

New and Little Known Orthopteroid Insects (Polyneoptera) from Fossil Resins: Communication 2

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Abstract—New taxa of the suborder Blattina (order Dictyoptera), possibly belonging to the family Corydiidae (*Erucoblatta semicaeca* gen. et sp. nov., Miocene; *Proholocompsa* gen. nov., Eocene; and *Holocompsa nigra* sp. nov. and *H. abbreviata* sp. nov., Miocene) and belonging to the family Ectobiidae (*Plectoptera electrina* sp. nov., Miocene; *Agrabtblatta symmetrica* gen. et sp. nov. and *?Symploce rete* sp. nov., Pleistocene) are described. The taxonomic position of the enigmatic genus *Raphidiomimula* Grimaldi et Ross from the Upper Cretaceous is discussed.

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INTRODUCTION

In the second communication of the present series of articles (Gorokhov, 2006), representatives of the order Dictyoptera, which may be definitely assigned to the suborder Blattina, are considered.

The material studied is housed in the National Museum of Natural History, Washington (NMNH), Natural History Museum, London (NHM), and the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZIN).

SYSTEMATIC PALEONTOLOGY

Suborder Blattina Latreille, 1810

Two inclusions discussed below clearly belong to this suborder, because they differ from the Paleozoic–Mesozoic suborder Mylacridina in the considerably shortened fore tibiae (synapomorphy of advanced Raphidiomimidea and their descendants), and from Mantina and Termitina in the absence of the autapomorphies of these suborders. It conceivable that some Mylacridina may have acquired such a feature independently as part of a suite of digging adaptations, but an unshortened ovipositor (the most important diagnostic character of the Mylacridina) is not known in any Cretaceous or Cenozoic cockroaches.

One of these inclusions is the only known specimen of the Late Cretaceous genus *Raphidiomimula* Grimaldi et Ross, 2004 (holotype of *R. burmitica* Grimaldi et Ross, 2004), placed in the Late Jurassic family Raphidiomimidae Vishniakova, 1973 (Grimaldi and Ross, 2004). I had the opportunity to study this specimen from birmite (Burmese amber) housed in the NHM. It is a nymph, somewhat resembling gracile members of the extant family Blattidae Latreille, 1810; its head is opisthognathous, long; the pronotum is nar-

row; the femora have numerous spines on the ventral side; the fore tibiae are shortened; the tarsi are five-segmented, with an arolium; the antennae and cerci are typical for cockroaches. However, in Raphidiomimidae, the head is secondarily prognathous, while the fore tibiae are subequal in length to the fore femora. Therefore, *Raphidiomimula* should be excluded from this family and treated as a genus of uncertain position within the suborder Blattina (it may belong either to the infraorder Blattidea or to infraorder Raphidiomimidea, excluding the family Raphidiomimidae).

The second inclusion described herein is also of uncertain taxonomic position. It is clearly distinct from *Raphidiomimula* in general habitus as well as in the nearly complete absence of femoral spines (only a single apical spur is present). Another important peculiarity of this cockroach is possibly the greatly enlarged postclypeus. This and the previous feature are characteristic of the extant subfamily Euthyrrhaphinae Handlirsch, 1925 (Corydiidae Saussure et Zehntner, 1893). However, the clypeus structure is not sufficiently visible in the inclusion, and the almost complete absence of femoral spines is also recorded in the families Ectobiidae Brunner-Wattenwyl, 1865 and Blaberidae Brunner-Wattenwyl, 1865. The characters distinguishing it reliably from advanced members of the infraorder Raphidiomimidea are also not found. Therefore, the assignment of this genus to the above-mentioned subfamily (and even family) is far from certain.

Genus *Erucoblatta* Gorokhov et Anisyutkin, gen. nov.

E t y m o l o g y. From the Latin *eruca* (caterpillar) and the generic name *Blatta*.

T y p e s p e c i e s. *E. semicaeca* sp. nov.

