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A NEW GENUS OF DIGGER WASPS FROM THE BALTIC AMBER

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The subfamily Ampulicinae until now included Recent genera and species of digger wasps, although Evans [2] as early as 1966 mentioned the sphecids of Recent *Dolichurus* and *Ampulex* of Ampulicinae or forms very close to them in the Baltic amber collection of Harvard's Museum of Comparative Zoology. A fossil sphecid genus belonging to the tribe Dolichurini is described below. The holotype of the new species is deposited at the Paleontological Institute, USSR Academy of Sciences (PIN) as part of collection No. 363. I am extremely grateful to A. P. Rasnitsyn for making this material available to me.

FAMILY SPHECIDAE LATREILLE, 1802

SUBFAMILY AMPULICINAE SCHUCKARD, 1840

Tribe *Dolichurini* Lepeltier, 1845

Genus *Protodolichurus* Nemkov, gen. nov.

Type species. *P. sucinus* sp. nov.

Diagnosis. Clypeus transverse, not too sharply tent-shaped, with median longitudinal keel from its base to its apex. Antenna depressions partly covered with small flaps extending from their upper inner margin. Distance between antenna depressions approximately equal to their diameter. No longitudinal frontal suture or keel. Sinciput clearly convex. Distance from posterior eyes to posterior margin of head approximately 1.5 times greater than height of ocular triangle. Occipital keel does not extend to hypostomal keel. Upper lip concealed. Mandibles comparatively short. Maxillary feelers thin and long, somewhat shorter than height of head. Width of collar of pronotum approximately 2.5 times greater than its length; collar shorter than scutum of mesonotum, with median notch, rounded-angular along sides, and without denticles or tubercles. Scutum convex, with prescutal furrows reaching its posterior margin, but without median groove or parapsidal grooves. Scutellum fairly flat and only a little shorter than scutum. Omauli are distinct; on ventral surface of mesopleura they are connected to V-shaped rudiment of episternal suture. Scrobal furrows and sternaulices are in form of horizontal rows of large depressions and transverse ribs between them reach omauli. Longitudinal median suture on ventral surface of mesothorax is in form of two closely spaced crenulated grooves and thin keel between them. Acetabular keel indistinct. Intercoxal keel present. Intermediate segment has fine-cellular sculpture; its flat dorsal surface grades smoothly into posterior surface. Tarsal pads (plantulae [1]) developed on all legs. Claws of tarsi have small preapical denticle. In forewing, rudiment of 1 r-rs is present; 1 m-cu abuts on 2 rm, and 2 m-cu on 3 rm. Hindwing has small jugal lobe, and its cu-a is postfurcal. Abdomen fixed, and has seven visible segments. Second sternite at base has straight transverse keel; third segment is unmodified.

Specific composition. Type species.

Comparison. Structure of abdomen of male differs from all other known genera of Ampulicinae (see below). New species is closest to *Dolichurus* (it has similar venation of wings and structure of thorax), from which it differs sharply in lack of unpaired projection in lower part of frons, bearing antenna depressions on its lower surface. Differs from Australian *Aphelotoma* and *Austrotoma*, which have no unpaired

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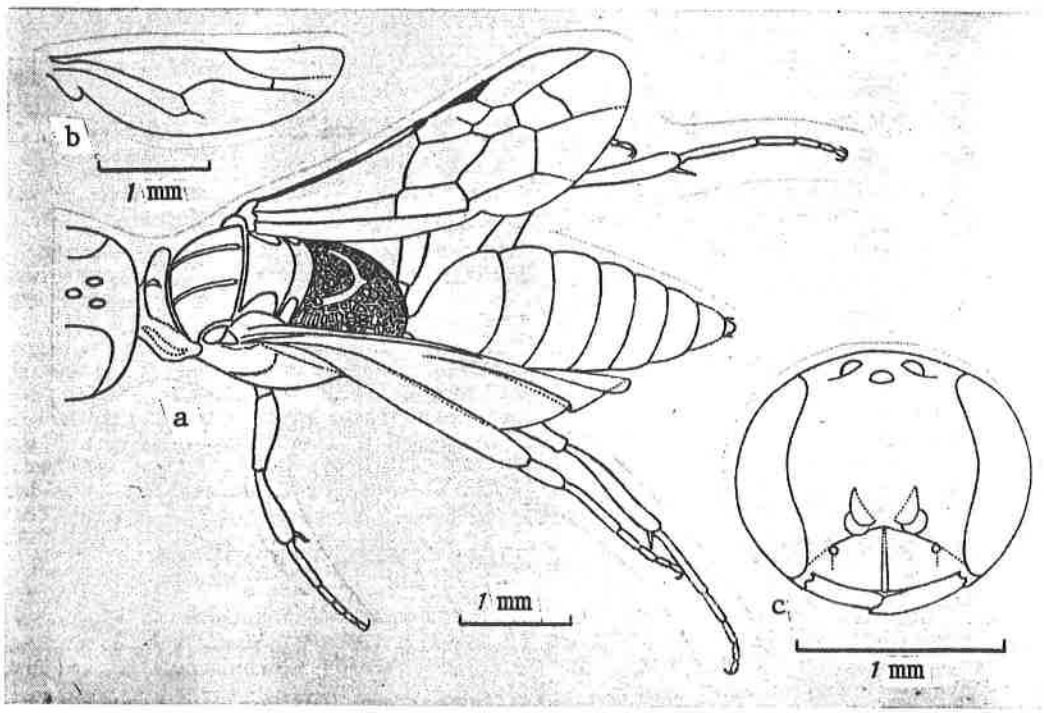

