New genera and species of Cucujiformia (Coleoptera, Polyphaga) from lowermost Eocene French amber

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Abstract: In this paper we describe *Palaeoestes eocenicus* gen. et sp.nov. (oldest representative of subfamily Leiestinae; Endomychidae), *Corticaria hodeberti* sp.nov. and *C. missa* sp.nov. (Latridiidae), *Bertinotus gallicus* sp. nov. (oldest representative of Mycteridae) and *Eopeplus stetzenkoi* gen. et sp.nov. (first fossil representative of the subfamily Inopeplinae; Salpingidae). Short reviews of known fossil records of the mentioned families are given. *Palaeoendomychus gymnus* ZHANG, 1992 described in Endomychidae has been preliminarily transferred into the family Peltidae.

Key words: Endomychidae, Latridiidae, lowermost Eocene amber, Mycteridae, Salpingidae

Santrauka: Šioje publikacijoje aprašomi: *Palaeoestes eocenicus* gen. et sp.nov. (seniausias pošeimio Leiestinae; Endomychidae vabzdys), *Corticaria hodeberti* sp.nov. ir *C. missa* sp.nov. (Latridiidae), *Bertinotus gallicus* sp.nov. (seniausias šeimos Mycteridae atstovas) ir *Eopeplus stetzenkoi* gen. et sp.nov. (pirmasis fosilinis pošeimio Inopeplinae; Salpingidae pavyzdys). Trumpai aptariami visų paminėtų šeimų fosiliniai pavyzdžiai. *Palaeoendomychus gymnus* ZHANG, 1992 priskirtas Endomychidae šeimai, preliminariai perkeliamas į Peltidae šeimą.

Raktiniai žodžiai: Endomychidae, Latridiidae, seniausias eoceinis gintaras, Mycteridae, Salpingidae.

Introduction

This paper is presenting the fifth contribution to the knowledge on the Coleoptera fauna from lowermost Eocene French amber collected in Oise falls (BATELKA et al. 2006; BÍLÝ & KIREJTSHUK 2007; KIREJTSHUK & NEL 2008; KIREJTSHUK et al., in press). It is devoted to the unknown families from this resource and to those that are poorly known as fossils in general. The families considered in the paper are provided with a short necessary review of data on systematics and historical development. More detailed information on representation of these coleopterous families in the fossil record can be obtained from the catalogue by PONOMARENKO & KIREJTSHUK (2008). All new genera here described are represented by the only species and, therefore, descriptions of them would considerably overlap with the description of species ("descriptio generica specifica").

Material and methods

Many specimens recovered among inclusions from lowermost Eocene French amber are deposited in the Laboratoire de Paléontologie, Muséum National d'Histoire Naturelle, Paris. For study of them usual optic equipment was used, in particular the stereomicroscope Olympus SCX9 and inverted microscope Olympus CK 40 in the Paris museum, and also the stereomicroscope Leica MZ 16.0 in the St. Petersburg institute.

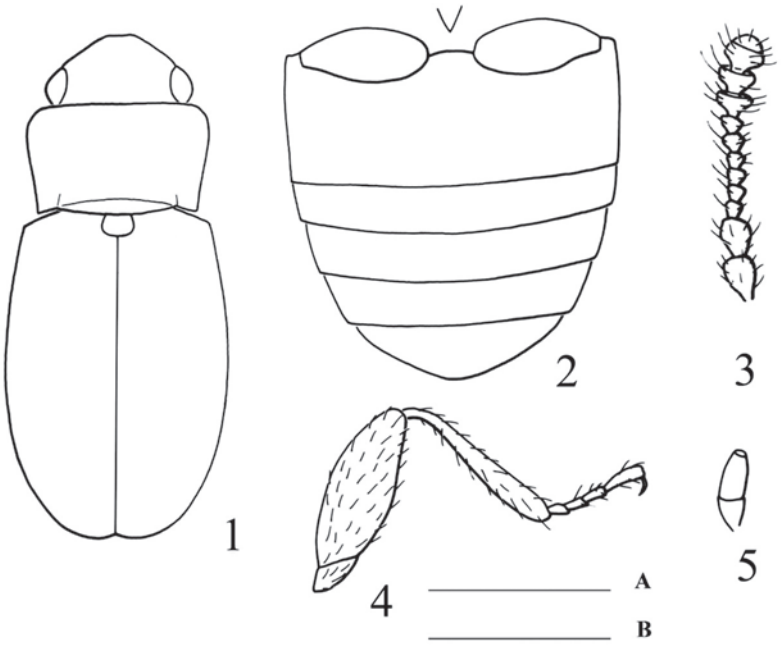
Type strata: lowermost Eocene, in amber, c. 53 Ma, Sparnacian, level MP7 of the mammal fauna of Dormaal.

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

Systematic account

Family Endomychidae LEACH, 1815

The family can be recognized due to the characteristic sulci on pronotum, 11-segmented antennae with club, procoxal cavities open posteriorly, procoxae without exposed trochantin, subcoxal fovea on metaventrite, tarsal formula 4-4-4 or 3-3-3 and lobed tarsi. As recent representatives of the family the fossil species here described seemed to be mycetophagous and associated with rotten wood and fungus-infested bark. Composition and structure of the family follows TOMASZEWSKA (2000). There are not so many data on the historical development of this family which has not been recorded earlier than the Late Eocene (Baltic amber). Thus, the specimen here described is its oldest record. Among other fossils registered in Baltic amber



Figs 1-5: *Palaeoestes eocenicus* gen. et sp.nov., holotype: (**1**) body, dorsal; (**2**) metacoxae and abdomen, ventral; (**3**) antenna; (**4**) posterior leg, ventral; (**5**) maxillary terminal palpomeres. Scale bars: A = 0.3 mm (Fig. 1); B = 0.15 mm (Figs 2-5).

there are known: *Holoparamecus* sp.; *Phymaphoroides antennatus* MOTSCHULSKY, 1856; *Leiesthes* sp.; *Hyleia* sp.; *Mycetina* sp.; *Lycoperdina* sp.; *Mycetaea* sp. (MOTSCHULSKY 1856; KLEBS 1910; KUBISZ 2000; etc.). Besides, *Engonius alviolatus* (*Miocarabus alviolatus* HONG, 1983) was described as a member of Carabidae from the Miocene Shanwang and the genus *Mycetaea* STEPHENS, 1830 was mentioned for the Oligocene Bitterfeld amber (BARTEL & HERTZEL 1982). From copal *Trycherus castaneus* (HOPE, 1837) (*Eumorphus*) and *Trochoideus cruciatus* (DALMAN, 1825) (*Pausus*) are also known.

Subfamily Leiestinae THOMSON, 1863

The general appearance, outline of the head, antennae, maxillary palpi, prothoracic sclerites, as well as the comparatively small distance between metacoxae, structure of legs with four-segmented tarsi and abdominal ventrite 1 of the species here described are corresponding better with those in the members of Leiestinae than with those in all other groups of the family.

Genus *Palaeoestes* gen.nov.

Type species: *Palaeoestes eocenicus* sp.nov.

Etymology: Named after the Greek "palaiós" (ancient) and the generic name *Leiestes*, masculine gender.

Diagnosis: The new genus is distinct from all groups of the subfamily in the combination of the transverse pronotum widest at anterior edge and with very weak paralateral depressions (sulci) at comparatively greater distance from posterior angles, weak transverse basal depression (sulcus) of pronotum, evenly outlined pronotal sides, comparatively large scape, subequal thickness of all three antennomeres of the club, ultimate maxillary palpomere slightly more than twice as long as thick, prosternum before procoxae about twice as long as pro-

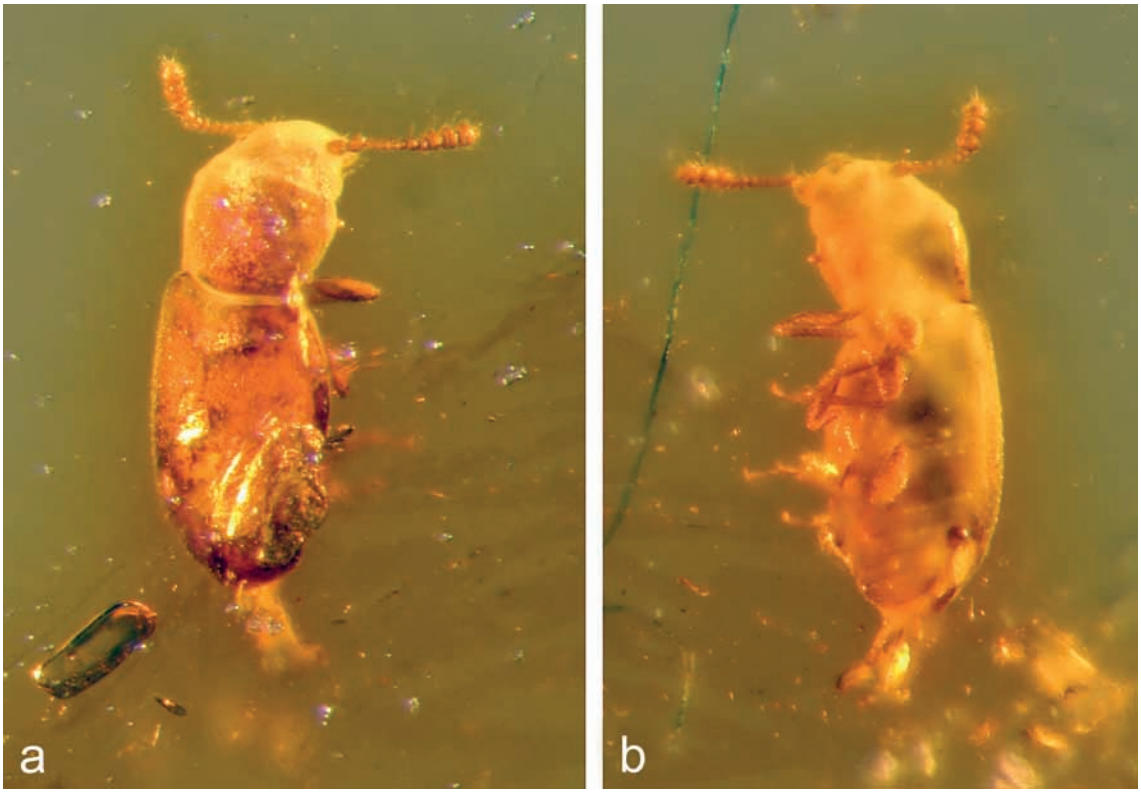


Fig. 6: *Palaeoestes eocenicus* gen. et sp.nov.: (**a**) body of holotype, dorsal; (**b**) ibid., ventral.