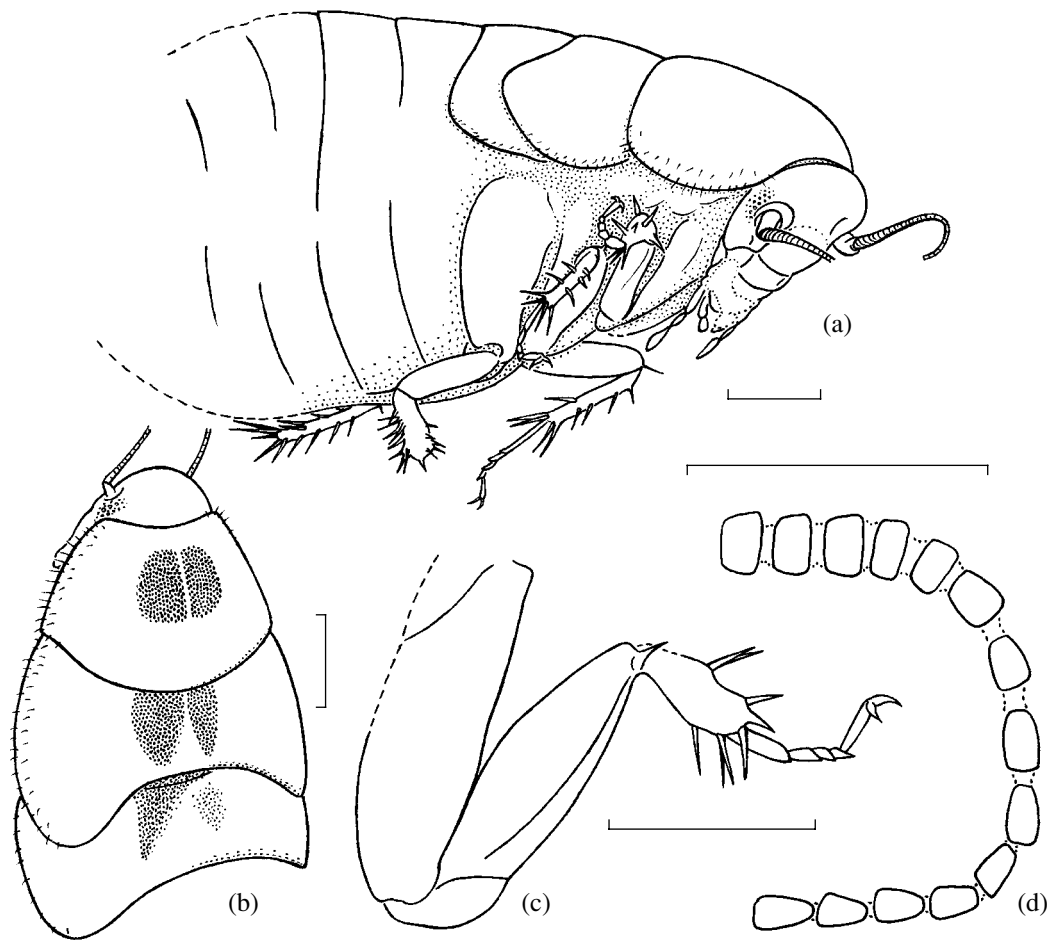


Fig. 1. *Erucoblatta semicaeca* sp. nov. (Corydiidae?), holotype, Dominican amber: (a) body in ventrolateral view, (b) head and thorax in dorsal view, (c) left fore leg in lateral view, and (d) distal half of the fragment preserved of the left antenna. Scale bar, (a–c) 1 mm or (d) 0.5 mm.

D i a g n o s i s. Size small; body subcylindrical, covered with numerous very small setae. Head opisthognathous, elongate, considerably protruding from pronotum judging from presence of poorly defined groove below medial margin of one antennal cavity (the area below the other antennal cavity is poorly preserved in the only specimen of the new genus), clypeus possibly with large postclypeus (as in Euthyrrhaphinae); eyes partly reduced; ocelli absent (Fig. 1a); antennae typical for suborder, but possibly somewhat shortened (their distal parts are not preserved), with short proximal flagellomeres and elongated distal flagellomeres (Fig. 1d); maxillary palps with three last segments elongate; terminal segment conspicuously (not strongly) dilated, subtriangular; third and fifth segments of these palps 1.5 times as long as fourth (Fig. 1a). Pronotum elongate, narrowed anteriorly, with concave anterior and rounded convex posterior margins (Fig. 1b) and very short paranota deflected ventrad (Fig. 1a). Legs markedly shortened; femora slightly shorter than coxae, fore femora (Fig. 1c) almost twice as long as

fore tibiae, which are somewhat shorter than fore tarsi, mid tibiae considerably shorter than mid femora, while hind tibiae only slightly shorter than hind femora. Femora without spines, except for unpaired spur at apex of each femur; tibial spines more or less numerous, relatively long and slender; pulvillae of fore and mid tarsi (hind tarsi missing) inconspicuous (possibly very small and apical); claws simple, symmetrical; arolium undeveloped (Figs. 1a, 1c).

C o m p o s i t i o n. Type species.

C o m p a r i s o n. The new genus is distinct from other genera of the suborder in the subcylindrical body, partially reduced eyes and pronotal paranota, shortened femora and tibiae, their armature, and the absence of arolium.

R e m a r k s. The subcylindrical body, partial loss of eyesight, markedly shortened legs with well developed (but not powerful) armature imply a cryptic mode of life in some substrate, but with a relatively poor digging ability. Reduced eyes and shortened legs and antennae occur in some cockroaches inhabiting the nests of

social Hymenoptera, for example, in species of the genera *Sphécophila* Shelford, 1907 (Corydiidae) and *Attaphila* Wheeler, 1900 (Ectobiidae), the former living in wasp nests, the latter in ant nests (Shelford, 1907). On these grounds, one may hypothesize that species of the new genus described may have inhabited similarly cryptic conditions (for example, in the galleries of xylophagous beetles).

Erucoblatta semicaeca Gorochov et Anisytukin, sp. nov.

Ety m o l o g y. From the Latin *semicaeca* (half blind).

H o l o t y p e. NMNH, no. 504376, Acc. 371428, Woodruff (collection rec.) 8822, Brodzinsky/Lopes-Pena [Penha] Collection, inclusion of an almost complete insect (imago of uncertain sex or late instar larva), apex of abdomen missing; Dominican amber, Miocene.

D e s c r i p t i o n (Figs. 1a–1d, 2a). The head length is much greater than its width; the eyes are reduced to a group of inconspicuous ommatidia lateral to the antennal cavity. The fore tibia have eight or nine spines, the mid tibia have 12–15 spines, while the hind tibia have 16–18. The body coloration is apparently rather pale; the tibiae, tarsi, and spots on the facial part of the head (on frons or postclypeus) and on pterothoracic terga are darkened.

M e a s u r e m e n t s, mm: length of inclusion, 10; head length, 2.2; pronotum length, 2; length of coxae: fore, 1.8; mid, 2; and hind, 2.5; length of femora: fore, 1.5; mid, 1.8; and hind, 2.3; length of tibiae: fore, 0.6; mid, 1.2; and hind, 2.2.

M a t e r i a l. Holotype.

Infraorder Blattidea Latreille, 1810

This infraorder includes cockroaches with the ootheca formed inside the female genital chamber. It comprises all extant representatives of the suborder. The division of modern cockroaches into superfamilies remains problematic, so superfamilies are not used below.

Family Corydiidae Saussure et Zehntner, 1893

Subfamily Euthyrrhaphinae Handlirsch, 1925

Tribe Holocompsini Rehn, 1911

Genus Proholocompsa Gorochov, gen. nov.

E t y m o l o g y. From the genus *Holocompsa* and the prefix *pro* (before).

T y p e s p e c i e s. *Holocompsa fossilis* Shelford, 1910; Baltic amber, Eocene.

D i a g n o s i s (based on data from Shelford, 1910). Structure of body and legs typical for modern representatives of tribe. Elytron partly membranized, with compacted clavus and not very long oblique area along costal margin (almost as in *Holocompsa* Burm.); clavus and membranized part of elytron with conspicuous venation (Fig. 3a). Hind wings with poorly developed

pterostigma (distal parts of RA and RS without apparent thickenings and not fused to each other); Sc probably strongly shortened (as in *Hypercompsa* Sauss.); M possibly reduced or fused with RS; CuP with normally developed branches (Fig. 4a).

C o m p o s i t i o n. Type species.