Fig. 1. *Protodolichurus sucinus* sp. nov.; Holotype PIN 363/60; a) overall view; b) hind-wing; c) head from front.

excrescence in lower part of frons, in concealed upper lip, in short collar of pronotum, in presence of scrobal grooves and in different venation of wings.

Remarks. Males of Ampulicinae are characterized by abdomen with three visible segments; their fourth to seventh segments are either completely drawn into abdomen and not visible externally, or are only slightly pushed forward; moreover, their third segment (especially sternite) is modified to one degree or another. Abdominal structure of male of new genus is more primitive: each of second to seventh segments is almost completely pushed out from beneath preceding one, and third segment is virtually no different from fourth. Moreover, *Protodolichurus* has no other apomorphic features except for those common to all Ampulicinae, which enables this form to be regarded as close to common ancestor of all Ampulicinae or at least all members of tribe Dolichurini.

Protodolichurus sucinus Nemkov, sp. nov.

Specific name. From the Latin *sucinus* ("amber").

Holotype. PIN 363/60; well-preserved inclusion with only antennae damaged; Baltic amber, Upper Eocene.

Description (Fig. 1). Male. Clypeus somewhat roundly curved from below, and very finely and densely dotted; its anterior margin evenly rounded and convex, with no denticles. Frons convex and has irregular sculpture of fine wrinkles. Inner orbits of eyes distinctly concave. Eyes are at vertices of almost equilateral triangle. Distance between posterior eyes is twice the diameter of eye and 1.1 times smaller than distance from eye to eye. Cheeks very narrow, their height markedly less than diameter of anterior eye. Mandibles at apex have two denticles; lower denticle is distinctly longer than upper. Antennae are bristle-like; their fourth to sixth segments are approximately two times longer than their maximal width. Thorax smooth and shiny, with very frequent fine dots at base of projecting hairs. Segments of tarsi on all legs are elongated and almost cylindrical. On forewing, rudiment of 1 r-rs is well-developed, parallel to 2 r-rs; cell of 2 rm is markedly longer than its height and narrows strongly toward its upper margin, and is approximately equal in length to 3 rm; 1 m-cu almost straight; cu-a is antefurcal. Abdomen has rare fine dots against background of dense reticular microsculpture. Cerci are thin and cylindrical. Body dark, wings lack dark spots.

Dimensions in mm: Length of body 6.2, length of forewing 3.6.

Material. Holotype.

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A NEW GENUS OF ARTHRODIRES FROM THE UPPER DEVONIAN OF TIMAN

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Fossils of arthrodires are often found in the Frasnian of the Timan region. On the basis of an incomplete skull roof Obrucheva [1] distinguished the new species *Plourdosteus timanicus*, from the Upper Devonian, evidently Frasnian, of southern Timan. I have at my disposal new material of this species, very kindly made available to me by E. Yu. Mark-Kurik (Institute of Geology, Estonian SSR), which consists of the greater part of a skull roof (Spec. Pi 1098) and an impression of the orbital region of a skull (Spec. Pi 1099) from the Lower Frasnian Tsil'ma formation in the Middle Timan region, on the Tsil'ma River (collected by the geologist A. Ye. Tsaplin). In addition to the above material, I have found several fragments of plates of the skull roof in the Ust'-Chirka formation on the Pechorskaya Pizhma River.

After detailed study of the morphology of the skull roof and its comparison with other representatives of the genus *Plourdosteus* and the whole family Coccosteidae, it was established that the Timan species differs so much from other known species of *Plourdosteus* that it can be assigned to its own independent genus. Moreover, the skull structure of the latter has features characteristic of two families -- Coccosteidae and Dinichthyidae. Thus the new genus, together with such arthrodires as *Golshanichthys asiatica* Lelievre [4], *Ulrichosteus milesi* Lelièvre [3] and the representatives of *Eastmanosteus*, can perhaps also be assigned to a separate family.

The terminology for the individual plates of the skull roof is taken from [2] (Fig. 1b). The type specimens are deposited in the Geological Museum of the Institute of Geology, ESSR Academy of Sciences, as Nos. Pi 1098 and 1099.

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