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NEW GENUS AND SPECIES OF THE TRIBE OPATRINI (COLEOPTERA, TENEBRIONIDAE, TENEBRIONINAE) FROM THE LOWERMOST EOCENE AMBER OF PARIS BASIN

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ABSTRACT

Eupachypterus eocenicus gen. et sp. nov. from the Lowermost French Eocene Amber is described. The genus is most similar to the genera *Neopachypterus* and *Pseudolamus* from the tribe Opatrini by the shape of trochanters, but differs in the large eyes, presence of a row of spines along protibiae, very long spurs of protibiae (about as long as tarsomere 3), narrow subcylindrical apical maxillary palpomere, shape of apical labial palpomere and acute apex of penis trunk.

Key words: Lowermost Eocene French amber, Coleoptera, Tenebrionidae, new genus, new species

НОВЫЕ РОД И ВИД ТРИБЫ OPATRINI (COLEOPTERA, TENEBRIONIDAE, TENEBRIONINAE) ИЗ НИЖНЕЭОЦЕНОВОГО ЯНТАРЯ ПАРИЖСКОГО БАССЕЙНА

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РЕЗЮМЕ

Описан *Eupachypterus eocenicus* gen. et sp. nov. из нижнеэоценовогофранцузского янтаря. Этот род довольно сходен с родами *Neopachypterus* и *Pseudolamus* из трибы Opatrini по форме вертлугов, но отличается очень крупными глазами, наличием ряда шипиков вдоль наружного края передних голеней, очень длинными шпорами передних голеней (примерно такими же длинными, как таросомер 3), сравнительно узким почти цилиндрическим последним члеником максиллярных щупиков, формой лабиального щупика и заостренной вершиной ствола пениса.

Ключевые слова: нижнеэоценовый французский янтарь, Coleoptera, Tenebrionidae, новый род, новый вид

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INTRODUCTION

This paper is present a seventh contribution to the knowledge on fauna of Coleoptera from the Lowermost Eocene French amber collected in Oise falls of Paris Basin (Nel et al. 1999; Batelka et al. 2006; Bilý and Kirejtshuk 2007; Kirejtshuk and Nel 2008, 2009; Kirejtshuk et al. 2010; Moseyko et al. 2010). A short review of data on fossils and historical development of the family Tenebrionidae are considered in Kirejtshuk et al. (2008) and more detailed information on representation of this coleopterous family in the fossil record can be found in the catalogue by Ponomarenko and Kirejtshuk (2010).

Medvedev (1968) proposed the tribe Pachypterini for two genera: *Pachypterus* Lucas, 1846 and *Pseudolamus* Fairmaire, 1874 and based this tribe on males not having the blapstinoid type of aedeagus (sensu Iwan [2004]: aedeagus like that in species of the genus *Blapstinus* Dejean, 1821) and structural peculiarities of the female abdominal segment 9. Earlier Español (1945, 1958) put both of these genera (*Pachypterus* and *Pseudolamus*) in the tribe Opatrini and later on, Iwan (2004) re-interpreted the composition of Opatrini and placed only *Pachypterus* in the subtribe Pachypterina because of the peculiar structure of the trochanter/femur articulation. This interpretation was sustained in further publications (Bouchard et al. 2005; Iwan and Löbl 2008 etc.), however, Bouchard et al. (2007) designated replacement names for the genus *Pachypterus* and the corresponding subtribe in order to eliminate the junior homonym of the type genus. The replacement names are *Neopachypterus* Bouchard, Löbl et Merkl, 2007 and Neopachypterina Bouchard, Löbl et Merkl, 2007. Following this classification, we herein describe *Eupachypterus eocenicus* gen. et sp. nov. in the tribe Opatrini and under the subtribe Neopachypterina.

MATERIAL AND METHODS

The holotype of the species under consideration is deposited in the Laboratoire de Paléontologie, Muséum National d'Histoire Naturelle, Paris. The specimen was studied using a stereomicroscope Olympus SCX9 and inverted microscope Olympus CK 40 in the Paris museum, and also a stereomicroscope Leica MZ 16.0 in the St. Petersburg institute.