C o m p a r i s o n. The new genus differs from other genera of the tribe (extant *Holocompsa* and *Hypercompsa*) in the retained venation in the area of the clavus and the membranized part of the elytron (for comparison, see Figs. 3a–3c, 3e), and the absence of considerably sclerotized pterostigma in the hind wings (see Figs. 4a–4e). In addition, it differs from *Holocompsa* in the shortened Sc, reduced M, and well-developed branches of CuP in the hind wing (in modern species of *Holocompsa*, these branches are partly reduced and almost entire distal wing half is completely membranous, with numerous narrow, shallow folds; Figs. 4c, 4d). It additionally differs from *Hypercompsa* (Figs. 3b, 4b) in the absence of membranous cells in the area of the clavus and between the clavus and pterostigma of the elytron, and also in the nonwidened area RA–RS and much more numerous branches of CuP in the hind wing.

R e m a r k s. The new Eocene genus may be considered ancestral to both extant genera of the tribe, if not the loss of M in the hind wings, the remnant of which is apparently retained in *Holocompsa* as a short vein merging with RS (Figs. 4c, 4d). However, the partial reduction of elytral venation and very similar, sclerotized pterostigma in the hind wings of *Holocompsa* and *Hypercompsa* (Figs. 4b–4e) are most probably their synapomorphies; in this case, the loss of M in *Proholocompsa* and *Hypercompsa* may happen independently. Some similarity in the structure of elytra (especially in the shape of R) in *Proholocompsa* and members of the tribe Tiviini Rehn, 1951 (the same subfamily) should be interpreted as symplesiomorphic. This assumption is supported by a plausible synapomorphy of Tiviini and the nominate tribe of the subfamily: these tribes, dissimilar in the elytral structure, show a similar, poorly sclerotized pterostigma with nearly indistinguishable distal branches of R in the hind wings, whereas, in the new genus, these branches are still more or less distinct.

Genus Holocompsa Burmeister, 1838

= *Pseudoholocompsa* Shiraki, 1931.

The genus comprises about ten modern species distributed mostly in Central America and Mexico; one species is pantropical, one occurs in Southeast Asia and New Guinea, and one in the Seychelles (Princis, 1963). A characteristic feature of this genus is the development of a primitive pterostigma on the elytra, consisting of a considerably sclerotized patch in the region of the distal R branches and still weakly standing out among other more or less sclerotized parts of the elytron (Figs. 3c, 3e). Two new fossil species from the Miocene amber of Haiti are described below, which can be more or less confidently included in this genus.

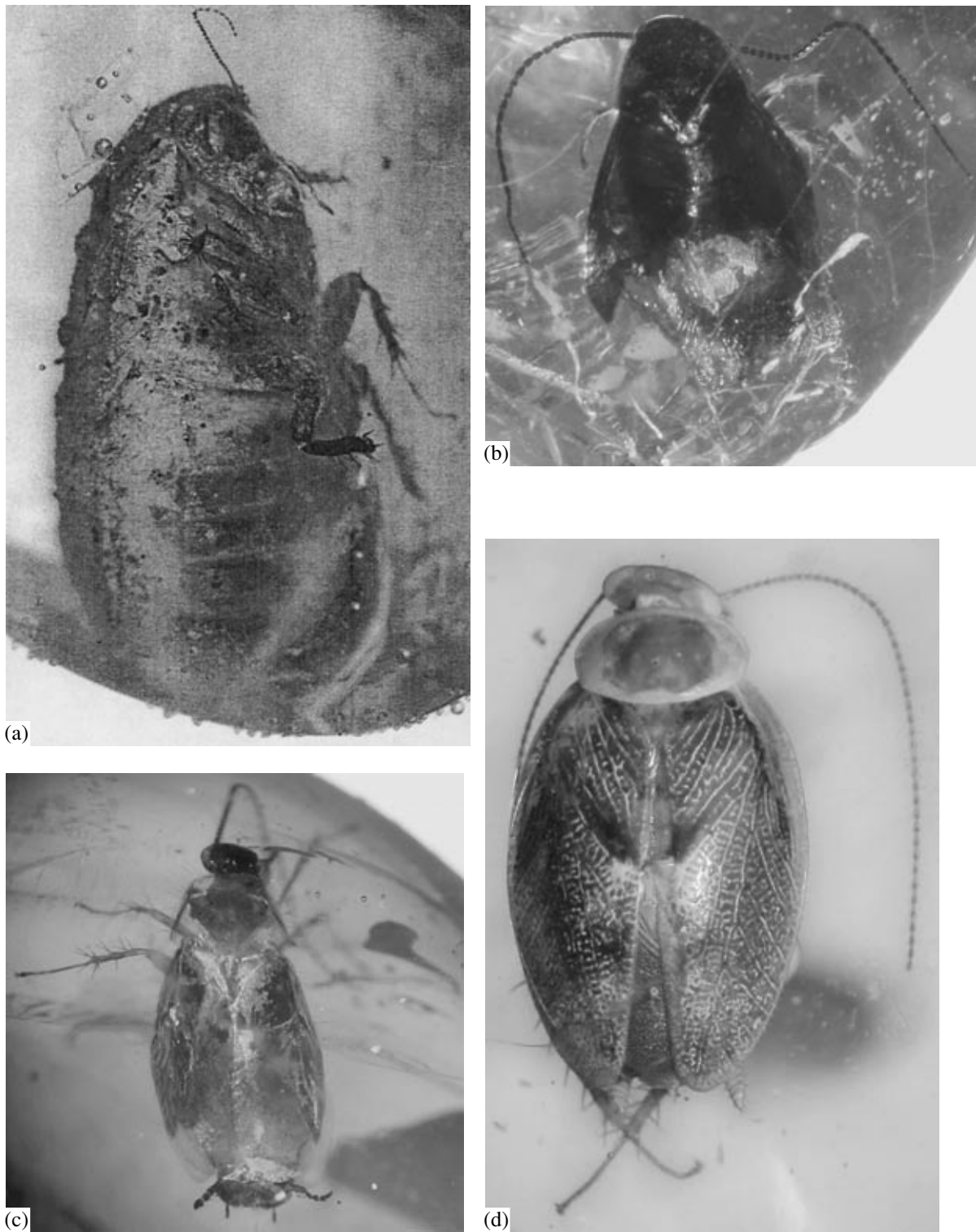


Fig. 2. Photographs of cockroaches (holotypes) from Miocene Dominican amber, body in (a) lateral and (b–d) dorsal views: (a) *Erucoblatta semicaeca* sp. nov.; (b) *Holocompsa nigra* sp. nov.; (c) *H. abbreviata* sp. nov.; and (d) *Plectoptera electrina* sp. nov.

