

A new species of *Triplax* Herbst, 1793 (Coleoptera: Erotylidae) from Bitterfeld amber

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A new species of pleasing fungus beetles *Triplax contienensis* sp. nov. is described from Bitterfeld amber. The new fossil species differs from extant congeners in the subparallel pronotum, the rounded scutellum and the absence of the median stria on the metasternum. The new taxon confirms the morphological stability through time within the genus and suggests that *Triplax* was present in the European fauna since at least the Eocene.

Key words: fossil, *Triplax*, new species, Tertiary, Eocene

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INTRODUCTION

Palaeontological data concerning the family Erotylidae are very scanty. The oldest representatives of the family Erotylidae are known from the Lower Cretaceous Lebanese amber (Kirejtshuk & Azar 2013). Four species of *Tritoma* (*T. materna* Wickham 1912; *T. submersa* Wickham 1912; *T. diluviana* Wickham 1914; *T. petrefacta* Wickham 1916) are described from shales of Florissant Formation [Chadronian, Eocene] and one erotylid taxon (*Mycotretus binotatus* Scudder, 1878) is known from Lower Eocene shales of Green River (Wickham 1912; Wickham 1914; Wickham 1916; Scudder 1878; Scudder 1900). Only two fossil species are described from amber: *Dacne brodzinskyi* Skelley, 1997 in the subfamily Erotylinae Latreille, 1802 [Miocene Dominican amber] and *Xenochimatium rovnense* Lyubarsky et Perkovsky, 2012 in the subfamily Xenoscelinae Ganglbauer, 1899 [Eocene Rovno

amber]. Pleasing fungus beetles have been reported also from Eocene Baltic amber but are quite rare in collections in general (Hieke & Pietrzeniuk 1984). The following extant taxa belonging to Erotylidae were catalogued from Baltic amber: *Cryptophilus* Reitter, 1874; *Dacne* Latreille, 1797 (Klebs 1910) and *Tritoma* Fabricius, 1775 (Spahr 1981). No species and genera from Baltic amber have been described (Alekseev 2013).

In the present paper, the first fossil representative of the subfamily Erotylinae and the first extinct species of the genus *Triplax* Herbst, 1793 in Eocene Bitterfeld amber is described and illustrated. Bitterfeld ("Saxonian") amber attributed to the Upper Eocene is identical in age and in composition of the flora and fauna with Baltic amber (Weitschat 1997, 2008; Hoffeins & Hoffeins 2003) although the sedimentary deposition still is under controversial discussion.

MATERIALS AND METHODS

The amber piece was prepared manually and embedded in polyester resin (Hoffeins 2001). The photos were taken with a Nikon Coolpix 4500 Nikon digital camera, attached to a Wild M3Z stereo-microscope. Illustration of ventral view was made based on free-hand drawing during examination of the original specimen. The drawings were scanned and edited using Adobe Photoshop CS8.

For comparison with the extant members of the genus, the author relied on literature sources (Ruta et al. 2011; Goodrich & Skelley 1993) and specimens from the Kaliningrad region belonging to *Triplax aenea* (Schaller, 1783), *T. russica* (Linnaeus, 1758) and *T. rufipes* (Fabricius, 1781). The suprageneric classification follows Wegrzynowicz (2002) and Bouchard et al. (2011).

SYSTEMATIC PART

Subfamily Erotylinae Latreille, 1802

Tribe Tritomini Curtis, 1834

Genus *Triplax* Herbst, 1793

***Triplax contienensis* sp. nov.**

(Fig. 1-5).

Material examined: Holotype: No 1650-4 [CCHH], sex unknown; deposited in the private collection of Christel and Hans Werner Hoffeins (Hamburg, Germany). The type material will be deposited at the Senckenberg Deutsches Entomologisches Institut in Müncheberg, Germany [SDEI] as part of the institute's amber collection. The beetle inclusion is preserved in a polished piece of transparent amber, orange in color. The amber piece is embedded in polyester resin (total measurements 14 mm x 9 mm x 6 mm). The *Triplax* inclusion frontally is covered with a "milky emulsion". The

syninclusions are represented by three fagaceous stellate hairs.

Derivatio nominis: specific epithet is formed after Contienen (or Kontienen) – old Curonian and later German name for the south-western part of Königsberg city (now Kaliningrad), where the author studied the species.

Stratum typicum: Bitterfeld amber. Eocene.

Type locality: Germany, Sachsen-Anhalt, Goitzsche (Bitterfeld).

Description. Habitus is presented in photos (Fig. 1-3) and drawing (Fig. 5). Body in dorsal view elongate, oval; small, length 4.15 mm, width 1.86 mm, greatest width at humeri, length/width ratio 2.23; dorsally slightly convex; elytra, abdomen, scutellum, meso- and metathorax blackish-brown; head, prothorax, apical part of antennae and legs with lightest pigmentation, reddish-brown; body glabrous, pubescence visible only on tarsi, tibiae and antennal club, very fine and short.