SYSTEMATICS

Family Tenebrionidae Latreille, 1802

Subfamily Tenebrioninae Latreille, 1802

Tribe Opatrini Brullé, 1832

Subtribe Neopachypterina Bouchard, Löbl et Merkl, 2007

***Eupachypterus* gen. nov.**

Type species. *Eupachypterus eocenicus* sp. nov.

Etymology. The name of this new genus is formed from the Greek 'eu' (fine, happy, good) and generic name *Pachypterus*; gender masculine.

Diagnosis. Body slender and medium-sized, pubescence with suberected hairs. Anterior edge of frons ("clypeus") with shallow emargination. Eyes very large and convex. Apical antennomere sphere-shaped with acute apex; three apical antennomeres sphere-shaped; wider than 1–8 antennomeres. Pronotal edges smooh, without crenellation (denticulation); its sides and base with brownish long suberected setae. Elytra moderately flattened, near parallel, intervals with deep suberected setae. Trochanters of elongate type and with a small basal sclerite. Outer edge of protibia with a row of distinct spines. Spurs of protibiae very long (about as long as tarsomeres 1–3 combined).

Comparison. This new genus is similar to *Neopachypterus* and *Pseudolamus* Fairmaire, 1874 (Fig. 10) in structure of the trochanter/femur articulations, but differs from it by the following features: eyes very convex and large, especially ventrally, spurs of protibia very long and reach to 3rd segment of tarsi, genae not expanded, emargination of anterior edge of frons not wide or deep; apical segment of maxillae not widened, cylindrical; apex of apical antennomere subacute, not rounded. The outer edge of protibiae, in contrast to other members of subtribe, bears a row of distinct spines. Apex of penis acute, while the most *Neopachypterus* and *Pseudolamus* have the penis trunk rounded apically.

This new genus is included in the subtribe Neopachypterina as the shape of the trochanter is elongate with an intercalare sclerite, which is consistent with other genera of this subtribe. The mediate sclerite of tegmen is not visible, however the apex of parameres with penis are well visible and aedeagus is similar to some *Neopachypterus*, for example, *N. girardi* described by Ferrer (2000) and to other groups of the tribe Opatrini (Iwan 2004). Some charateristic

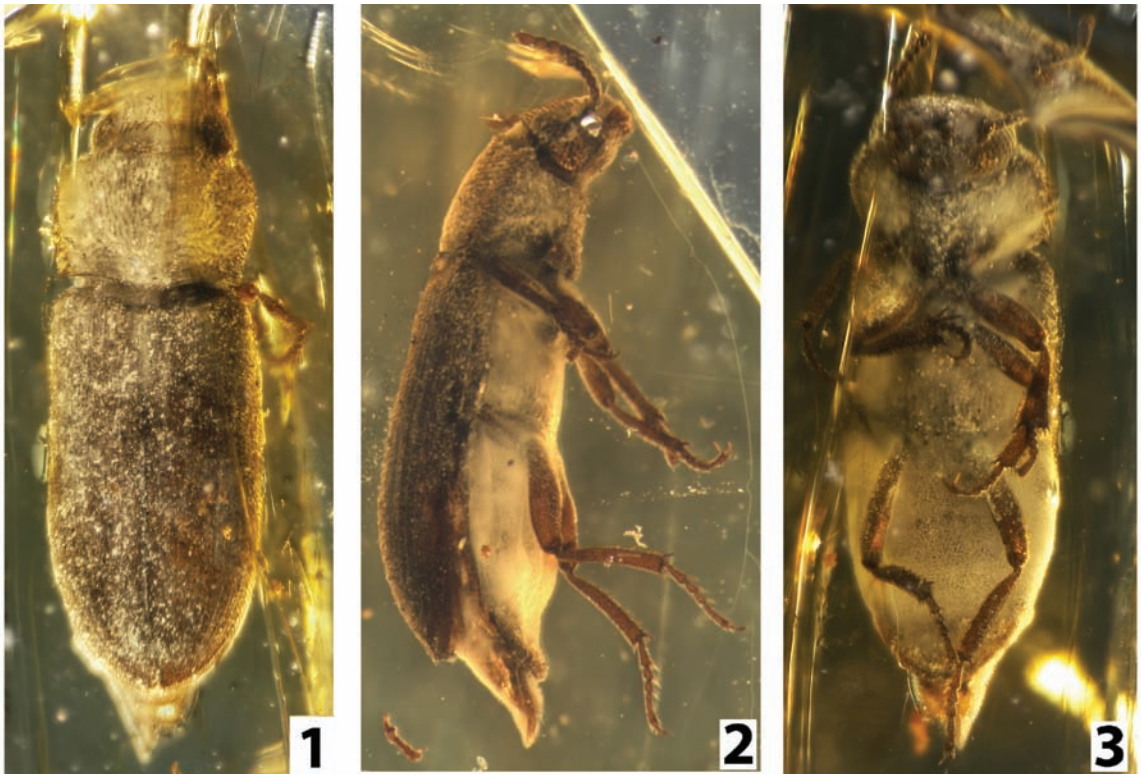
structures defining the tribe Opatrini are comparatively weekly expressed in *Eupachypterus* gen. nov. Other members of Opatrini have the anterior edge of frons ("clypeus") with a deep median emargination at its anterior edge and is expanded over the scape dorsally. *Eupachypterus eocenicus* sp. nov. demonstrates a shallow emargination of the anterior edge of frons and is weakly expanded. The shape of antennomere three is quite distinct among the tribe and is nearly as long as the following antennomeres, whereas in many Opatrini, antennomere three is longer.