Holocompsa nigra Gorochov et Anisytukin, sp. nov.

E t y m o l o g y. From the Latin *nigra* (black).

H o l o t y p e. NMNH, no. 502411, Acc. 371428, Woodruff (collection reg.) 3751, Brodzinsky/Lopes-

Pena [Penha] Collection, inclusion of an adult male with a slightly spread left elytron and somewhat damaged apex of the abdomen; Dominican amber; Miocene.

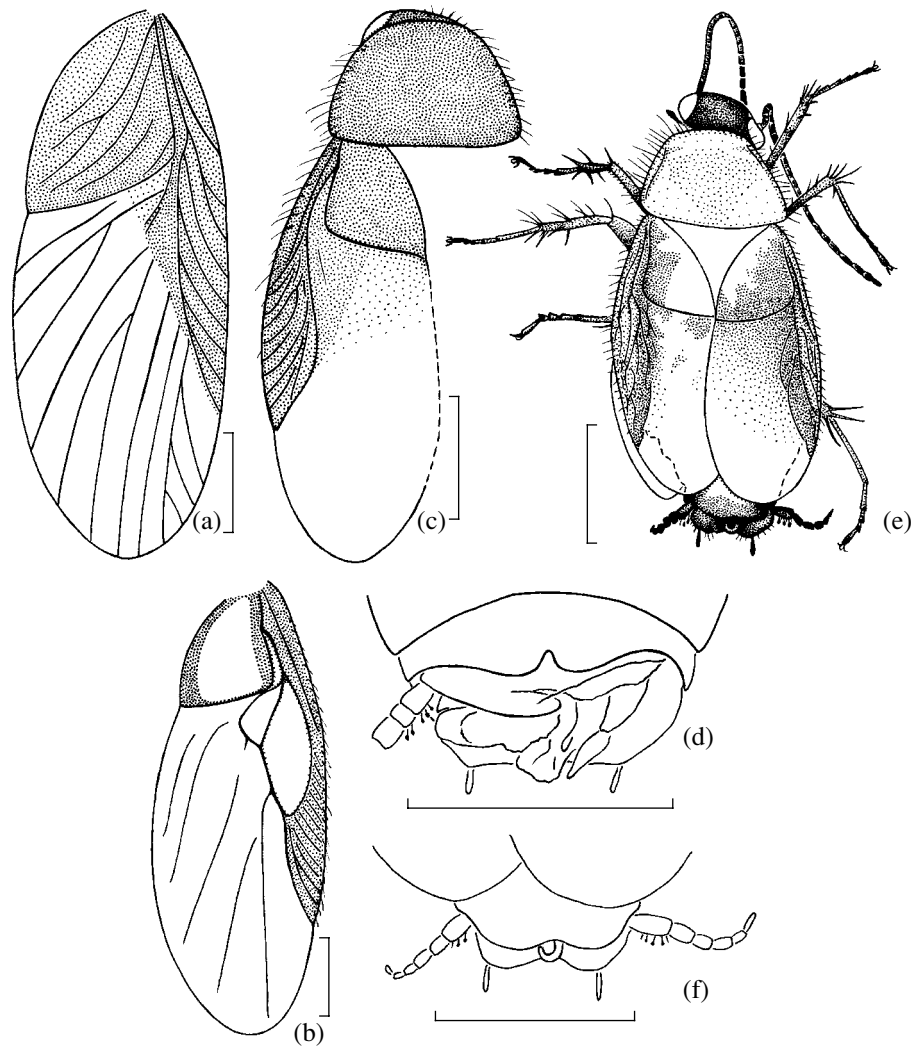


Fig. 3. Holocompsini (Corydiidae): (a) holotype of *Proholocompsa fossilis* (Shelf.), elytron, Baltic amber (after Shelford, 1910); (b) *Hypercompsa fieberi* (Br.-W.), elytron, recent species, Brazil; (c, d) holotype of *Holocompsa nigra* sp. nov., Dominican amber: (c) head, pronotum, and elytron in dorsal view, (d) apex of male abdomen in dorsal view; and (e, f) holotype of *H. abbreviata* sp. nov., Dominican amber: (e) body in dorsal view, (f) apex of male abdomen in dorsal view. Scale bar, 1 mm.

Description (Figs. 2b; 3c, 3d, 4e). Small-sized. The coloration is in general uniformly dark, black or dark brown, but with slightly paler distal parts of legs, weakly darkened part of the elytra between the pterostigma and clavus, and also entirely transparent distal half of the elytra (Fig. 3c) and visible parts of the hind wings, one of which has a distinct darkened pterostigma (Fig. 4e). The head is similar to that of other species of the genus, but almost completely covered by the pronotum from above (Fig. 3c). The pronotum is markedly narrowed anteriorly, with a slightly convex anterior margin and nearly straight posterior margin; its sides are weakly deflected ventrad (not separated from the disc by any bend). All femora have a single apical spur; the tibiae have more numerous spines; the tarsi have a conspicuous arolium. The wing tips only extend slightly beyond the apex of the abdo-

men; the venation of elytral pterostigma is almost regularly pectinate; the pterostigma in the hind wings as in Fig. 4e. The penultimate visible tergite of the abdomen (probably ninth) has a narrow medial incision at the hind margin (most of the anal plate is destroyed); three preserved segments of the left cercus are not fused to each other, two proximal segments have spheroid sense organs; large paraprocsts (partly destroyed) are located under the anal plate; remains of the genitalia and, apparently, of the rectum are visible ventrad of the paraprocsts in the genital chamber; the hind margin of the hypandrium between styles is nearly straight; the styles are symmetrical (Fig. 3d).

Measurements, mm: body length, 4.2; pronotum length, 1.1; elytron length, 3.5; length of hind femur, 1.1; length of hind tibia, 1.2; length of hind metatarsus, 0.6.

