of the inferior appendages, presence on segment X of appendages bearing strong apical spines, and shape of the apex of the aedeagus. It differs from the third similar species, *A. reveraverus*, in the shape of the apical part of ventral branches of the inferior appendages, structure of the ventral appendages of segment X, and presence of the apical spine on each of the preanal appendages.

Material. Holotype.

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