The subtribe Neophachypterina sensu Medvedev (1968) and Iwan (2004) is a less specialized group among Opatrini because of the generalized tibial structure, the longer length of antennomere three, and the aedeagus weakly specialized (i.e. a somewhat blapstinoid type). Representatives of the subtribe occur in more or less mesophilic biotopes even of arid areas. The genus *Eupachypterus* seems to be even less specialized among other members of the subtribe.

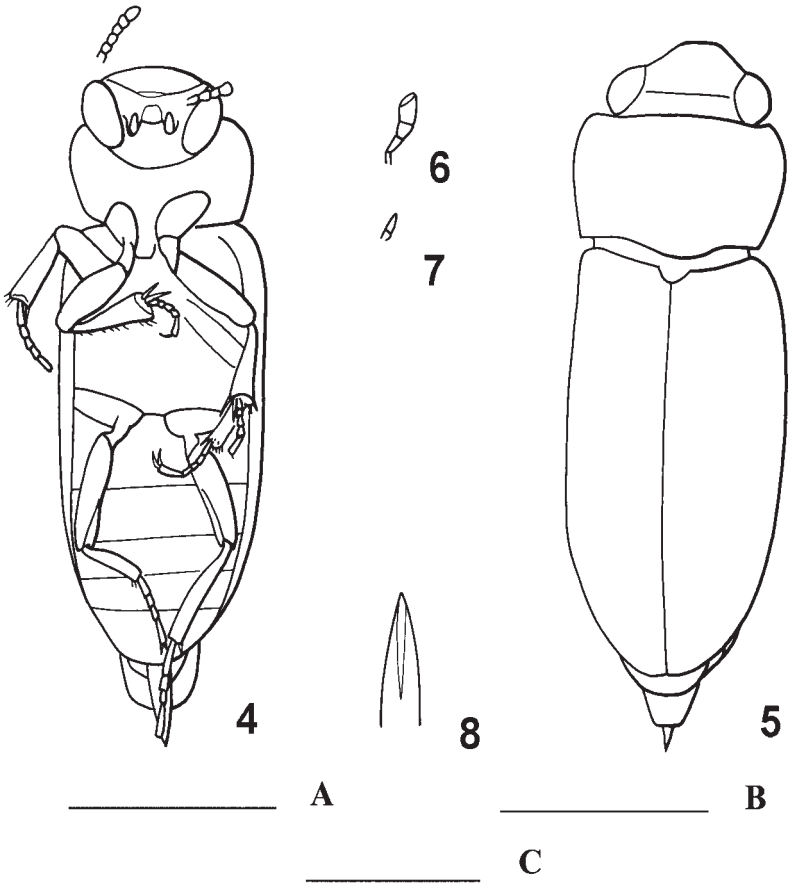
Notes on bionomics. The rather large and convex eyes widely placed on the head underside could somewhat testify for night activity and/or ability to fly. The shape of antennomere 3 is different from those in the rest of the Opatrini, and seems to be evidence of a mode of life somewhat different from that in recent species of the tribe (could be a mode of life not associated with inhabitance in arid and subarid landscapes). This genus has a somewhat unique structure of eyes, protibia and tibial spurs, which could be interpreted as probable adaptations to life on trees or bushes rather than soil-dwelling.