Head (Fig. 4) prognathous, well visible from above, retracted into prothorax up to hind margins of eyes; fronto-clypeal suture and punctuation of the head invisible because of milky cover. Head in dorsal view conical, apically gradually narrowed, slightly convex. Sides of the epistomal-frontal region of the head narrowly margined; apical angles sharp, approximately right-angled. Eyes globular, weakly protruded, finely faceted and relatively small. Antennae 11-segmented, inserted laterally near the anterodorsal margin of eye, reaching elytral base when folded backwards, with 3-segmented expanded club. Antennomere I (scape) fairly large, elongate; antennomere II cylindrical, twice longer than wide; antennomere III almost three times longer than antennomere IV; antennal club with a fine dense pubescence. Last maxillary palpomere triangular, nearly twice as wide as long.



Fig. 1. *Triplax contienensis* sp. nov. Habitus: dorsal view

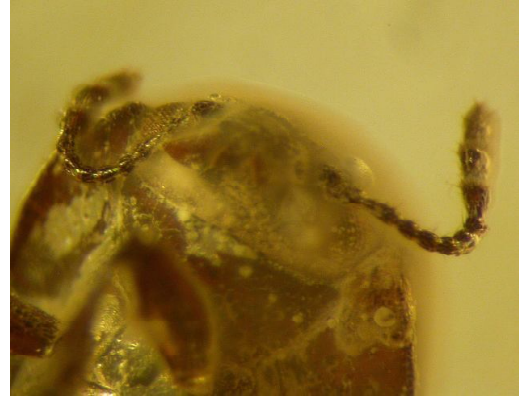


Fig. 4. *Triplax contienensis* sp. nov. Head ventrally



Fig. 2. *Triplax contienensis* sp. nov. Habitus: lateral view

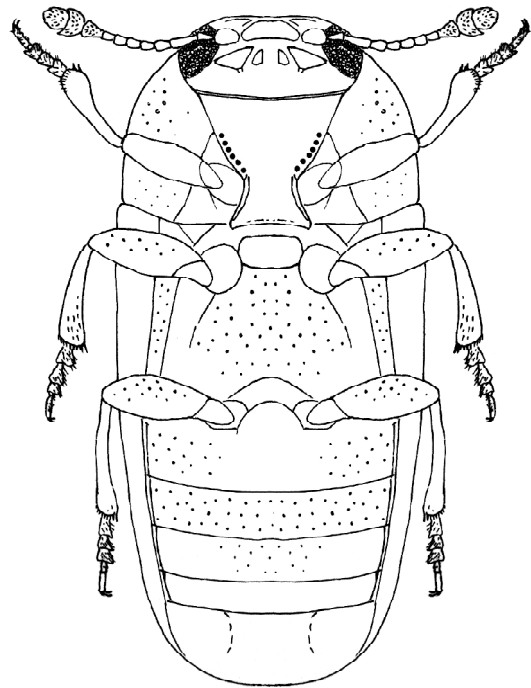


Fig. 5. *Triplax contienensis* sp. nov. Reconstruction, ventral view



Fig. 3. *Triplax contienensis* sp. nov. Habitus: ventral view

Pronotum in dorsal view slightly transverse (length/width ratio 0.54), evenly convex, distinctly margined basally and laterally; basal margin biconcave, centrally projected; lateral margins slightly arcuate, subparallel. Punctuation sparse, fine, irregular; distance between punctures equal to 2–3 puncture diameter. Basal angles with an umblicate pore (visible on right side), apical angles not clearly visible because of milky cover. Prosternal lines short, not extending to front of procoxal cavities. Median stria on metasternum absent.

Legs fairly short and slender, similar in length and shape; procoxae small, globular; mesocoxae globular; metacoxae transversely elongate-oval; trochanters apically obliquely truncate; femurs fairly stout, laterally compressed, ventrally with a slightly concave glabrate surface to accommodate the tibia; tibiae widened towards apex, with two small spurs, protibiae slightly arcuate, compressed; apical margin with a row of ca. 10 short narrow spinules; tarsi 5-segmented, shorter than tibiae; proximal three tarsomeres broadly triangular; tarsomeres I–V ventrally with long fine, densely arranged, apically directed setae; tarsal claws paired, simple. Tarsomere V the longest, tarsomere IV tiny, deeply included in the emargination of the tarsomere III.

Scutellum visible, transverse (twice as wide as long), apical margin rotundate. Elytra punctate-striate; in dorsal view elongate-oval (length/width ratio 2.79), greatest width in humeral area; basal margin of elytra arcuate, margined and crenulate. Humeri not protruded; lateral margins slightly arcuate, subparallel along the anterior third, apically slightly converging, more strongly converging along the posterior half; in lateral view slightly and evenly convex. Epipleura hardly reaching the elytral apex. Elytra with rows of striae punctures; interstriae flat, with an irregular sparse

and very fine punctuation. Metathoracic wings fully developed.

