

## CALLICERATIDAE IN BALTIC AMBER

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Up to the present time no members of this family of parasitic Hymenoptera have been described from the Baltic amber, although a single species is known from the Cretaceous amber of Canada.

The material at present in my hands includes altogether almost fifty specimens among which I have been able to recognize the five species which are described on the following pages. This material comes in part from the Haren collection belonging to the Museum of Comparative Zoölogy at Harvard University and in part from specimens loaned me for study by the University of Königsberg.

The family Calliceratidae includes about 500 recent species distributed in something over twenty genera. These are divided into two distinct subfamilies on the basis of the form of the stigma. This is linear in the typical subfamily Calliceratinae of which there are two species in the amber, and triangular in the Megaspilinae of which three amber species are described in the present paper.

### Subfamily CALLICERATINAE

#### *Lagnodes* Förster

There are in the present material two species that I have referred to this living genus which is known to be widely distributed in the Palaearctic region. As in the living species they are dimorphic, the males being alate and the females completely apterous. The males of the fossil species seem to be fairly typical, except that the stigma is distinctly incrassate, at least twice as thick as the apex of the submarginal vein, whereas in the several living species the stigma is clearly linear and not noticeably thicker than the submarginal vein. The females show a more complete development of the short, dorsal, impressed lines on the second tergite of the abdomen so that these outline a complete trident rather than the M-shaped series of lines that are present in the living forms. Another characteristic is the larger

mesonotum; this is very greatly reduced in the living species and although small in the two fossil ones the reduction has obviously not progressed so far. Taken together the several differences seem to indicate very clearly that the Oligocene forms are close to the recent genus *Lagnodes*, but more generalized and quite possibly nearly in the line of origin of the present-day species.

The two amber species may be separated as follows:

1. Wings present, fully developed (males) . . . . . 2.  
Wings entirely wanting (females) . . . . . 3.
2. Very small species; length 0.7 mm.  
*L. primordialis* sp. nov.
- Larger species; body at least 0.85 mm. in length.  
*L. electrophilus* sp. nov.
3. Length 1.0 mm. . . . . *L. primordialis* sp. nov.  
Length 1.25 mm. . . . . *L. electrophilus* sp. nov.

#### *Lagnodes primordialis* sp. nov.

(Fig. 1 and Fig. 2, a & b)

♂. Length 0.75 mm. Apparently entirely black, including the legs; wings hyaline with piceous venation. Head above smooth or slightly punctulate, the ocelli forming a small triangle on the vertex. Eyes rather large, widely separated above by three times the width of the ocellar triangle, but extending down well toward the mandibles so that the malar space is less than one-fourth the width of the eye. Antennae inserted high on the head, at about the middle of the eye; scape slender, about three times as long as wide, barely shorter than the pedicel and first flagellar joint combined; pedicel slightly longer than wide and two-thirds as long as the scape; first flagellar joint three times as long as thick; following gradually shorter, except for the longer apical joint. Mesonotum smooth and subshining, with parapsidal furrows and a complete median groove; these are thinly and finely impressed, but very distinct; the parapsidal furrows are not very widely separated and weakly

convergent behind so that they are separated at the base of the scutellum by half the distance that separates them on the anterior part of the mesonotum; posterior suture of mesonotum marked by a very fine, sharp line. Scutellum convex, polished, separated from the axillae by a straight, crenate line which bears a deep punctate impression at its outer end. Propodeum very short in dorsal view, longitudinally rugose. Abdomen apparently with several short basal carinae, although these are obscured in the type, length of the tergites not clearly visible. Legs slender, but with the femora distinctly clavate.

a raised marginal line. Antennae 11-jointed; scape long, thick, of uniform width, more than half as long as the following joints together; flagellum noticeably thickened apically, the joints about quadrate, except the last which is conical and about twice as long. Thorax above smooth or minutely shagreened. Prothorax very much elongated above; exclusive of the anteriorly contracted neck, it is about as long as the remainder of the thorax; mesonotum reduced to a small plate, about twice as wide as long, that does not extend quite to the sides of the thorax, its anterior margin arcuate, the posterior one straight.



FIGURE 1. *Lagynodes primordialis* sp. nov. ♀

Wings with a long marginal fringe apically; marginal vein linear, short, slightly, but not conspicuously widened at tip; radial (stigmatal) vein short, slightly curved, leaving more than half of the cell open at apex.