Eupachypterus eocenicus sp. nov.
(Figs. 1–9)

Holotype. 'PA 2308', 'MNHN A32837' male with slightly exposed penis trunk; the complete specimen is included in a small irregular elongate amber parallelepiped consisting of some layers and "milky cover" along pubescent integument, particularly along the underside; the inclusion is put in a circular reservoir with "Canada Balsam" fixed on a microscope glass.



Figs. 1–3. *Eupachypterus eocenicus* gen. et sp. nov. (Coleoptera, Tenebrionidae), holotype: 1 – body, dorsal; 2 – idem, lateral; 3 – idem, ventral. Length 3.6 mm.



Figs. 4–8. *Eupachypterus eocenicus* gen. et sp. nov. (Coleoptera, Tenebrionidae), holotype: 4 – body, dorsal; 5 – idem, ventral; 6 – maxillary palpomeres; 7 – ultimate labial palpomere; 8 – apex of penis trunk, dorsal. Scale bars: A – to figs 4 and 5, bar 1.1 mm; B – to figs 6 and 7, bar 0.5 mm; C – to fig. 8, bar 0.3 mm.

Type strata. Lowermost Eocene, in amber, *circa* – 53 Mya, Sparnacian, level MP7 of the mammal fauna of Dormaal (see Nel et al. 1999).

Type locality. Farm Le Quesnoy, Chevrière, region of Creil, Oise department (north of France).

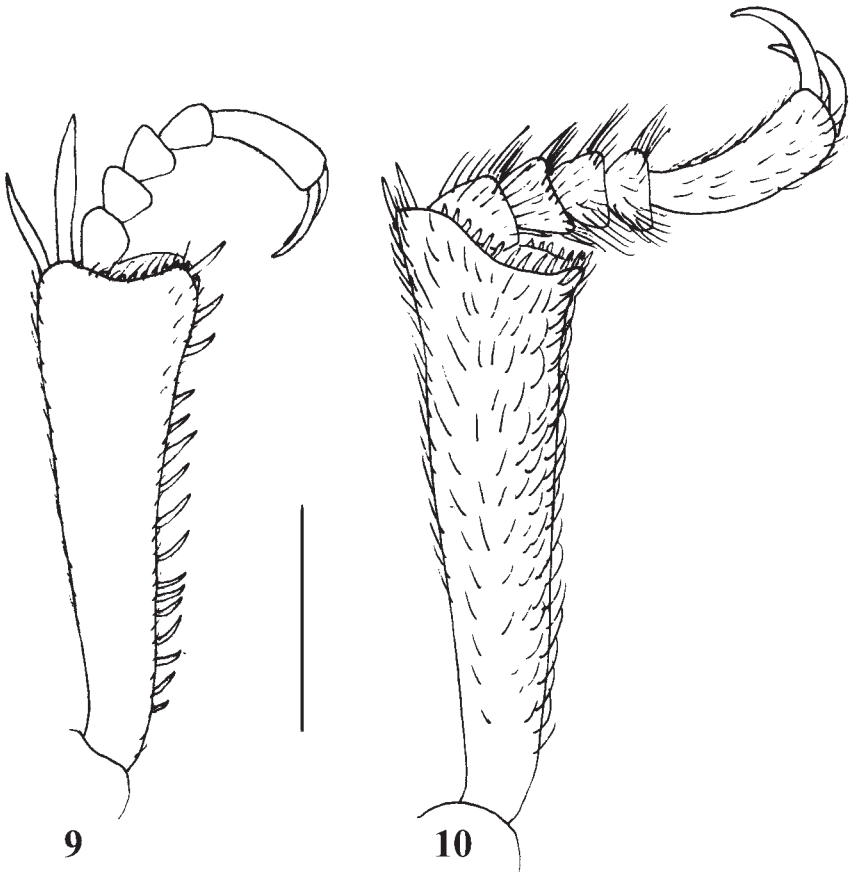
Etymology. The name of the new species is the adjective form from the Eocene.