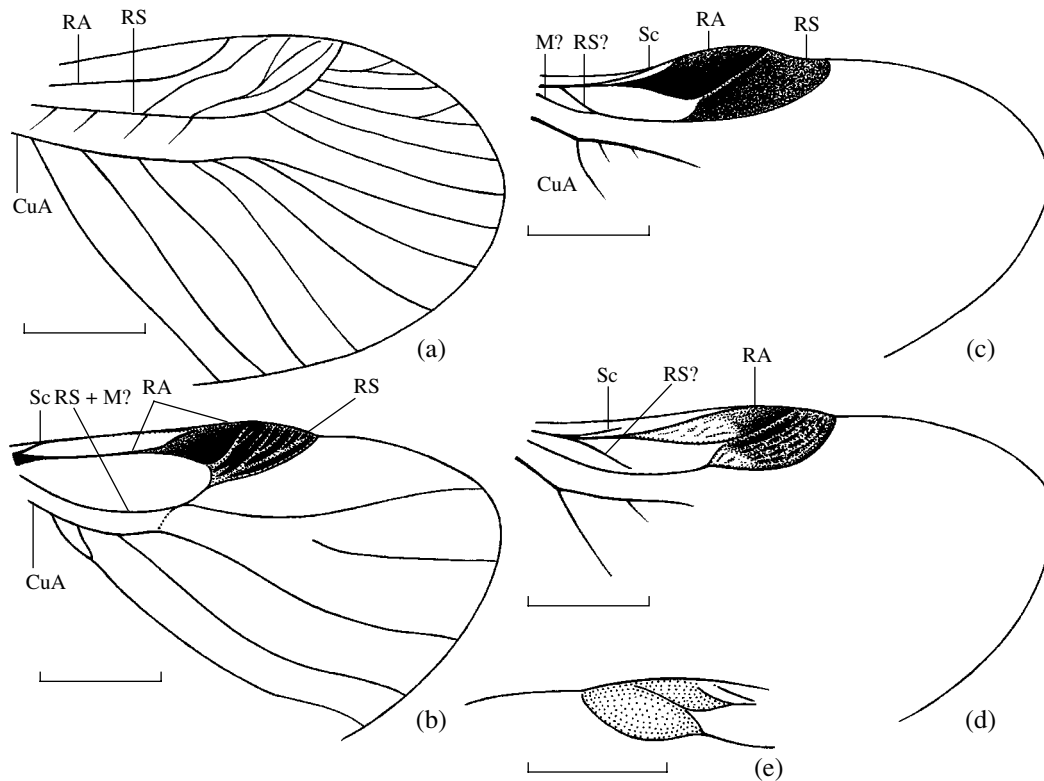


Fig. 4. Holocompsini (Corydiidae): (a–d) hind wing excluding proximal and anal areas and (e) its pterostigma: (a) holotype of *Proholocompsa fossilis* (Shelf.), Baltic amber (after Shelford, 1910); (b) *Hypercompsa fieberi* (Br.-W.), recent species, Brazil; (c) *Holocompsa debilis* Walk., recent species, Vietnam; (d) *H. azteca* Sauss., recent species, Costa Rica; and (e) holotype of *H. nigra* sp. nov., Dominican amber. Scale bar, 1 mm.

Material. Holotype.

Comparison. In the presence of a single apical spine on the fore femora and the coloration, the new species is most similar to *H. cyanea* Burm., but differs in the smaller size and the entirely transparent distal half of the elytra (in *H. cyanea*, the elytra only have a relatively narrow transparent transverse strip). The new species differs from *H. azteca* Sauss., *H. binotata* Sauss. et Zehn., *H. zapoteca* Sauss. et Zehn., *H. tolteca* Sauss. et Zehn., *H. scotaea* Heb., and *H. panamae* Heb. in the absence of pale patches on the pronotum and (or) in the area of the pterostigma on the elytra; from *H. nitidula* Fabr., in the presence of only one apical spine on the fore femora; from *H. debilis* Walk., in the much smaller size and the absence of darkening in the distal part of the elytra; and from *H. pusilla* Bol., in the absence of darkening in the middle of the membranous part of the elytron (near the distal part of the pterostigma).

Holocompsa abbreviata Gorochov et Anisytukin, sp. nov.

Etymology. From the Latin *abbreviata* (shortened).

Holotype. NMNH, no. 504367, Acc. 371428, Woodruff (collection reg.) 8813, Brodzinsky/Lopes-

Pena [Penha] Collection, inclusion of a complete adult male with wings folded; Dominican amber; Miocene.

Description (Figs. 2c, 3e, 3f). Size very small. The coloration is not uniform; the head (including antennae) is dark, black or dark brown, with somewhat paler mouthparts; the pronotum and legs are somewhat darkened, reddish or light brown, more or less unicolorous; the elytra have a dark clavus, pterostigma, and a small patch in between that turns paler towards the transparent distal part of the elytron; visible parts of the hind wings are also transparent (the pterostigma of the hind wings is not visible), the remaining body parts are dark (the body is in places covered with a whitish coating of air bubbles or other discharge from the body decaying in tree resin). The head, pronotum, and legs are similar to those of the previous species, but the anterior margin of the pronotum is less convex and only partly covers the head from above, the sides of the pronotum are more deflected ventrad (separated from the disc by a gentle bend), the posterior margin of the pronotum is weakly arcuate, and the legs are somewhat more slender. The wing tips are a little short of reaching the apex of the abdomen; the pterostigma of the elytra shows rather irregular venation (Fig. 3e). The anal plate is rather wide (the ninth abdominal tergite is concealed from above by the wings), with a shallow rounded

notch at the hind margin; the cerci are elongated, six-segmented, with spheroid organs at the base; their segments are not fused with each other; the hypandrium has a wide gentle notch posteriorly between symmetrical styles; the hooked sclerite of the genitalia projects considerably from the genital chamber (Fig. 3f).

Measurements, mm: body length, 3.8; pronotum length, 0.9; elytron length, 2.4; length of hind femur, 1.1; length of hind tibia, 1.2; length of hind metatarsus, 0.6.

Material. Holotype.

Comparison. The new species is easily distinguishable from all known congeners by the shortened wings combined with the pale pronotum, the presence of only one apical spine on the fore femora, rather irregular venation of the elytral pterostigma, and by the absence of pale patches on this pterostigma and the absence of dark areas on the apex of the elytron.

Family Ectobiidae Brunner-Wattenwyl, 1865

**Subfamily Pseudophyllodromiinae
Brunner-Wattenwyl, 1865**

Tribe Plectopterini Saussure et Zehntner, 1893

Genus *Plectoptera* Saussure, 1864

The genus comprises some 20 modern American species distributed from Brazil to Mexico and Florida (Princis, 1965). A new species from the Miocene amber of Haiti is described below.