coxae and distance between metacoxae about third as great as metacoxae wide. The type species of this new genus is also characterized by the subunicolorous body, very sparse puncturation on dorsum not demonstrating longitudinal rows on elytra and very short and fine straw reddish hairs. The unique characters among the subfamily are the comparatively large eyes, very large antennomere 2, shape of pronotum and very weak paramedian depressions on the pronotum, and also rather long prosternum. The fossil here described is distinct from *Phymaphoroides antennatus* MOTSCHULSKY, 1856 described from Baltic amber because, according to the original description, the latter has the strongly enlarged antennomere 9. Another species described as Endomychidae is *Palaeoendomychus gymnus* ZHANG, 1992, which is much wider and much larger (its attribution to the family is needed additional confirmation, although it can be preliminarily considered as a member of Peltidae KIRBY, 1837 rather than Endomychidae). Besides, within the genera of the subfamily the new genus can be distinguished by the following characters:

from *Leiestes* DEJEAN, 1836 by the more distinct antennal club, longer ultimate maxillary palpomere, more transverse posterior edge of scutellum, longer metaventrite, simple protibia;

from *Ponamomus* GORHAM, 1873 by the more distinct antennal club, shorter scutellum with more transverse posterior edge, much longer metaventrite, much smaller distance between much wider metacoxae, metacoxae shorter and wider, gently rounded posterior edge of hypopygidium;

from *Rhanidea* STROCHEKER, 1953 by the more distinct antennal club, longer ultimate maxillary palpomere, longer scutellum, a little smaller distance between metacoxae, metacoxae somewhat shorter, simple protibia, gently rounded posterior edge of hypopygidium;

from *Phymaphora* NEWMAN, 1838 by the longer ultimate maxillary palpomere, shorter scutellum with more transverse posterior edge, much smaller distance between wider metacoxae, metacoxae shorter and wider;

from *Stethoranis* BLAISDELL, 1931 by the more distinct antennal club, longer ultimate maxillary palpomere, longer scutellum with more transverse posterior edge, much longer metaventrite, metacoxae somewhat shorter, simple pro- and metatibiae;

from *Ranalies* TOMASZEWSKA, 2000 by the more distinct antennal club, evenly outlined pronotal sides, more transverse posterior edge of scutellum, longer metaventrite, somewhat smaller distance between much wider metacoxae, gently rounded posterior edge of hypopygidium.

Palaeoestes eocenicus sp.nov. (Figs 1-5, Fig. 6)

Material: Holotype – "PA 1052", sex unknown. The complete beetle with distal parts of posterior wings exposed from under apices of elytra is included in a small and thin subquadrangular amber piece (with length about 7.0 mm and width 7.0 mm) with a crack crossing the entire piece (beetle is located along crack). Head dorsally and most part of the underside with rather thick milky cover, although sclerites on the median part of pterothorax and abdomen are more or less visible.

Etymology: The epithet of this new species refers to the epoch of amber origin.

Description: Holotype: Length 1.20 mm, width 0.35 mm, height about 0.25 mm. Elongate, rather convex dorsally and ventrally; subunicolorous straw reddish; slightly shining; dorsum with very fine and extremely short hairs scarcely visible), underside and appendages apparently with somewhat denser hairs, only tarsi and antennomeres with longer and more conspicuous hairs.

Pronotum and elytra with more or less distinct, diffuse and irregular punctures subequal to or smaller than eye facets in diameter; interspaces between punctures on pronotum about twice as great as eye facets in diameter, interspaces between punctures on elytra somewhat greater than eye facets in diameter and apparently smoothly alutaceous. Underside with indistinctly visible integument.

Head rather long and gently convex, apparently somewhat more than 1.5 times as long (from vertex to anterior edge of frons) as distance between eyes, somewhat declined ventrally, with moderately large eyes, distance between them about 6 times as great as width of one eye; antennal insertions located just before anterior edge of eyes; eyes moderately finely facetted. Labrum and mouthparts invisible clearly because of milky cover, however, apparently well exposed and probably rather projecting. Antennae 11-segmented, moderately long, about 1.5 times as long as head width at eyes; scape bulbous and somewhat longer than thick, markedly longer than ultimate antennomere; antennomere 2 about as shaped as scape, but somewhat smaller; antennomeres 3-8 subtriangular to oval (about as long as thick); antennomeres 9-11 forming a loose club, ultimate antennomere about twice wider than previous ones, antennomere 11 about 1.5 times longer than antennomeres 9 and 10, its apex subconical. Pronotum subquadrate, wider at rounded anterior angles than at pointed posterior ones, about 1 and 2/3 as long as wide, rather vaulted and moderately steeply sloping at slightly carinate sides; its anterior edge almost straight, posterior edge widely convex in the middle and slightly emarginate at

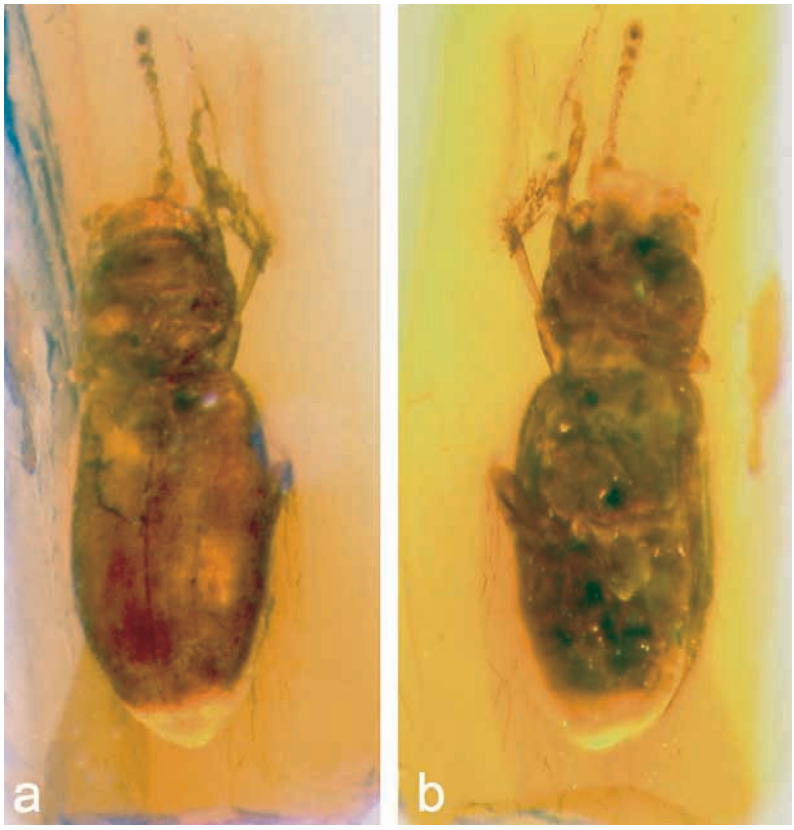


Fig. 7: *Corticaria hodeberti* sp.nov.: (**a**) body of holotype, dorsal; (**b**) ibid., ventral.

posterior angles; at posterior angle there are short sublateral sulci and between them there is a slightly curved transverse depression. Scutellum small, slightly narrowed at base and widely rounded at apex. Elytra about 1 and 1/3 as long as wide combined, strongly convex at disk and rather steeply sloping at sides, their sides arcuate and widest at midlength, apices arcuate and apparently forming a small sutural angle, adsutural lines absent. Only widely rounded apex of pygidium slightly exposed from under apices of elytra.

Two maxillary palpomeres visible, ultimate one about twice as long as penultimate one and gently narrowing at apex. Prosternum medially moderately vaulted, its process apparently very narrow and moderately far projecting beyond posterior edge of procoxae. Distance between mesocoxae markedly greater than that between procoxae, and that between metacoxae about twice as great as that between mesocoxae. Procoxae apparently transverse and not closed posteriorly. Mesoventrite moderately short. Mesocoxae suboval and moderately globous. Metaventrite depressed in the middle in distal half, only slightly shorter than prosternum, posterior edge between coxae shallowly angularly excised. Metepisterna moderately narrow (apparently about 1.5 times as wide as antennal club). Abdominal ventrite 1 about 2/3 as long as metaventrite and as long as ventrites 2-4 combined, hypopygidium slightly longer than each of ventrites 2-4 and widely rounded at apex. Epipleura of elytra moderately narrow (slightly narrower than antennal club), elevated laterally and gradually narrowing posteriorly.

Legs very narrow and very long. Trochanters of elongate type and moderately long. Tibiae very thin and somewhat longer than femora, sparsely covered with long setae and without spurs. Femora of usual configuration and about three-four times as wide as corresponding tibiae. Tarsi with four simple subcylindrical tarsomeres, tarsomeres 1 somewhat shorter than each of tarsomeres 2 and 3, ultimate tarsomere slightly shorter than tarsomeres 2 and 3, claws simple, narrow and moderately long, about 1/3 as long as ultimate tarsomere.