♀. Length 1.0 mm. Completely apterous. Color apparently dark brown or piceous, but in one or two specimens noticeably lighter, especially on the legs. Head rounded, not noticeably extended at the insertion of the antennae; front and vertex quite evenly convex, the surface finely shagreened; cheeks and temples shining, sparsely punctulate; clypeus with a rather sharp median impression. Eyes comparatively large for the genus, about twice as long as the malar space, elongate oval; vertex sharply excavated and with

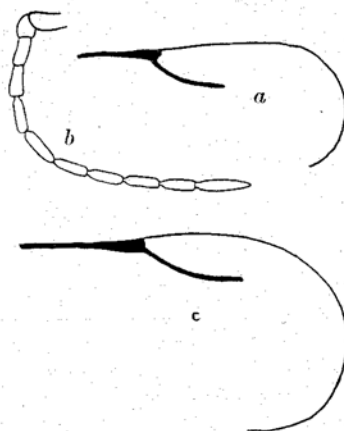


FIGURE 2. a, *Lagynodes primordialis* sp. nov., tip of wing of male; b, antenna of same; c, *Lagynodes electrophilus* sp. nov., tip of wing of male.

Scutellum transverse, nearly as long as the mesonotum; propodeum visible from above only as a nearly linear band. Second tergite covering most (about three-fourths) of the abdomen; the following segments very short, slightly decreasing in length; entire surface smooth, the second tergite at the base with three V-shaped elevations, each one slightly raised and marked off by finely impressed lines each of which ends in a large puncture or fovea at the base. This trident-like elevation has the three parts each acutely lanceolate distally and they are contiguous basally. Femora thickened, their tibiae clavate.

Type ♀, No. 9793, Museum of Comparative Zoölogy. Three paratypes from the University of Königsberg, one of them numbered 206. Two allotype males, one in the Königsberg collection

and the other in the Museum of Comparative Zoology, No. 9794.

*Lagynodes electriphilus* sp. nov.

(Fig. 2, c)

♂. Length 0.85–1.0 mm. Body brown or piceous; the legs lighter, fuscous or brown, the specimens varying but none appearing entirely black as preserved. Wings hyaline, the venation dark brown. Head above shining, scarcely punctulate; ocelli large, in a small triangle, the posterior pair occupying less than one-third of the width of the front between the eyes. Malar space short, about one-third as long as the width of the eye. Antennae long and slender, inserted at the level of the middle of the eye; scape thicker apically, three times as long as wide; pedicel one-third as long, more or less globular; first flagellar joint nearly as long as the scape which is not so long as the pedicel and first flagellar joint combined; following joints shorter and subequal, except for the longer apical one. Mesonotum not distinctly sculptured, with the parapsidal furrows and a median groove disposed as in the preceding species, although the mesonotal lobes and scutellum appear to be more strongly convex and the basal groove of the scutellum more deeply impressed laterally. Propodeum short, rugose. Abdomen highly polished, the second tergite occupying two-thirds the entire dorsal length. Legs slender, the femora slightly thickened, the tibiae very slender basally. Wings with the marginal vein slightly widened apically; radial vein complete to beyond its basal half so that the cell is open for slightly less than its apical half.

♀. Length 1.25 mm. Completely apterous. Very similar to the female of the preceding species and associated with the males of the present species mainly on account of its size which is in the single specimen larger than the several females of *L. primordialis*, which vary practically not at all in the present series. This difference in size is one of the differential characters among the males of the two species. Color as preserved, brownish, very clearly pale and probably more or less ferruginous or fulvous in life. Eyes very coarsely hairy (probably so in both species, but not visibly preserved in *L. primordialis*). Head above closely, minutely punctate, the thorax above more conspicuously so, otherwise structurally similar to *L. primordialis*. Abdomen coarsely, conspicuously hairy. Trident-like ridges at base of second tergite shorter, the median one

not as long as the mesonotum and scutellum together. The depressed areas between the ridges deeply impressed basally, but the excavation is not set off as a distinct fovea.

Type ♂, in the Collection of the Königsberg Museum which contains also six other male specimens. Allotype ♀, a single specimen in the collection of the Museum of Comparative Zoology, No. 9795; no further females.

It is possible that I have not associated the females of the two apterous species correctly as there are no really clear differences except for size. The males are, however, quite obviously separable into two distinct species.

Subfamily MEGASPILINAE

*Conostigmus* Dahlbom

Three amber species in the present collection are referable to this genus. They agree closely with the recent members which are numerous and widespread throughout the Holarctic region. The stigma in the wings appears to be narrower in all the fossil forms than in any living species with which I am familiar, but otherwise the amber forms seem to be quite typical. The abundance of members of this genus in Baltic amber is especially interesting in view of the fact that a species tentatively referred to the related *Lygocerus* has been described by the writer from the earlier Cretaceous amber of Manitoba.<sup>1</sup> They may be distinguished by the following key.

1. Very small species, female 0.74 mm. in length; joints near the middle of the flagellum no longer than wide.....*C. juvenilis* sp. nov.
- Larger species, females at least 1.1 mm. in length...2.
2. Antennae stout throughout; middle joints of flagellum (♀) quadrate, not longer than thick; pedicel and first flagellar joint not elongated, the latter less than twice as long as thick.