Plectoptera electrina Gorochov et Anisytukin, sp. nov.

Etymology. From the Greek *electrinos* (pertaining to amber).

Holotype. NMNH, no. 504367, Acc. 371428, Woodruff (collection reg.) 8813, Brodzinsky/Lopes-Pena [Penha] Collection, inclusion of a complete imago of uncertain sex (body covered with froth layer from below) with wings almost completely folded; Dominican amber; Oligocene or Miocene.

Description (Fig. 2d). The size and body shape are typical for the genus. The eyes are broadly separated; the interocular distance is almost twice as great as the width of the part of the eye visible from above; the head is colored brown (rather light) or reddish, with obviously paler eyes and antennae. The pronotum is markedly transverse, almost oval; the disc is of the same color as the head, but with very pale sides and borders along the anterior and posterior margins. The elytra are moderately elongated, reaching the abdominal apex, with an arched costal margin and almost straight anal margin, convex, slightly sclerotized, with a narrowly rounded apical part, very little overlapping; their longitudinal venation is distinct, including quite numerous veins in the clavus and oblique branches along the anal margin of the elytron (situated distad of the clavus); the crossveins on the elytra are also well developed, although slightly irregular; the coloration is

deep brown, with dark brown spots in the distal part of the clavus and at the anal margin of the elytron somewhat distad of the clavus, with pale veins and a wide (but narrowed posteriorly) strip along the proximal part of the costal margin of the elytron. A rather pale sclerotized part of a transversely folded hind wing is visible in between the posterior parts of the elytra. The legs have numerous spines on the tibiae and a well developed arolium (the structure of the femora is only partly traceable; at least the apical spur on the mid and hind femora, and the spine on the distal part of the ventral margin of the hind femora are present); the legs are more or less pale. The cerci are also pale, relatively short, fusiform, distinctly segmented and with numerous setae (other abdominal structural features are indistinguishable).

Measurements, mm: body length, 6.4; pronotum length, 1.3; elytron length, 5; length of hind femur, 1.6; length of hind tibia, 1.9; length of hind metatarsus, 0.7.

Material. Holotype.

Comparison. The new species differs easily from its congeners, placed by previous authors in the groups "*porcellana*", "*rhabdota*", and "*poeyi*" (Rehn and Hebard, 1927; Princis, 1946, 1948, 1951), in the distinct crossveins on the elytra, and from the group "*vermiculata*" (Rehn and Hebard, 1927) in the presence of distinct venation along the anal margin of the elytron distal to the clavus. *P. electrina* is distinct from insufficiently described species which cannot be reliably assigned to any of the groups mentioned above, in the coloration: from *P. circumcincta* Sauss. et Zehntn. and *P. circumdata* Sauss. et Zehntn., in the darker elytra with contrasting pale veins; from the latter species, *P. picta* Sauss. et Zehntn., and *P. pulicaria* Sauss. et Zehntn. in the clearly paler central part of the pronotum; from *P. picta* in the less variegated elytra; from *P. pulicaria* and *P. hastifera* Rehn in the presence of a pale border along all margins of the pronotum; from *P. huascaray* Caud. in the general coloration of head, legs, and abdomen not being black, and in the absence of black on the pronotum and elytra.

Subfamily Ectobiinae Brunner-Wattenwyl, 1865

Tribe Blattellini Karny, 1908

Genus *Agrabtblatta* Gorochov, gen. nov.

Etymology. From the genus *Grabtblatta* and the negative prefix *a*.

Type species. *A. symmetrica* sp. nov.

Diagnosis. Head structure typical for tribe: opisthognathous, rounded-triangular, rather short, with large reniform eyes; interocular distance in male ca. 1.3 times less than width of part of eye visible from above (Fig. 5a). Pronotum in male ca. 2.2 times as wide as head, narrowed anteriorly, with clearly convex lateral margin, weakly convex anterior margin, and slightly rounded-angulate posterior margin, posterior