Family Latridiidae Erichson, 1842

This family is characterized by the rather small body size with coarse puncturation and sculpture, more or less developed antennal club, crenulate or at least uneven pronotal sides, comparatively small oval pro- and mesocoxae, metacoxae usually rather widely separated, mostly three-segmented tarsi (except four-segmented tarsi in one subfamily recently described as new from Lebanese amber: Kirejtshuk & Azar 2008). Modern representatives are completely mycetophagous and associated with spores and mycelium of different fungi (both lower and higher), particularly molds and other Ascomycetes, live in branches of trees, leaf-litter, fruit-bodies of macrofungi and decaying substrates of plant origin. Usually this family is considered to consist of two subfamilies (Latridiinae and Corticariinae). The earliest record of this group is known from Lower Cretaceous Lebanese (Kirejtshuk & Azar 2008) and Burmese amber (Rasnitzin & Ross 2000). Then it was registered in Upper Cretaceous Taimyr amber from Yantardakh (Zherichin 1977). Most members of this family (both Latridiinae and Corticariinae) were recorded from Upper Eocene Baltic amber (Klebs 1910; Hieke & Pietrzeniuk 1984; Borovіec 1985; Kubisz 2000; etc.), although some species were also recovered from the Lower Oligocene Florissant shales (Wickham 1913, 1914a, 1914b), the Upper Oligocene Aix deposits (Heer 1856), the Lower Miocene of Rott (Schlechtendal 1894), and the Pliocene of Durham (Lesne 1920).

Subfamily Corticariinae Curtis, 1829

The specimens examined completely fit with syndrome of the family because of the characteristic outlines of many body sclerites, including shape of head, all coxae, three-segmented tarsi and so on. The configuration of pronotum, lack of median furrow on head and longitudinal ridges on elytra and short prosternal

process support its attribution to the subfamily Corticariinae. Four specimens found among the studied inclusions seem to belong to the genus *Corticaria*, which is exclusively diverse and represented in the Recent fauna by more than 50 species. Two specimens with shorter elytra as well as with finer and sparser dorsal puncturation are here described as two separate species.

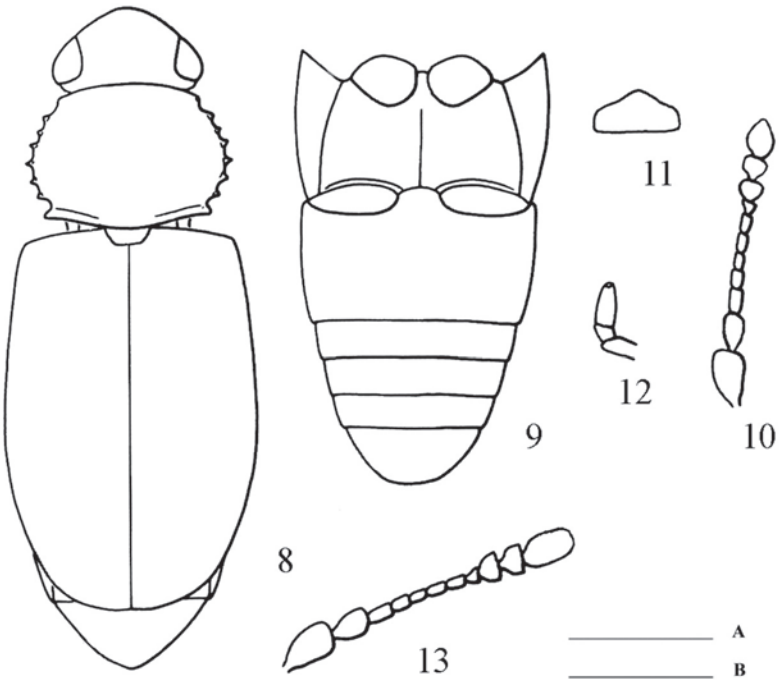
Genus *Corticaria* MARSHALL, 1802

Corticaria hodeberti sp.nov. (Fig. 7, Figs 8-12)

Material: Holotype – "PA 394", sex unknown. The rather clear complete beetle with right anterior and intermediate legs turned anteriorly and missing left antennomeres 3-11 is included in a small and thin subquadrangular amber piece (with length about 5.0 mm and width 3.5 mm) with a small compressed vesicle from the right side of beetle abdomen. The mouthparts of the beetle are obscured by a thick "milky" cover. This piece is embedded in Canada balsam between quadrangular glass covers.

Etymology: The epithet of the new species is devoted to G. HODEBERT who assisted the authors in preparation of illustrations for this and other papers.

Diagnosis: Two new species here described are distinct among the congeners due to the comparatively large antennomere 2, shortened elytra, remaining pygidium completely or mostly uncovered, very smoothed sculpture of dorsum, rather sparse and diffuse or nearly diffuse puncturation on elytra, distinct crenellation along pronotal sides, simple tibiae and lack of both depression on pronotal disc and adsutural lines on distal half of elytra. These new species can be discriminated due to the shape and length of the last antennomere, shape of pronotum, conspicuousness of dorsal pubescence, character of puncturation of the pronotum, and traces of longitudinal rows of punctures on elytra. Besides, among fossil Latridiids *Corticaria hodeberti* sp.nov. and *C. missa* sp.nov. are distinct from *Stephostethus jantaricus* (BOROWIEC, 1985) (Baltic amber) by the smaller and more slender body, smoothed integument and finer diffuse puncturation of all dorsal sclerites, narrower anterior part of head with distinct temples behind larger eyes, clear antennal club, distinct crenellation along pronotal sides and strongly transverse scutellum. They are quite different from *Succinimontia infleta* ZHERICHIN, 1977 (Taimyr amber) due to their more slender body, more subcircular pronotum, diffuse puncturation on elytra, transverse scutellum, exposed pygidium, narrowly separated meso- and metacoxae, and somewhat narrower femora of usual shape. *Corticaria hodeberti* sp.nov. and *C. missa* sp.nov. can be distinguished from *C. melamophtalma* HEER, 1856 (Lower Oligocene Aix-en-Provence) due to the smaller body, narrower and subcircular pronotum and diffuse puncturation of elytra. *Corticaria reitteri* SCHLETENDAL, 1894 from the Lower Miocene of Rott is a doubtful member of this genus because of its transverse eyes, rather wide pronotum, rather short frons before the eyes, very small antennomere 2 and scarcely expressed antennal club, and the mentioned characters make possible to discriminate this species and both *Corticaria hodeberti* sp.nov. and *C. missa* sp.nov. It is difficult to compare the species under description and species of *Corticaria* described by WICKHAM (1913, 1914a, b) from the Lower Oligocene Florissant shales. The latter can be regarded as the forms with questionable generic attribution. The new species differ from all of them (*C. aeterna* WICKHAM, 1914a; *C. egregia* WICKHAM, 1914b; *C. occlusa* WICKHAM, 1914b and *C. petrefacta* WICKHAM, 1913) in the smaller body, narrower and subcircular pronotum, apparently finer and sparser puncturation of pronotum and elytra.



Figs 8-13: *Corticaria hodeberti* sp.nov. (8-12), holotype: (**8**) body, dorsal; (**9**) metaventrite and abdomen, ventral; (**10**) antenna; (**11**) mentum, ventral; (**12**) maxillary terminal palpomeres; *Corticaria missa* sp.nov.: (**13**) antenna. Scale bars: A = 0.25 mm (Fig. 8); B = 0.2 mm (Figs 9-13).

Some Recent species of *Corticaria* have also more or less shortened elytra [for instance, some specimens of *C. fuscula* (GYLLENHAL, 1827) have the pygidium and part of previous segment uncovered by elytra], however, all of them are, in addition to smaller antennomere 2 and clear adsutural lines, characterized by the distinct dorsal puncturation with clear longitudinal rows of punctures on elytra. Other Recent species of the genus have near-

Fig. 14: *Corticaria missa* sp.nov.: (**a**) body of holotype, laterodorsal; (**b**) ibid., lateroventral.

ly diffuse elytral puncturation [for instance C. *fulva* (COMOLLI, 1837), C. *umbilicata* (BECK, 1817), etc.], but their punctures on dorsum are rather large, and they have also a more slender body, almost complete elytra, smaller antennomere 2 and clear adsutural lines. Finally, a tendency in puncturation to become finer is expressed in some Recent members of *Melanophthalma* MOTSCHULSKY, 1866 together with a tendency in elytra to be shortened, but species of the latter genus have structural differences in the presence of submetacoxal lines on abdominal ventrite 1, and they also have the antennomere 2 markedly thinner than (sub) apical antennomeres in club, and more or less expressed adsutural lines at least in the distal half of elytra.

Description: Holotype: Length 1.25 mm, width 0.30 mm, height about 0.23 mm. Elongate, strongly convex dorsally and moderately convex ventrally; light brownish to straw reddish with somewhat lighter appendages; with a moderate shine; dorsum with slightly conspicuous and recumbent hairs about 1.5 times as long as distance between their insertions; underside with much shorter and much sparser hairs.

Head with distinct punctures markedly larger than eye facets in diameter, interspaces between them somewhat larger than a puncture diameter and smooth. Pronotum and elytra with very course, shallow, partly indistinct, diffuse and irregular punctures about twice as large as those on head, interspaces between punctures smaller than a puncture diameter and somewhat smoothly alutaceous. Prosternum without distinct puncturation, except some large punctures along anterior edge, and smooth. Metaventrite with rather large punctures (larger than eye facets), interspaces between them about a puncture diameter and somewhat larger, completely smooth. Abdominal ventrites with somewhat smaller and denser punctures.

Head transversely subtriangular and evenly convex dorsally, apparently as long as the distance between moderately large eyes with moderately large facets, distance between them about 6 times as great as width of one eye; antennal insertions located at anterior edge of frons. Mentum subpentagonal and almost twice as wide as long. Ultimate maxillary palpomere about twice as long as thick, subcylindrical to subconical. Antennae 11-segmented, moderately long, about 1 and 2/3 as long as head wide at eyes; scape subtriangularly bulbous and somewhat longer than thick, markedly shorter than ultimate antennomere; antennomere 2 about as shaped as scape but somewhat smaller; antennomeres 3 subcylindrical, narrow and only slightly shorter than antennomere 2; antennomeres 4-7 subcylindrical as antennomere 3 but much shorter (about 2/3 as long as the latter); antennomere 8 thickened apically and somewhat wider than previous ones; antennomeres 9-11 subequally thick and forming a loose club, antennomeres 9 and 10 about 1.5 times as long as ultimate antennomere, apex of the latter somewhat narrowed. Pronotum subglobous, widest at the middle, with arcuate sides as well

as posterior and anterior edges, about 3/4 as long as wide, rather vaulted along the middle and moderately steeply sloping to crenulate lateral carina, posterior angles represented by teeth of crenellation, anterior ones scarcely expressed, at posterior angles there are visible thin fold oriented posteriorly. Scutellum transverse, abrupt at apex, nearly 3 times as wide as long and slightly rounded at sides. Elytra about 1 and 2/5 as long as wide combined, strongly convex at disk and rather steeply sloping at sides, slightly widening behind shoulders till the middle and then gently narrowing to conjointly rounded to subtruncate apices, and adsutural lines absent. Pygidium completely and apex of previous tergite exposed from under apices of elytra.