Description. Length 3.6, width 1.5, height 0.8 mm. Elongate oval, strongly convex dorsally and ventrally; dark brown with appendages brownish; dorsum with long, very thick and stout yellow, brownish to dark brown suberected (arcuately curved) hairs nearly twice as long as ultimate antennomere. Elytra with 11 longitudinal rows of suberected setae; base of head, all edges of pronotum, lateral edges of elytra and a row posterior edges of eyes with long setae, disc with thinner setae; besides, these longer hairs diffusely intermixed with yet thinner and shorter ones; underside (especially promeso- and metathorax) with moderately conspicuous and moderately thick suberected to erected hairs about as long as ultimate antennomere. Sculpture and puncturation of integument are not visible, although surface of basal antennomeres cellularly microreticulated.

Head oval, much narrower than pronotum, with very large, convex vertical and coarsely faceted eyes, somewhat convex and short frons gently rounded anteriorly. Anterior edge of frons shallowly emarginate. Labrum well exposed, short and transverse. Ultimate maxillary palpomere cylindrical, not flattened. Antennae about as long as head wide, 11-segmented, moniliform, elongate scape rather small and shorter antennomere 2, subapical antennomeres gradually becoming larger apically and ultimate antennomere slightly larger than penultimate one; apical antennomere round, with acute apex; antennomere 3 not longer than other antennomeres; antennomeres covered with sparse, rather short and very stout hairs. Pronotum about as wide as combined elytral base, about 1 and 3/5 as wide as long, widest before middle, moderately and gently vaulted at disc and nearly subexplanate at sides; its anterior edge somewhat trapezium excised and shallowly bisinuate, sides broadly arcuate; its posterior edge bisinuate and rounded medially. Scutellum strongly transverse and widely rounded at apex, apparently at least twice as wide as long. Elytra about 1 and 8/9 as long as wide combined, longest at suture and gently narrowing in posterior third along sides, forming a very small sutural angle, steeply sloping laterally and somewhat declined on ventral sides (from below visible lateral sides which wider than distance between lateral edges), with very weak shoulders, adsutural lines not vis-

ible. Pygidium widely rounded to subtruncate at apex. Anal sclerite well exposed from under pygidium and with shallowly emarginate posterior edge.

Most part of body underside not visible because of optic aberration in different layers of amber and rather thick "milky cover". Procoxae moderately large, transversely oval, slightly projecting downwards and moderately widely separated; procoxal cavities apparently not completely closed posteriorly; prosternal process moderately wide, moderately curved along coxae and truncate at apex (distance between procoxae somewhat greater than width of ultimate antennomere). Mesocoxae apparently subtransversely oval and very narrowly separated. Metaventrite subflattened along the middle, posterior edge between coxae arcuately shallowly emarginate. Distance between metacoxae about 1 and 2/3 as great one between mesocoxae. Metepisterna apparently moderately narrow and not visible clearly. Metacoxae more or less strictly transverse (apparently not oblique). Abdominal ventrite 1 longest; hypopygidium longer than each of ventrites 2–4 combined and shorter than ventrite 1, posterior edge of it widely rounded.



Figs. 9–10. Protibia and tarsus: 9 – *Eupachypterus eocenicus* gen. et sp. nov. (Coleoptera, Tenebrionidae); 10 – *Neopachypterus serrulatus* (Reitter, 1904). Scale bar 0.4 mm.

Legs well developed, moderately narrow and long, diffusely covered with short and stout setae. Tibiae moderately compressed; protibiae rather dilatated apically (nearly twice as wide as ultimate antennomere), but meso- and metatibae scarcely widened apically, slightly wider than ultimate antennomere. Protibiae with a row of distinct spines along outer edge. Femora of usual shape and slightly compressed, about 1.5 times as wide as protibiae. Tibial spurs rather long, protibiae with spurs about as long as tarsomere 3. Tarsi moderately long, about as long as tibiae, protarsomeres 1–4 and also mesotarsomeres 2–4 and metatarsomeres 2 and 3 about as long as wide, meso- and metatarsomeres 1 subconical, ultimate tarsomeres longest; claws simple, narrow and not long, about 1/3 as long as ultimate tarsomere.

Aedeagus moderately sclerotised. Parameres with acute apex, merged, penis narrow and acute.

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