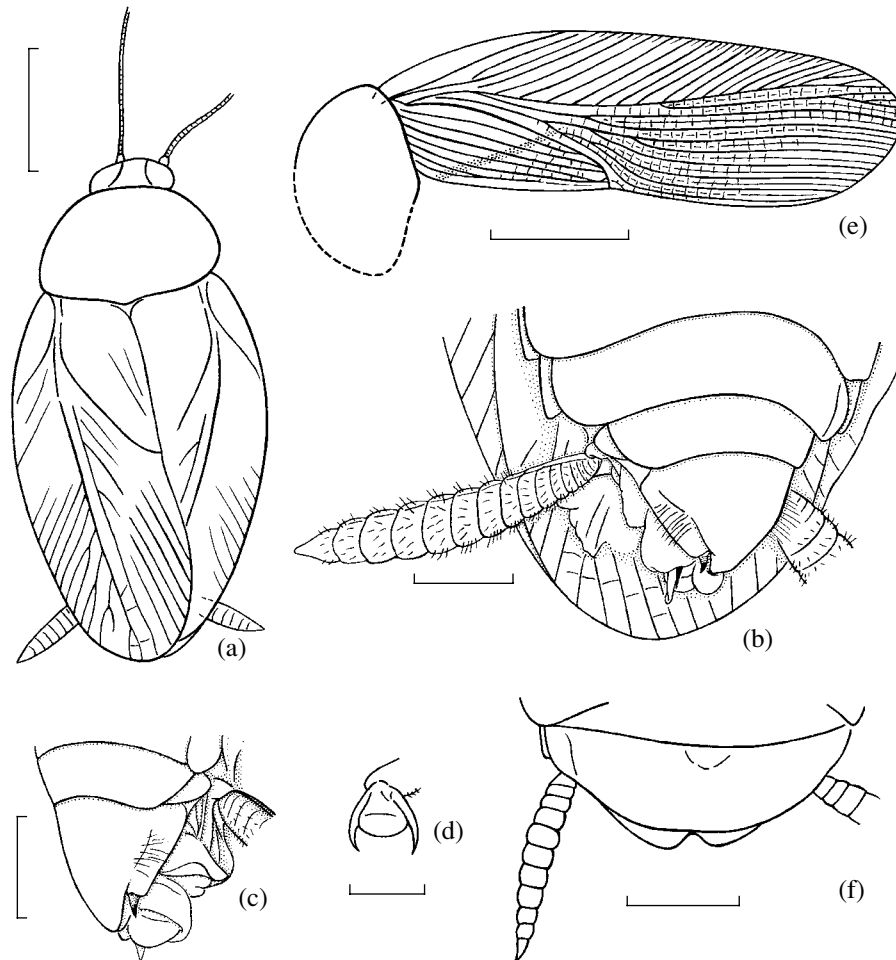


Fig. 5. Blattellini (Ectobiidae): (a–d) *Agrabtblatta symmetrica* sp. nov., holotype, African copal: (a) body in dorsal view, (b) apex of male abdomen in lateroventral view, (c) the same in lateral view, and (d) apex of hind tarsus; (e, f) holotype of *?Symploce rete* sp. nov., African copal: (e) pronotum and right elytron in dorsal view and (f) apex of female abdomen in ventral view. Scale bar, (a, e) 3 mm; (b, c, f) 1 mm; and (d) 0.3 mm.

margin provided with two very shallow notches on both sides of short median projection (Fig. 5a). Wings rather wide, slightly shortened (slightly surpassing apex of abdomen); elytra not narrowed towards apex, with rounded apical part and wide subcostal area, bearing numerous oblique and more or less parallelized branches, pectinately diverging from common R stem; another stem, extending parallel to R stem, giving rise to numerous, parallel, almost longitudinal mediocubital branches (Fig. 5a). Fore femora with very long, curved spur at apex and two spine rows on ventral side; inner row consisting of several moderately long spines in middle part, several short spines more distally, and three long apical spines (spurs); outer row consisting of several more widely spaced, moderately long spines in distal part; mid and hind femora with similar apical spur, but with rather sparse, long spines in either ventral row; structure of tibia and tarsi typical for Blattellini, although both claws subequal, and arolium much shorter than claws (Fig. 5d). Male anal plate small

(not visible from below); male genital plate probably symmetrical, subdivided posteriorly by shallow notches into three lobes: longest median lobe and shorter lateral lobes (proximally, lateral lobes partly separated from median lobe by weak longitudinal folds, extending subparallel to lateral margins of plate); apices of these lateral lobes with short, acuminate, slightly curved and sclerotized styles in notches of genital plate; male genitalia with two externally visible sclerites and membranous finger-shaped projection; cerci typical for tribe (Figs. 5b, 5c).

Composition. Type species.

Comparison. In the presence of symmetrical three-lobed genital plate in male and other characters, *Agrabtblatta* is similar to the extant genus *Grabtblatta* Hebard, 1929, which is usually regarded as a synonym of the genus *Lupparia* Walker, 1868 (Princis, 1969). However, *Lupparia* is clearly heterogeneous, so far as includes the species with very different structure of the male genital plate. The new genus is easily dis-

tinguished from the type species of *Grabtoblatta* and similar species by the subequal tarsal claws and the longer genital plate in male with shallow notches in the hind margin, short posterior lateral lobes, and almost hooked styles.

Remarks. The modern African Ectobiidae are still poorly known; therefore, the new genus and its new species described below may well turn out to be represented in Recent fauna as well.

Agratoblatta symmetrica Gorochov, sp. nov.

Etymology. From the Latin *symmetrica* (symmetrical).

Holotype. ZIN, no. Afr. 1, inclusion of a complete adult male with wings folded; African copal; Pleistocene.

Description (Figs. 5a–5d, 6a). The coloration, as far as preserved in the fossil resin, is uniformly brown (rather dark). The pronotum is approximately 1.3 times as wide and one third the length of an elytron. The elytra have a markedly convex costal margin and a slightly concave anal margin; the elytron is about 2.4 times as long as the clavus; the tips of the folded hind wings reach the tips of the elytra. The fore femora have six moderately long and five or six short spines on the inner ventral carina and three or four long spines on the outer ventral carina; the mid and hind femora have six or seven long spines on either ventral carina; the mid and hind tibiae are 1.3–1.4 times as long as the tarsi of the same legs, while the fore tarsi are slightly longer; the claws and arolium are as in Fig. 5d. The cerci narrow towards the base and taper apically, and are composed of about 15 short segments and an almost conical apical segment; the genital plate and its styles are as in Figs. 5b and 5c; the genitalia contain one easily visible sclerite (straight, spine-like) near the finger-shaped membranous projection and another scarcely discernible sclerite (small, oblong) near the apex of the genital plate (Fig. 5b).

Measurements, mm: body length, 11.5; pronotum length, 2.9; elytron length, 9.5; length of hind femur, 3.5; length of hind tibia, 4; length of hind metatarsus, 1.7.

Material. Holotype.

Genus *Symploce* Hebard, 1916

Symploce and several allied genera (*Parasymploce* Hebard, 1929; *Episymploce* Bey-Bienko, 1950; and *Blattella* Caudell, 1903) show characteristic armature on the fore femora, longitudinally parallelized venation in the mediocubital area of the elytra and conspicuous asymmetry in the structure of the abdominal apex in the male, especially of the genital plate. To discriminate between these genera, characters of the abdominal tergites, anal plate, and cercal bases in the male are now used (Roth, 1985, p. 214); however, they are usually untraceable in cockroach inclusions in fossil resins.

Unfortunately, the structure of female copulatory apparatus is still insufficiently used to distinguish genera of this externally homogeneous group of the tribe Blattellini, though this apparatus in the group is quite diverse. Possibly, not all above-mentioned genera represent monophyletic groups, precluding recognition of additional (usually not salient) generic characters in the external structure. Therefore, the generic position of the female from Pleistocene copal described below cannot be defined more exactly than to the group of genera allied to the genus *Symploce*.

?*Symploce rete* Gorochov, sp. nov.

Etymology. From the Latin *rete* (net).

Holotype. ZIN, no. Afr. 2, inclusion of a complete adult female with wings folded (the head and part of the pronotum concealed by a network of small cracks in the fossilized resin; the piece is split into two along the elytral surface, revealing the venation); African copal; Pleistocene.