Eyes on underside somewhat larger than on dorsal side, with slightly curved outline, minimal distance between them somewhat more than twice as great as width of eye. Underside of head smooth and without both grooves and sutures. Prosternum slightly medially vaulted, without trace of foveae, its length before procoxae about 1/3 as long as metasternum; process very narrow and not projecting beyond posterior edge of procoxae. Procoxal cavities apparently narrowly closed posteriorly. Distance procoxae is very small (they look like subcontiguous), that between metacoxae about twice as great as that between mesocoxae or as antennal club thick. Procoxae suboval and comparatively small. Mesosternum smoothed and somewhat deepened in comparison with plane of prosternum and metaventrite. Mesocoxae suboval and rather large (apparently with diameter about 1.5 times as great as that in procoxae). Metasternum slightly convex in the middle and with a short longitudinal suture in distal part, posterior edge between coxae shallowly emarginate. Metepisterna moderately wide. Abdominal ventrite 1 somewhat longer than ventrites 2-4 combined, hypopygidium about 1.5 times as long as each of ventrites 2-4 and widely rounded at apex. Epipleura of elytra very narrow (much wider than antennal club), without clear carina and gradually narrowing posteriorly.

Legs moderately narrow and very long. Trochanters slightly elongate. Tibiae very thin and slightly longer than femora, without both setae and spurs. Femora of usual configuration, thickest at the middle and about three-four times as wide as corresponding tibiae. Tarsi about 2/3 as long as tibiae, with three simple subcylindrical tarsomeres, tarsomeres 1-2 comparable in length and ultimate tarsomere markedly longer than both previous ones combined, claws very small and thin.

Corticaria missa sp.nov. (Fig. 13, Fig. 14)

Material: Holotype – "PA 2381", sex unknown. The complete beetle is included in a small and thin subpentagonal amber piece (with maximal length about 3.5 mm and maximal width 3.0 mm) with some cracks and milky layers along body sides of the beetles. This piece is embedded in Canada balsam between the object-plate and a round glass cover.

Etymology: The epithet of the new species means "accompanied", "escorted", "attended", "released" and so on.

Diagnosis: See the diagnosis of the previous species. This new species differs from it in the somewhat darker body, more conspicuous pubescence on dorsum, pronotum apparently widest in the anterior half, ultimate antennomere about as long as two previous ones combined and widely rounded to subtruncate at apex, markedly larger and denser punctures on pronotum, and more clear punctures on elytra with some trace of longitudinal rows.

Note: This new species is very similar to *Corticaria hodeberti* sp.nov. and, therefore, many characters shared by both species are omitted in the description below.

Description: Holotype: Length 1.35 mm, width apparently 0.35 mm. Elongate, strongly convex dorsally and moderately convex ventrally; brownish with reddish appendages; with a slight shine, nearly mat; dorsum with moderately conspicuous and subrecumbent hairs more than twice as long as distance between their insertions; underside with almost invisible hairs.

Pronotum with distinct punctures markedly larger than eye facets in diameter, interspaces between them much smaller than a puncture diameter and smooth. Elytra with more or less distinct and moderately deep punctures, somewhat smaller and markedly sparser than those on pronotum, with some traces of longitudinal rows, interspaces between punctures 1.5-2.0 as great as puncture diameter and somewhat smoothly alutaceous. Underside without clear puncturation; prosternum more or less smoothed; meso- and metaventrite smoothly alutaceous and abdominal ventrites alutaceous to finely and densely microreticulated. Antennae 11-segmented, antennomeres 9-11 subequally thick and forming a loose club, ultimate antennomere about as long as antennomeres 10 and 11 combined, its apex widely rounded to subtruncate. Pronotum subglobous and most wide apparently in anterior half, with arcuate sides as well as posterior and anterior edges, about 3/4 as long as wide, rather vaulted along the middle and moderately steeply sloping to crenulate lateral carina. Most part of pygidium exposed from under apices of elytra. Abdominal ventrite 1 about as long as ventrites 2-4 combined, hypopygidium about 1.5 times as long as each of ventrites 2-4 and widely rounded at apex. Epipleura of elytra very narrow (somewhat wider than antennal club).

Family Mycteridae Blanchard, 1845

This family is rather difficult to define for both Recent and extinct representatives; the recent ones have adults living on flowers and vegetation, and larvae usually developing under bark or in decaying wood, although some developing in soil. It is characterized by the rather large eyes, large exposed labrum, subsecuriform ultimate maxillary palpomere, short and frequently enlarged antennomeres (particularly subapical ones), pronotum widest at apex and rounded anterior angles, more or less reduced lateral carina of prothorax, small and rounded procoxal cavities in most cases not closed posteriorly, subconical contiguous procoxae and other pairs of coxae very narrowly separated, connate 2-3 basal abdominal ventrites, penultimate tarsomere with one wide lobe, tarsal claws swollen or toothed at base etc. Before this study only three fossils were recorded: *Mycterus molassicus* Heer, 1847 from the Upper Miocene of Oeningen, and also *Neopolypria nigra* Abdullah, 1964, and a mentioning of the family by Kubisz (2000) from Baltic amber. The attribution of the first species should be re-estimated after re-examination of the type specimen (both description and specimen remained unknown to the authors of this paper). Thus, the specimen here described represents the oldest record of this family.

Subfamily Eurypinae Thomson, 1860 (= Lacconotinae LeConte, 1862)

The new genus is put in this subfamily because of absence of expressed rostrum, rather large eyes, widened anterior edge of frons, while, on the other hand, it does not have an elongate and depressed body, and its elytra are moderately long. The composition of the subfamily is still not clearly defined, although D.A. Pollock has recently published some important information on taxonomy and composition of this group (Pollock et al. 2000; Pollock 2005).

Genus *Bertinotus* gen.nov.

Type species: *Bertinotus gallicus* sp.nov.

Etymology: Named after Nicole Berti, who passed away in July 2008, with adding the Greek "notos" (back); masculine gender.

Diagnosis: The specimen examined in French amber, in contrast to many known members of the subfamily, has a rather robust body, three fused basal abdominal ventrites (like in some Recent forms – for instance species of the genus *Lacconotopedilus* Pic, 1935), rather large oval eyes, frons strongly widened before eyes, pronotum without paramedian depressions at base and lateral carina somewhat expressed only in the distal half. Nevertheless, its appearance and characters are reminiscent of those in some Recent species of this subfamily. *Bertinotus gallicus* gen. et sp.nov. differs from *Neopolypria nigra* in the subuniform dorsal pubescence, simple mandibular apices (not bifid), larger eyes without interfacetal hairs, ultimate labial palpomere elongate oval (not securiform), subapical antennomeres somewhat thickened, pronotum somewhat widened anteriorly, more widened anterior part of metepisterna, connate three first abdominal ventrites,

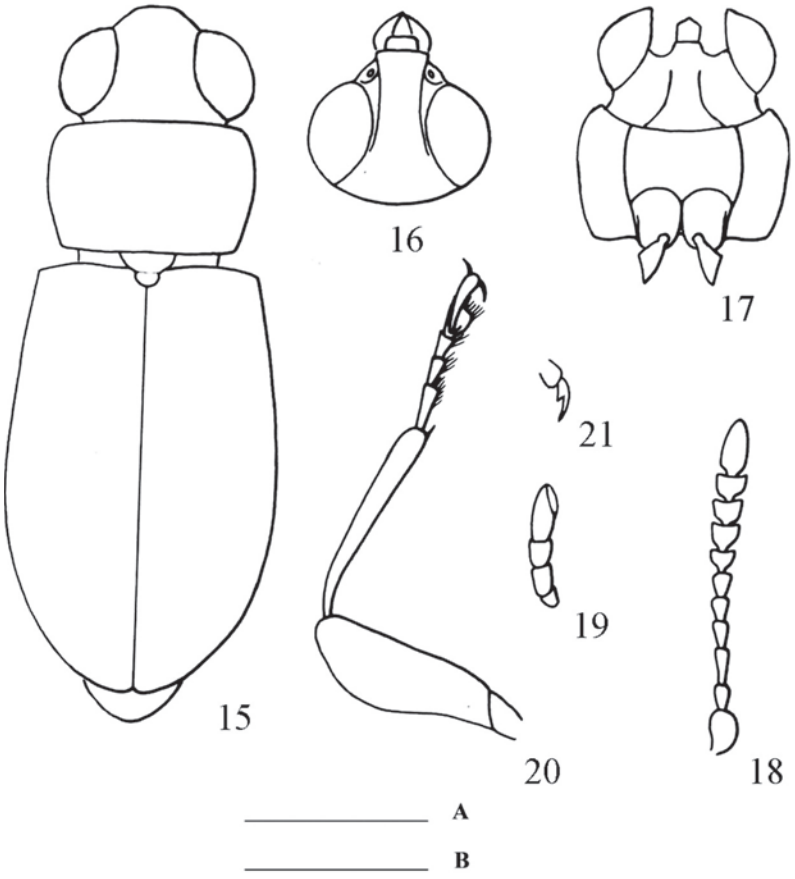
In particular, the new species is very similar (including the head and eyes and with somewhat variable antennae, but in general similar, very similar legs, including tarsi, but metatarsomere 1 about half of total tarsal length) to *Physiomorphus* Pic, 1917 (types of *P. rufotinctus* Pic, 1921; *P. atricolor* Pic, 1917 as well as type of *Batobiomorphus laticollis* Pic, 1920 = *Laccoderus melanurus* Champion, 1916 and some specimens of other species from Pic's collection examined) in the more robust and slightly smaller body (elytra of *Physiomorphus* species are at least four times longer than pronotum), not wide and not transverse antennomeres, lack of paramedian depressions at pronotal base, almost unexpressed neck behind eyes, expressed lateral carina of prothoracic segment (*P. marmoratus* has lateral carina; and dorsal pubescence of *Physiomorphus* species is rather variable, although in general longer than in the new species). The new species is rather similar to *Pseudothisias* Pic, 1930 (types of *P. bicolor* Pic, 1930 examined) in the more robust and slightly smaller body (elytra of *P. bicolor* about five times longer than pronotum), markedly larger eyes, narrower legs (particularly tibiae), shorter tarsi (metatarsus of the new species is at most 2/3 as long as metatibia and metatarsomere 1 much less than 1/2 of total tarsal length, while in *P. bicolor* the tarsomere 1 is about half of total tarsal length), not depressed pronotum, larger lobes of tarsomere 4, narrower apex of ultimate maxillary palpomere. Besides, it is very comparable with species of *Lacconotopedilus* (types of *L. elongatus* Pic, 1936 and *L. singularicornis* Pic, 1935) in the much more robust and somewhat smaller body with a coarser sculpture on dorsum (in *Lacconotopedilus* species the eyes are rather large; their head, pronotum and legs, including tarsomeres and tarsal lobes, as well as their unexpressed neck, sculpture, and pubescence of dorsum are rather similar to those in the new species), expressed (clear) lateral carina of prothoracic segment, not transverse antennomeres, somewhat longer tarsomere 1 (but tooth of claws similar), shorter (more transverse) pronotum and lack of paramedian depressions at its base (dorsal pubescence of new species somewhat shorter).