Abdomen in ventral view with five visible segments; anterior margin medially with a distinct rounded projection between the metacoxal cavities. Ventrite V and its posterior margin invisible because of exposed wings.

Differential diagnosis: *Triplax contienensis* sp. nov. is identified as a member of *Triplax* using the following diagnostic features: glabrous elongate body, broad last maxillary palpomere, pseudotetramerous tarsi, eyes finely faceted and relatively small, short prosternal lines short. According to the presence of the umblicate pronotal angle pore, the taxon can be assigned to the true *Triplax*. Unfortunately, the characters of mouthparts are not visible on the studied specimen, making definite comparison with extant congeners impossible.

The newly described species has the last maxillary palpomere triangular, nearly twice as wide as long like *T. puncticeps* Casey, 1916; the basal margin of elytra margined and crenulate like *T. melanocephala* (Latreille, 1804); the sides of the epistomal-frontal region narrowly margined; the apical angles of the pronotum sharp, approximately right, similarly to *T. macra* LeConte, 1854; and a body color similar to the European *T. lepida* (Faldermann, 1837). *T. contienensis* sp. nov. clearly differs from the extant members of *Triplax* in possessing a rounded scutellum (in contrast to a triangular, pentagonal or cuspidate in the majority of extant species) and in the absence of the median stria on metasternum. The body shape of the new species differs from most of the recent species in the more parallel-sided pronotum, only slightly tapered anteriorly.

DISCUSSION

Morphological note: The new taxon confirms the morphological stability through time within *Triplax* and suggests that the genus was present since at least the Eocene in European “amber” forests.

Biological note: Extant *Triplax* species favor soft arboricol basidiomycetes and are usually associated with *Pleurotus* and *Inonotus* species but have been found also on *Fomes*, *Lentinus*, *Laetiporus* and *Polyporus* fruiting bodies (Nikitsky & Kompantzev 1995). Larvae and adults live in fungi, beneath dead fungoid bark, or in rotten wood. Nearly all species are active at night. For the fossil species, a similar biology (arboreal, mycophagous in humid, mixed forest habitat) can be assumed. The rarity of the family in Eocene European amber may be explained by its trophic connection with the fruiting bodies of fungi, which mainly develop on the dead wood of deciduous trees.

Zoogeographical note: *Triplax* is widespread across the Palaearctic, Nearctic and extends into the Oriental region. The Neotropical representatives of *Triplax* need to be studied and, very probably, they do not belong to this genus according to modern authors (Skelley & Cekalovic, 2001). The current distribution of the genus suggests that *T. contienensis* sp. nov. was a temperate or even cold element of the Eocene Baltic fauna.

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Dear carabidologists, friends and colleagues,

We are pleased to announce that the 17th European Carabidologists Meeting will take place from September 20-25, 2015, in Solaris hotel resort in Šibenik, Croatia. After a very nice meeting in Prague, with plenty of interesting presentations in a friendly atmosphere, we hope to offer you attractive scientific and social programs, wrapped in the typical Mediterranean spirit of Dalmatia.

This meeting is being organized for the first time in Croatia, by the Croatian Ecological Society and Association BIOM.

We take you to a historic town of Šibenik situated in the Šibenik-Knin County, located in the middle of Dalmatia, on the east Adriatic coast. Here you will experience Mediterranean lifestyle and typical karst landscape with pristine nature and a wealth of cultural and historical landmarks, from prehistoric and Roman settlements to medieval and Renaissance fortresses. You can enjoy beautiful views of Adriatic islands, Krapanj, Zlarin, Murter etc., or the Kornati archipelago. In addition, you can visit Krka National Park with the beautiful Krka River, flowing from the Dinaric Alps toward the Adriatic Sea, creating unique waterfalls in karst, such as Skradinski Buk. Šibenik is placed in the wide bay at the mouth of Krka River. It is a small but ancient city, with an authentic city centre, narrow streets, renaissance fortresses of St. Mihovil and St. Nicholas, and the wonderful Gothic Renaissance St. James Cathedral, a masterpiece of Croatian and European architecture, placed on the UNESCO World heritage list.

The motto of the 17th ECM, “Learning about carabid habits and habitats – a continuous process in a continuously changing environment”, aims to highlight the continuous research on carabid beetles across Europe and beyond, in various types of habitats in relation to rapid environmental changes in the last decades, such as climate change, land use change, habitat degradations, various anthropogenic pressures etc... However, our invitation does not restrict to these themes only, thus all aspects of carabidology are more than welcome.

We cordially invite all scientists studying carabid beetles to participate and contribute to the quality of this traditional scientific symposium.

During the congress, participants can present their results through oral and poster presentations, and participate in all meeting activities, as well as in the field trip which will be held in Krka National park.

We look forward to your response and to welcoming you in Šibenik in September 2015.

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