Description (Figs. 5e, 5f, 6b, 6c). The coloration is uniform, probably light brown (without distinct darkenings). The pronotum is similar in shape to that of the previous species, about 2.2 times as wide as, 0.23 of the length of, an elytron. The wings are long, extending considerably beyond the tip of the abdomen; the elytra are rather narrow, but have a very wide subcostal area and a weakly widening distally mediocubital area, bearing parallelized and longitudinally arranged mediocubital branches, which branch off forming a mostly fan-shaped rather than pectinate pattern (Fig. 5e); the crossveins between these branches are well developed and rather densely spaced; in the distal part of the clavus, they are more or less discernible (Fig. 5e); the elytra are approximately 2.6 times as long as the clavus, which is narrow; the tips of folded hind wings reach the tips of the elytra. The fore femora have three long spines in the middle part of the inner ventral carina, five somewhat shorter spines more distally (these spines become shorter towards the femoral apex), and three apical spines (spurs), of which the proximal one is but slightly longer than the nearby shortened spines, and the distal one is the longest of all ventral spines of this femur; the outer ventral carina of this femur has sparser long spines (their number is impossible to count); the armature of the mid and hind femora and the structure of the tarsi are similar to the previous species, but the arolium is very broad and subequal to claws in length. The cerci are weakly widened in the middle and taper apically, consist of no less than 11 segments, their structure similar to the previous species; the anal plate projects weakly posteriorly beyond the genital plate, with a rather deep, rounded apical notch; the genital plate is broad, with a more or less rounded hind margin (Fig. 5f).

Measurements, mm: body length, 12; pronotum length, 2.8; elytron length, 12.2; length of hind

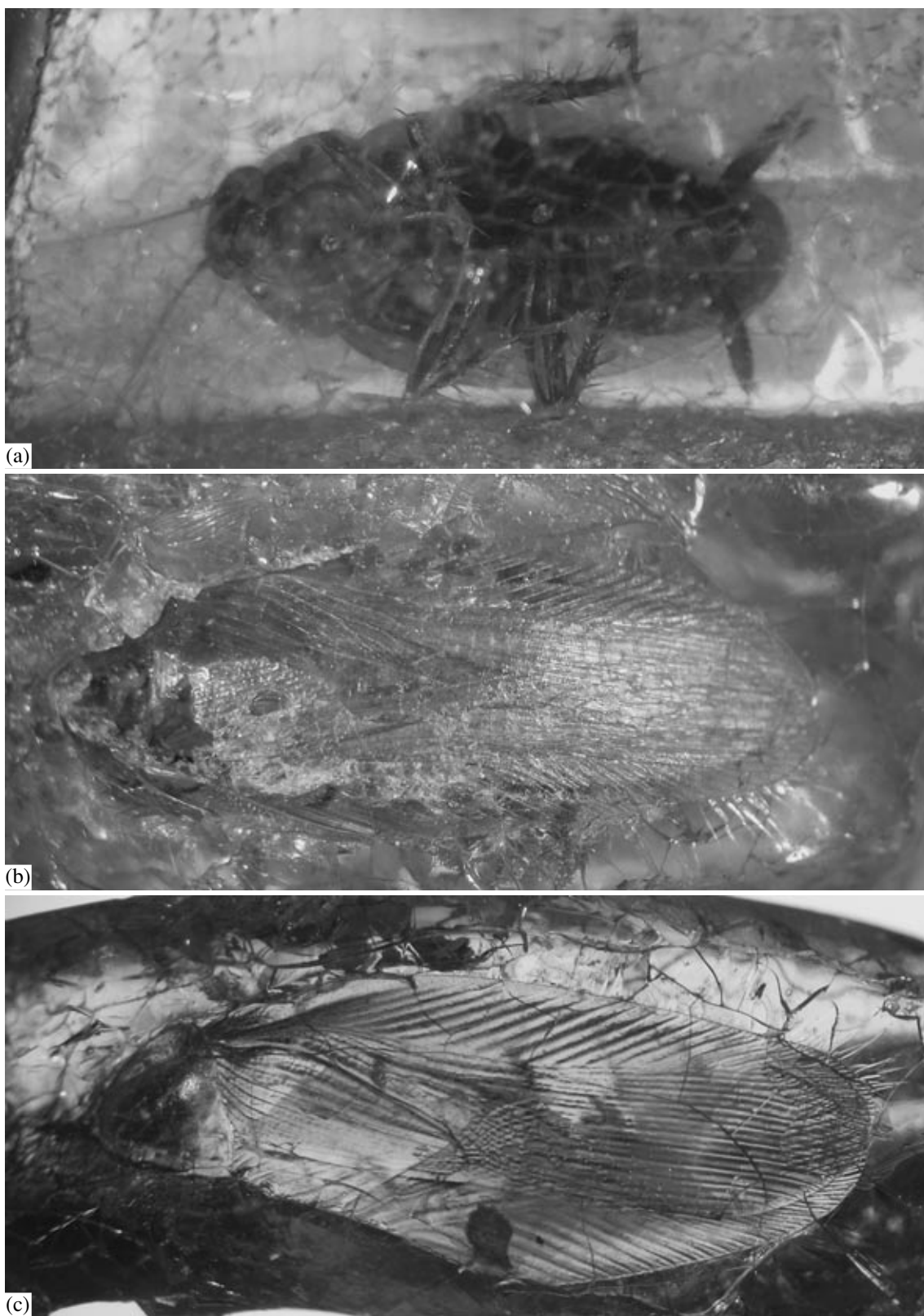


Fig. 6. Photographs of cockroaches (holotypes) from Pleistocene African copal: (a) *Agrabtblatta symmetrica* sp. nov., body in ventral view; (b, c) *?Symploce rete* sp. nov.: (b) dorsal view and (c) negative impression of the elytra with a part of the pronotum on the fragment broken off.

femur, 4; length of hind tibia, 4.8; length of hind metatarsus, 2.2.

Material. Holotype.

Comparison. The new species differs from the majority of species of the genus *Symploce* and allied genera in the uniformly colored pronotum combined with the rather deeply bilobed anal plate of female, which projects only slightly posteriorly beyond the genital plate, and with somewhat more distinct crossveins of the elytra (the crossveins are more or less discernible even on the clavus, whereas, in other species of the group studied in this respect, the crossveins on the clavus are usually absent or almost indiscernible).

Remarks. ?*S. rete* (and also *A. symmetrica*) may well be represented in the modern fauna of Africa. Moreover, one cannot exclude that it will turn out to be a synonym of some insufficiently described recent species. However, taking into account the poor knowledge of Ectobiidae of present-day African forests, the latter assumption seems rather unlikely.

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