Finally, the new species differs from:

- species of the genus *Batobius* Fairmaire & Germain, 1863 (specimens named by Pic examined), although

B. curtus PIC, 1926 transferred by POLLOCK to another family – in preparation) in the much more robust and markedly smaller body, somewhat larger eyes (in *Batobius* species the eyes are also rather developed), frons widened before eyes (in *Batobius* species the frons is equally wide at eyes and at its anterior edge), much shorter labrum, not submolitiform antennae, longer and less curved tarsal claws with not so strong tooth at base (although in general the tarsomeres and lobes of tarsomere 4 are rather similar to those in the new species), shorter (more transverse) pronotum with lack of paramedian depressions at its base, almost unexpressed neck behind eyes, expressed (clear) lateral carina of prothoracic segment (dorsal pubescence very similar);

- species of the genus *Cleodaeus* CHAMPION, 1889 (specimens of *C. rugiceps* CHAMPION, 1889 from PIC's collection examined) in the much more robust, somewhat larger eyes (in *Cleodaeus* species the eyes are also rather large and frons widened anteriorly), much shorter labrum, not so widened subapical antennomeres, shorter tarsomere 1, tarsal claws with not strong tooth at base (in general the tarsomeres and lobes of tarsomere 4 are rather similar to those in the new species), pronotum lacking of paramedian depressions at its base (pronotum somewhat similar in both new species and member of *Cleodaeus*), almost unexpressed neck behind eyes (dorsal pubescence and lateral carina of prothoracic segment very similar);
- species of the genus *Conomorphinus* CHAMPION, 1916 (specimens from PIC's collection originated from Bolivia examined) in the more robust and markedly smaller body with less convex dorsum and a coarser sculpture on it, rather large eyes, frons more widened before eyes, much shorter labrum, not moniliform antennae, narrower tarsomeres with wider lobes of tarsomere 4 (but tooth of claws similar), shorter (more transverse) pronotum and lack of paramedian depressions at its base, almost unexpressed neck behind eyes, more expressed lateral carina of prothoracic segment, shorter and denser dorsal pubescence;
- species of the genus *Conomorphus* CHAMPION, 1889 (types of *C. rufipes* PIC, 1907 = *C. curticollis* PIC, 1907 with comparatively large eyes examined) in the more robust body with less convex dorsum, rather large eyes, frons more widened before eyes (in *Conomorphus* species the frons is also slightly widened anteriorly), smaller tooth at base of claw, transverse pronotum, almost unexpressed neck behind eyes, much wider lobes of tarsomere 4 (pronotum of *Conomorphus* species is also without any trace of paramedian depressions at base);
- species of the genus *Eurypus* KIRBY, 1819 (specimens of *E. rubens* KIRBY, 1818; *E. kirbyi* CHAMPION, 1916 and specimens of *E. cyanipennis* CHAMPION, 1916 from Bahia from PIC's collection examined) in the more robust and markedly smaller body with more coarse sculpture on dorsum, rather large eyes (in *Eurypus* species the eyes are moderately developed), frons more widened before eyes, much shorter labrum, not serrate antennae, narrower tarsomeres with narrower lobes of tarsomere 4 (but tooth of claws similar), shorter (more transverse) pronotum and lack of paramedian depressions at its base, almost unexpressed neck behind eyes, somewhat more expressed lateral carina of prothoracic segment (externally *E. cyanipennis* look like the new species from amber more than others; dorsal pubescence of *Eurypus* species is rather variable, although in general longer than in the new species);
- species of the genus *Falsopedilus* PIC, 1924 (type of *F. modestus* PIC, 1924 and some additional specimens of other species from PIC's collection examined) in the much more robust body with somewhat smaller eyes, finer and less conspicuous pubescence of the dorsum, much shorter and not pectinate antennae with simple antennomeres, frons markedly less widened before eyes, much shorter labrum, wider lobes of tarsomere 4, much shorter (more transverse) pronotum with somewhat arcuate anterior edges and sides, quite distinct lateral carina of prothoracic segment, almost unexpressed neck behind eyes (in *Falsopedilus* species the neck is more or less traced);
- species of the genus *Lacconotus* LECONTE, 1862 (specimens of *L. pallidus* VAN DYKE, 1928 examined) in the much more robust body, rather large eyes, frons widened before eyes (in *Lacconotum* species the frons is narrowing anteriorly), smaller tooth at base of claw, almost unexpressed neck behind eyes, not subserrate antennae, shorter pronotum and lack of paramedian depressions at its base (tarsomere 4 in *Lacconotum* species has tarsal lobe similar to that in the new species, sculpture and pubescence of their dorsum are also similar);
- species of the genus *Omineus* LEWIS, 1891 (type of *Pseudothisias bicolor* PIC, 1930 examined) in the markedly more robust body with rather larger eyes, finer and less conspicuous pubescence of the dorsum, somewhat longer antennae with narrower antennomeres, frons distinctly widened before eyes, significantly longer and less quadrangular pronotum (with more arcuate all edges) and lack of paramedian depressions at its base;
- species of the genus *Physcius* CHAMPION, 1889 (type of *P. argentinus* PIC, 1930; *P. longipennis* PIC, 1910; *P. triimpressus* PIC, 1927 and some additional specimens of other species from PIC's collection examined) in the more robust and not parallel-sided body with



Figs 15-21: *Baltinotus gallicus* gen. et sp.nov., holotype: (**15**) body, dorsal; (**16**) head, anterodorsal; (**17**) prothorax and head, ventral; (**18**) antenna; (**19**) maxillary palpus, ventral; (**20**) intermediate leg, dorsal; (**21**) tarsal claw. Scale bars: A = 1.2 mm (Figs 15-20); B = 0.6 mm (Fig. 21).

smaller head and markedly smaller eyes, coarser dorsal sculpture, shorter and less conspicuous dorsal pubescence, much shorter labrum, wider lobes of tarsomere 4, lack of paramedian depressions at pronotal base (in *Physcius* species the paramedian depressions are well expressed and elongate, and also the lateral carina is reduced or obsolete), almost unexpressed neck behind eyes (in *Physcius* species the neck is more or less traced), expressed lateral carina of prothoracic segment;

- species of the genus *Trichosalpingus* BLACKBURN, 1891 (type of *Physcius gracilicornis* PIC, 1927 and one additional specimen of another species from PIC's collection examined) in the more robust body with rather larger eyes (in *Trichosalpingus* species the puncturation, sculpture and pubescence of dorsum are rather similar, antennae similar, but their apical antennomeres are longer and narrower), frons more widened before eyes, much shorter labrum, with wider lobes of tarsomere 4, much shorter (more transverse) and not widened anteriorly pronotum and lack of paramedian depressions at its base (in *Trichosalpingus* species the paramedian depressions are well expressed and elongate and lateral carina not expressed at all), almost unexpressed neck behind eyes (in *Trichosalpingus* species the neck is more or less traced), expressed lateral carina of prothoracic segment.

Bertinotus gallicus sp.nov. (Figs 15-21, Fig. 22)

Material: Holotype –"PA 326", sex unknown. Almost clear complete beetle with missing apex of right elytron is included in a long bar of amber (with length about 20 mm and thickness between 5 and 3 mm) with a obliquely transverse crack at the posterior edge of body of the beetles (the apex of missing elytron was broken as a result of the crack). The mouthparts of the beetle are obscured by a thick milky cover.

Etymology: The epithet of this new species is formed from the Roman name Gallia (country of amber origin).

Description: Holotype. Length 4.8 mm, width 1.9 mm, height 1.3 mm. Elongate, rather convex both dorsally and ventrally; dark pitchy brown with somewhat lighter appendages (up to reddish apical antennomeres and tarsi); with silver-bronze lustre; dorsum with very dense and fine, subrecumbent to suberect, moderately conspicuous, yellowish grey hairs about four times as long as distance between their insertions; underside with somewhat shorter and subrecumbent hairs twice as long as distance between their insertions.

Head not punctured, but very coarsely and densely microtuberculated (about as pronotum). Pronotum with dense distinct punctures somewhat smaller than eye facets in diameter and also as microtuberculated as head. Elytra with somewhat larger, somewhat sparser and less regular puncturation than that on head, interspaces between punctures nearly as sculptured as those on head and pronotum. Prosternum and mesoventrite about as punctured and sculptured as pronotum, but with shallower and less distinct punctures, and also microtuberculation becoming somewhat like microreticulation. Metasternum without clear punctures and densely microreticulated. Sculpture and puncturation of abdominal ventrites looking like intermediate between those on prostermum and metaventrite.

Head somewhat longer than maximal width, distance between rather large eyes (consisting of comparatively fine facets) much smaller than width of transversely abrupt anterior edge, rather declined at frons; antennal insertions located on frons and anterior edge of eyes slightly emarginated at place of antennal insertions. Labrum transversely subquadrangular (about twice as wide as long). Mandibles rather stout, gently

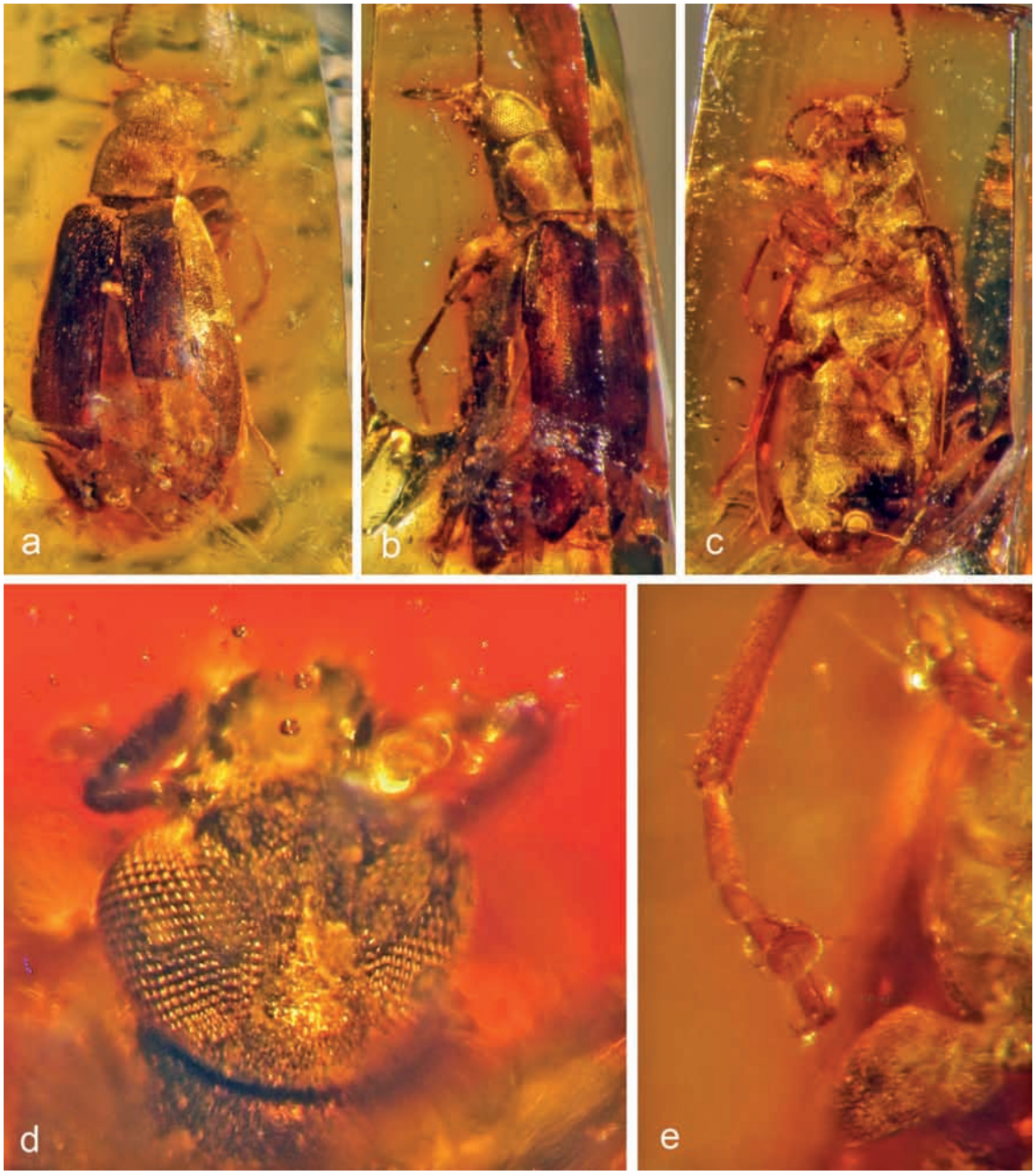
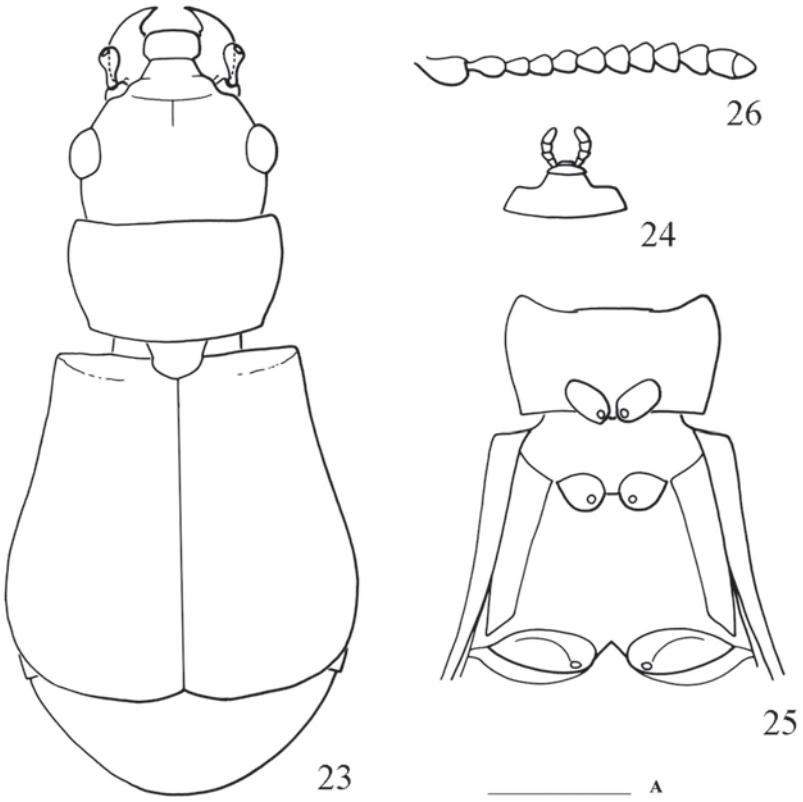


Fig. 22: *Baltinotus gallicus* gen. et sp.nov.: (**a**) body of holotype, dorsal; (**b**) ibid., lateral; (**c**) ibid., ventral; (**d**) head of holotype, anterodorsal; (**e**) mesotarsus, ventral.

curved along outer edge and with simple apex. Antennae submoniliform and with increasing subapical antennomeres, about 1 and 1/3 as long as head wide; scape about as wide as penultimate antennomere and slightly longer than thick; antennomere 2 about half as long and about half as wide as scape; antennomere 3 rather thin and about twice longer than previous one, each of antennomeres 4-6 as long as antennomere 2 but somewhat thickened apically, each of antennomeres 7-10 about as long as previous, but thicker and cup-shaped, ultimate antennomere longest and suboviform, gently narrowing to rounded apex. Pronotum about 1 and 2/5 as wide as long, moderately and evenly convex at disk and steeply sloping at sides, widest before almost straight anterior edge; its sides gradually widened anteriorly from the base, without distinct carina, base nearly straight, anterior angles widely rounded, posterior angles stump and with almost distinct top. Scutellum transverse, widely rounded at apex and somewhat narrowed at base. Elytra incomplete and leaving uncovered nearly the entire pygidium, about 1 and 4/7 as long as wide combined, moderately convex at disk and steeply (subvertically) sloping at sides, longest at a very small sutural angle; widest in distal third and very gently narrowing to subconjointly rounded apices.

Eyes arcuately enlarging on underside, distance between them becoming smaller anteriorly. Mentum rather small and subpentagonal. Labial palpi rather small, their ultimate palpomere suboval, about third as



Figs 23-26: *Eopeplus stetzenkoi* gen. et sp.nov., holotype: (**23**) body, dorsal; (**24**) mentum and labial palpi, ventral; (**25**) thorax, ventral; (**26**) antenna. Scale: bar 0.4 mm.

long as ultimate maxillary palpomere and about half as wide as the latter. Maxillary palpi very long (more than third as long as antennae), ultimate maxillary palpomere quite large and securiform. Gular sutures distinct and divergent posteriorly. Prosternum rather convex, its length before procoxae about 1.5 times as long as the latter; procoxal cavities small, oval and not closed posteriorly, procoxae contiguous, conical and somewhat projecting. Distance between mesocoxae and that between metacoxae extremely narrow. Mesoventrite somewhat longer than prosternum before procoxae. Metaventrite somewhat swollen and about 2.5 times as long as prosternum before procoxae; its posterior edge between coxae very deeply excised. Metepisterna subtriangular, strongly widened anteriorly (its anterior edge almost three times wider than posterior one). Metacoxal cavities rather narrowly separated and rather oblique. Abdominal ventrite 1 markedly shorter than ventrite 2 and somewhat shorter than ventrite 3, with sharply pointed intercoxal process; ventrite 4 slightly shorter than each of previous ventrites; hypopygidium shortest and gently rounded along posterior edge. Epipleura very narrow and gradually narrowing posteriorly.

Legs well developed and rather long. All trochanters of normal type (forming a rather small distance between coxa and femur). Tibiae similar in shape and size, not compressed and evenly covered with rather long se-

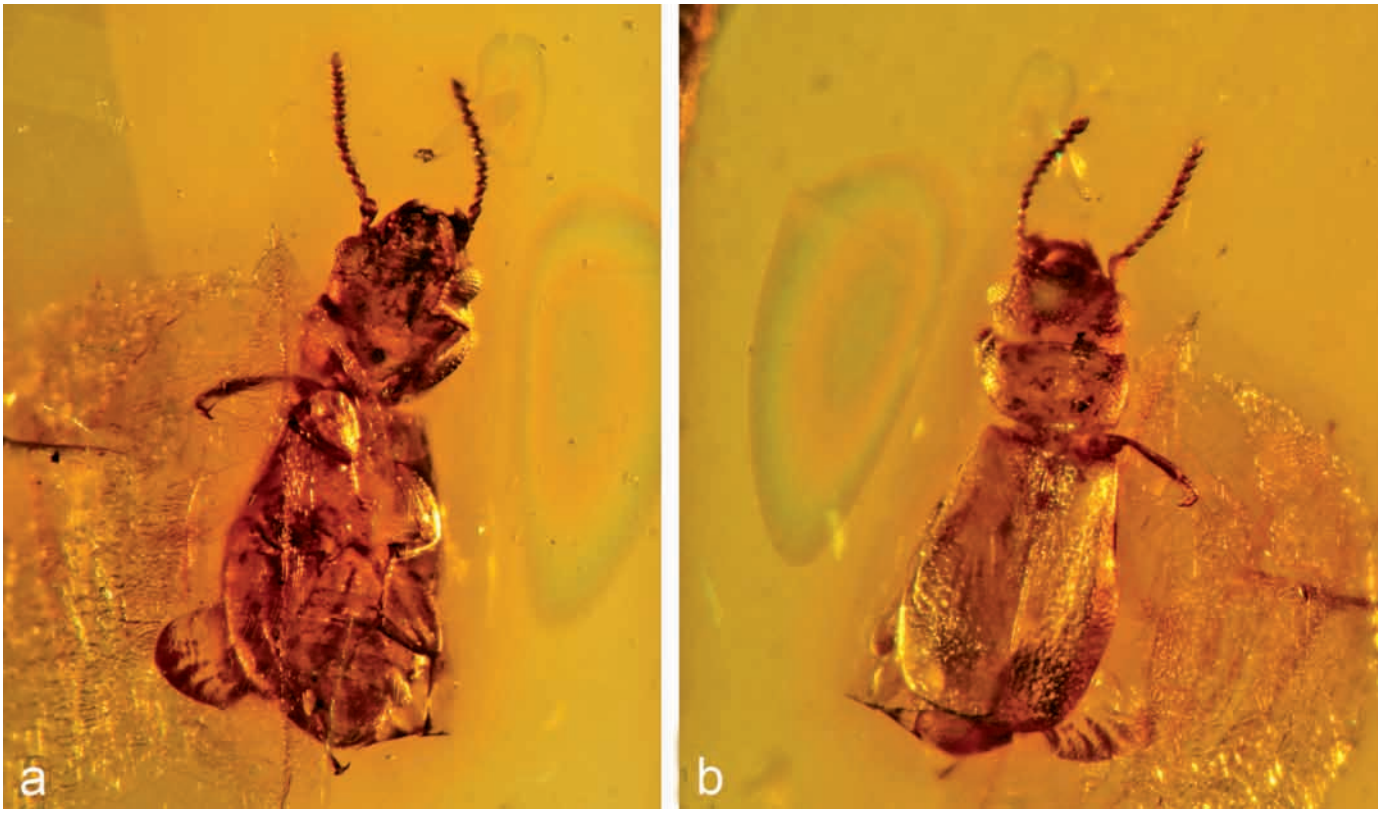


Fig. 27: *Eopeplus stetzenkoi* gen. et sp.nov.: (**a**) body of holotype, dorsal; (**b**) ibid., ventral.

tae, about as wide as ultimate maxillary palpomere or ultimate antennomere, obliquely subtruncate at apex; with distinct and moderately developed spur. Femora of usual shape, widest slightly distally from the middle, pro- and mesofemora about 3 times and metafemur about 3.5 times as wide as corresponding tibiae. Tarsi characteristic of family: 5-5-4, with penultimate tarsomere shortest and bearing a wide lobe (about 1 and 1/3 as wide as ultimate antennomere); protarsomeres 1-3 distinctly lobed; mesotarsomeres 1-3 and metatarsomeres 1-2 without lobes and slightly thickened apically; protarsomere 1 about 1.5 times as long as protarsomere 2 and more than twice as long as protarsomere 3, ultimate protarsomere almost as long as previous 3 tarsomeres combined; mesotarsomere 1 about 2.5 times as long as each of mesotarsomeres 2 and 3 and slightly longer than ultimate mesotarsomere; metatarsomere 1 almost 1.5 times as long as all further metatarsomeres combined, ultimate metatarsomere about twice as long as metatarsomere 2; claws big and strongly toothed at base.

Family Salpingidae Leach, 1815

This family is rather difficult to define for both recent and extinct representatives because of their great structural variability; the Recent ones are mostly mycetophagous and associated with subcortical spaces, decaying wood, fermenting tree sap, dead foliage and so on. It is characterized by the more or less peculiar head with long frons, frequently long (sub) moniliform antennae with antennomeres becoming thickened apically, pronotum narrowed at base and with more or less reduced lateral carina, comparatively small and projecting procoxae and some other structural features. Rasnitzin & Ross (2000) listed this family among the inclusions of Lower Cretaceous Burmese amber, although a more reliable indication of this family in the fossil record could be obtained only from Baltic amber (*Salpingus* sp. and *Lissodema* sp.: Klebs 1910). Thus, the form here described represents the first extinct species of this family.

Subfamily Inopeplinae Grouvelle, 1908

The new genus is put in this subfamily because the type species of it has the rather flattened body, pronotum distinctly narrowing posteriorly and shortened elytra. Besides, the specimen examined demonstrates also the rather similar general shape of head, structure of antennae, quite characteristic shoulders, and other features known for this subfamily. However, *Eopeplus stetzenkoi* gen. et sp.nov., in contrast to other members of the subfamily, has the elytra covering all abdominal segments except the terminal one. On the other hand, some representatives of the subfamily Salpinginae (*Poophylax* Champion, 1916; *Istrisia* Lewis, 1895; etc.) show a considerable similarity to the new species here described, although they have the full elytra and more thickened subapical antennomeres.

Genus *Eopeplus* gen.nov.

Type species: *Eopeplus stetzenkoi* sp.nov.

Etymology: The name of this new genus is formed from the Greek "eos" (dawn, daybreak) and suffix of many generic names "peplus" [from Greek "peplos" (cover, blanket, cover(let), quilt, counterpane, mantle, gown and so on)]; masculine gender.

Diagnosis: The genus differs from other groups of the subfamily by the smaller body size, not very shortened elytra with subtruncate apices and comparatively short antennae (the antennal apices only reach the pronotal base in *Eopeplus stetzenkoi* gen. et sp.nov., while in the remaining members of the subfamily the antennae exceed far over the elytra) and strongly enlarger labrum. Finally, in contrast to the Recent members of the subfamily, the antennae in the new genus are (sub) moniliform rather filiform. Besides, *Eopeplus stetzenkoi* sp.nov. differs from species of *Inopeplus* Smith, 1851 also in the broader pronotal base, comparatively wide scutellum; from those of *Diagrypnodes* Waterhouse, 1876 also in the less elongate body, shorter scape, eyes located in posterior half of less elongate head, transverse pronotum, wide scutellum; from those of *Aciphus* Olliff, 1884 in the larger and less elongate body, much larger antennomere 2, wide scutellum; from those of *Uruminopeplus* Sato & Hatta, 1988 in the much larger antennomere 2, broader pronotal base, lack of paralateral foveae at base of pronotum and tarsal formula 5-5-4.

Eopeplus stetzenkoi sp.nov. (Figs 23-26, Fig. 27)

Material: Holotype – "PA 891/3", sex unknown. The rather clear complete beetle with distal parts of left posterior wing partly exposed from under apex of elytron is included in a small and thin amber bar (with length about 12 mm, width 3.5 mm and height 1.5 mm). Also included are some small pieces of organic matter, some small cracks and vesicles, and a very fine and dense net below the right side of the beetle.

Etymology: The epithet of this new species is devoted to Y. Stetzenko, a friend of A.G. Kirejtshuk from the childhood, with whom he spent a lot of time in the mountains and forests, observing life of wild animals, including insects.

Description: Length 2.5 mm, width 1.15 mm, height about 0.25 mm. Elongate oval, subflattened dorsally and ventrally; subunicolorous straw reddish; rather shining; without conspicuous hairs, except very sparse

and extremely short hairs on labrum and tergites as well as rather short and thin hairs on antennomeres, tibiae and tarsomeres.

Head and pronotum with very small punctures, much smaller than eye facets in diameter, which are deepened and looking like somewhat larger (somewhat larger than eye facets); at sides of head punctures very dense, although on rest integument interspaces between them rather great (markedly greater than a puncture diameter) and smooth. Elytra with somewhat larger and somewhat sparser punctures, interspaces between them completely smooth. Uncovered tergites very densely and finely microreticulated and also with sparse trace of punctures. Underside densely and very finely microreticulated; metaventrite and abdomen also with sparse traces of punctures.

Head rather long (somewhat longer than distance between eyes), slightly and gently convex in basal half and flattened at frons, with moderately large eyes (moderately finely facetted), distance between them about 6 times as great as width of one eye; antennal insertions located just before anterior edge of eyes and between then there is a slightly concave line; frons rather narrowed and with straight anterior edge. Labrum clearly wider than anterior edge of head and with gently convex anterior edge, about twice as wide as long. Mandibles well developed, gently curved along outer edge and with one subapical tooth. Antennae 11-segmented, moderately long, about 1.5 times as long as head width at eyes; scape subtriangularly bulbous and somewhat longer than thick, longer than ultimate antennomere; antennomere 2 subconical and thickened apically; antennomere 3 about as shaped as antennomere 2, but somewhat smaller; antennomeres 4-10 about as long as antennomere 2, but thicker apically and becoming wider with increasing number, antennomere 11 more than 1.5 times as long as each of antennomeres 4-10, oval to suboviform (apex somewhat pointed). Pronotum arcuately widened apically, widest in apical fourth, anterior edge subbi-emarginate and not bordered, posterior edge slightly convex and finely bordered, anterior angles widely rounded, posterior angle stump and with unclear pot, disk slightly convex, sides steeply sloping and finely bordered. Scutellum moderately small, subpentagonal to subsemicircular and widely rounded at apex. Elytra about twice as long as wide combined, subflattened at disk and gently sloping at sides and at apices, their sides nearly rectilinearly widened to apices and widest at distal third, apices widely rounded to subtruncate and forming a small sutural angle, adsutural lines absent. Pygidium complete and apex of previous segment exposed from under elytral apices, pygidium about as long as head and narrowly rounded at apex.

Underside of head without sutures and grooves. Mentum nearly 1.5 times as wide as long and with angular excision at sides. Labial rather small (about as long as scape), palpi 3-segmented and ultimate palpomere about twice as long as each of previous ones. Maxillary palpi rather long (more than twice as long as labial palpi), ultimate palpomere about 2.5 times as long as thick, subcylindrical and slightly narrowing at apex. Prosternum without expressed sutures, medially slightly vaulted, its process rather narrow, with transverse apex and not projecting beyond posterior edge of procoxae. Distance between mesocoxae about twice and that between metacoxae about 3 times as great as that between procoxae. Procoxae slightly oval transverse and their cavities not closed posteriorly. Mesoventrite subflattened and about as long as prosternum before the procoxae. Mesocoxae suboval and moderately globous. Metaventrite flattened to slightly convex along the middle and about twice as long as prosternum before the procoxae, posterior edge between coxae angularly excised. Metepisterna moderately narrow and slightly widened anteriorly. Abdominal ventrite 1 about half as long as metaventrite and about 1 and 2/3 as long as ventrites 2-4 combined, hypopygidium almost 1.5 times as long as ventrite 1 and widely rounded at apex. Epipleura of elytra at base almost twice as wide as scape, gradually narrowing posteriorly and disappearing at the middle, slightly elevated laterally.

Legs moderately developed. Protrochanter of elongate type and moderately long, meso- and metatrochanters of normal type. Tibiae thin and somewhat shorter than femora and gradually dilating apically, sparsely covered with long setae and with well raised spurs. Femora of usual configuration and rather wide, about three to four times as wide as corresponding tibiae. Tarsal formula 5-5-4. Protarsomere 1 markedly longer than each of transverse tarsomeres 2-4, ultimate protarsomere about as long as previous protarsomeres combined; mesotarsus with similar proportions, but somewhat narrower; metatarsomere 1 almost twice as long as two further tarsomeres combined and slightly shorter than ultimate metatarsomere. Tarsal claws simple and narrow, about half as long as ultimate pro- and mesotarsomeres.

Discussion

All species here described belong to the mycetophilous groups in the Recent fauna, which are associated mostly with forests. The similar mode of life and habitat can be supposed for the considered fossil representatives of them. All these groups have rather wide modern distributions, although the subfamilies Eurypinae and Inopeplinae mainly spread through the areas with warm and humid intertropical and subtropical cli-

mate. As other data on beetles from lowermost Eocene French amber, the new material suggests that the climatic circumstances of the Paleogene in the West Europe were quite mild, and somewhat similar to that characteristic of the Recent warm and humid intertropical and subtropical forests.

Zusammenfassung

Aus dem französischen Bernstein von Oise (unterstes Eozän) werden einige Käfergattungen und -arten der Teilordnung Cucujiformia (Unterordnung Polyphaga) neu beschrieben. *Palaeoestes eocenicus* gen. et sp.nov. ist der älteste Vertreter der Unterfamilie Leiestinae (Familie Endomychidae, Stäublingskäfer). Gleiches gilt für *Eopeplus stetzenkoi* gen. et sp.nov. aus der Unterfamilie Inopeplinae (Familie Salpingidae, Scheinrüssler) sowie *Bertinotus gallicus* sp. nov. aus der Familie Mycteridae (Haarscheinrüssler). Des Weiteren werden zwei neue Arten aus der Familie Latridiidae (Moderkäfer), *Corticaria hodeberti* sp.nov. und *C. missa* sp.nov., eingeführt. Die Autoren präsentieren zudem eine kurze Übersicht über die fossilen Funde der jeweiligen Familien. Die ursprünglich in die Familie Endomychidae gestellte Art *Palaeoendomychus gymnus* ZHANG, 1992 wird vorläufig der Familie Peltidae (Flachkäfer) zugeordnet.

Acknowledgements

The authors thank the company Lafarge-Granulat for their help with the sampling of the fossils, and the family LANGKOIS-MEURIENNE for the authorization to work on their property. The authors are also grateful to G. HODEBERT (Museum National d'Histoire Naturelle, Paris) for the realization of the drawings, and G. DE PLOËG (MNHN) and D. AZAR (Lebanon University) for the careful preparation of the material. T. DEUVE, N. BERTI and A. TAGAVIEN (Museum National d'Histoire Naturelle) allowed them to work with the collection of Recent beetles. The senior author has the pleasant duty to express his recognition to the Museum national d'Histoire naturelle for providing him with the possibility to work in this museum in 2006, 2007 and 2008. This study was also supported by the grants of the Russian Foundation of Basic Research N 070400540a, and also the Programme of the Presidium of the Russian Academy of Sciences "Origin and Evolution of the Biosphere".

References

BARTEL M. & H. HERTZEL (1982): Bernstein-Inklusen aus dem Miozän des Bitterfelder Raumes. — Zeitschr. Ang. Geol. **28**: 314-336.

BATELKA J., F.-M. COLLOMB & A. NEL (2006): *Macrosiagon deuvei* n.sp. (Coleoptera: Rhipiphoridae) from the French Eocene amber. — Ann. Soc. Entomol. France (N.S.) **42**: 75-78.

BÍLÝ S. & A.G. KIREJTSHUK (2007): *Philanthaxoides gallicus* gen.nov., sp.nov. from the Lowermost Eocene French amber (Coleoptera: Buprestidae). — Folia Heyrovskyana **14**: 181-186.

BOROVIEC L. (1985): Two new species of *Lathridius* sensu lato (Coleoptera: Lathridiidae) from Baltic amber. — Polskie Pismo Entomol. **55**: 251-254.

HEER O. (1856): Über die fossilen Insekten von Aix. — Vierteljahrsschr. Naturforsch. Ges. Zürich, **1**: 1-40.

HIEKE F. & E. PIETRZENIUK (1984): Die Bernstein-Käfer des Museums für Naturkunde, Berlin (Insecta: Coleoptera). — Mitt. Zool. Mus. Berlin **60** (2): 297-326.

KIREJTSHUK A.G. & D. AZAR (2008): New taxa of beetles (Insecta: Coleoptera) from Lebanese amber with evolutionary and systematic comments. — Alavesia **2**: 15-47.

KIREJTSHUK A.G. & A. NEL (2008): New taxa of Polyphaga from the Lowermost Eocene French amber (Insecta: Coleoptera). — Ann. Soc. entomol. France (N.S.) **44** (4): 419-442.

KIREJTSHUK A.G., A. NEL & F.-M. COLLOMB (in press): New Archostemata (Insecta, Coleoptera) from the French Paleocene and Early Eocene, with a note on the composition of the suborder. — Ann. Soc. entomol. France (N.S.).

KLEBS R. (1910): Über Bernsteineinschlüsse in allgemeinen und die Coleopteren meiner Bernsteinsammlung. — Schrift. Physik.-Ökonom. Ges. Königsberg **51**: 217-242.

KUBISZ D. (2000): Fossil beetles (Coleoptera) from Baltic amber in the collection of the Museum of Natural History of ISEA in Krakow. — Polish J. Entomol. **69** (2): 225-230.

LESNE P. (1920): Quelques insectes du Pliocène supérieur du Comté de Durham. — Bull. Mus. Nat. d'Hist. Nat., Paris **26**: 388-394.

MOTSCHULSKY V.V. (1856): Lettre à Menetries, n° 4. — Etudes Entomol., Helsingfors **5**: 21-38.

POLLOCK D.A., S. IDE & C. COSTA (2000): Review of the Neotropical genus *Physiomorphus* PIC (Coleoptera: Mycteridae: Lacconotinae), with description of the larvae of three species. — J. Nat. Hist. **34** (12): 2209-2239.

POLLOCK D.A. (2005): Nomenclatural changes in Eurypine Mycteridae (Coleoptera), with special reference to taxa described by Maurice Pic. — Coleopterist's Bull. **59** (2): 250-255.

PONOMARENKO A.G. & A.G. KIREJTSHUK (2008): Taxonomic list of fossil beetles of suborder Scarabaeina (Part 3). — http://www.zin.ru/Animalia/Coleoptera/eng/paleosys2.htm (August 2008).

RASNITZIN A.P. & A.J. ROSS (2000): A preliminary list of arthropod families present in the Burmese amber collection at the Natural History Museum, London. — Bull. Nat. Hist. Mus. London, Geol. **56** (1): 21-24.

SCHLECHTENDAL D.H.R. VON (1894): Beiträge zur Kenntnis fossiler Insekten aus dem Braunkohlengebirge von Rott am Siebengebirge. — Abh. Naturforsch. Ges., Halle **20**: 197-228.

Tomaszewska K.W. (2000): Morphology, phylogeny and classification of adult Endomychidae (Coleoprtera: Cucujoidea). — Ann. Zool. **50** (4): 449-558.

Wickham H.F. (1913): Fossil Coleoptera from the Wilson Ranch near Florissant, Colorado. — Bull. Lab. Nat. Hist. State Univ. Iowa **6** (4): 3-29.

Wickham H.F. (1914a): Twenty new Coleoptera from the Florissant shales. — Trans. American Entomol. Soc. **40**: 257-270.

Wickham H.F. (1914b): New Miocene Coleoptera from Florissant. — Bull. Mus. Comp. Zool. Harvard **58**: 423-494.

Zherikhin V.V. (1977): Infraorder Elateriformia, family Cerophytidae; infraorder Cucujiformia, family Acanthocnemidae, Cryptophagidae, Lathridiidae. — Trudy Paleont. Inst. Akad. nauk SSSR **161**: 130-142. (in Russian)

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