*C. succinalis* sp. nov.

Antennae more slender, especially at the base of the flagellum; middle joints longer than thick; pedicel and first flagellar joint much elongated, each more than twice as long as thick. *C. resinae* sp. nov.

*Conostigmus juvenilis* sp. nov.

(Fig. 3)

♀. Length 0.74 mm. Apparently black, with the abdomen and the base of the antennae brownish; wings hyaline, the stigma and venation

<sup>1</sup> Univ. of Toronto Studies, Geol. Ser., No. 40, p. 43, 1937.

rather light brown, although obviously faded in the type specimen. Head smooth and shining. Eyes comparatively small, much higher than wide, without any visible hairs. Cheeks and lower part of temples very broad, fully equalling the width of the eye. Ocelli large, in a very small triangle. Antennae 11-jointed, the scape extending to the level of the top of the eyes, as long as the following five joints taken together; pedicel nearly twice as long as thick near apex, narrowed basally; first flagellar joint much shorter than the pedicel and thinner; second and following joints of flagellum growing broader and slightly longer toward apex, all of them clearly longer than wide; last joint gradually tapered to a point, twice as long as the preceding one. Mesonotum highly convex, almost gibbous medially in front, with

***Conostigmus succinalis* sp. nov.**

(Figs. 4 & 5)

♀. Length; type 1.6 mm., other specimens 1.5 mm. to 1.7 mm. Apparently entirely black. Wings subhyaline, with very dark stigma and veins. Head large, rounded, surface shallowly punctulate or shagreened on the front and vertex; front between the eyes not occupying quite half the width of the head; ocelli in an equilateral triangle, separated by somewhat less than the distance between the lateral ones and the outer margin. Eyes coarsely granulated, apparently not hairy; large, several times wider than high. Cheeks which are much broader than the lower part of the temples; surface of head behind the eyes smooth and polished. Antennae 11-jointed,

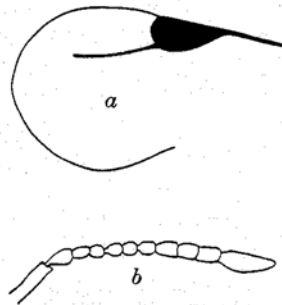


FIGURE 3. *Conostigmus juvenilis* sp. nov., male. a, tip of wing; b, antenna.

three deep furrows that meet behind barely before the scutellum. Axillae triangular, more acute inwardly, apparently not quite meeting on the median line; disc of scutellum shining, feebly convex. Propodeum above finely rugose-reticulate. Petiole of abdomen very short; second segment smooth, with a marginal carina and a series of large closely placed punctures at the base, but without any basal striae or grooves; abdomen narrow, about two and one-fourth times as long as broad, gradually attenuated from near the middle to the narrowly acute apex. Stigma only moderately wide, about twice as long as broad, convex below, but more or less narrowed basally, the distal margin also convex; basal two-thirds of radial vein complete, leaving the apical third of the radial cell open.

Type and paratype in the Collection of the Königsberg Museum, the type without number and the paratype numbered 11,036.

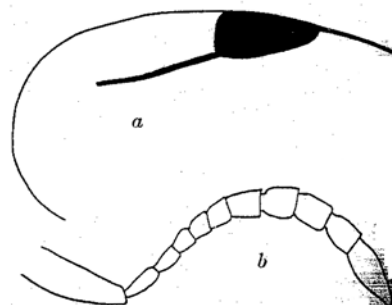


FIGURE 4. *Conostigmus succinalis* sp. nov., female. a, tip of wing; b, antenna.

very stout; scape long and stout; pedicel and first antennal joint not elongated, the latter less than twice as long as thick; following joints all barely longer than thick, the apical one elongated and pointed as usual. Thorax shining, its upper surface minutely punctate or slightly shagreened. Median suture and parapsidal furrows finely, but very sharply impressed as lines of closely set punctures; the suture between the mesonotum and axillae is a fine, impressed, non-punctate line; scutellum separated from the axillae by a sharply punctate line on each side, the inner angles of the acutely triangular axillae meeting in a point on the median line. Surface of scutellum very minutely punctate-reticulate, its apex margined by a punctate frenum. Propodeum sharply, irregularly reticulate; with a series of very short and closely placed longitudinal ridges at apex. Base of abdomen longitudinally fluted with the dorsal grooves extending at least to the

the apical third of the second tergite which occupies about one-half the length of the abdomen; following segments subequal; body of abdomen broad, not much more than twice as long as wide.



FIGURE 5. *Conostigmus succinalis* sp. nov., male.

Legs stout, the front and hind femora strongly thickened. Stigma about twice as wide as long, subtriangular, with the posterior and apical margins slightly convex; radial vein extending two-thirds of the distance to the margin of the wing, leaving the apical third of the radial cell open.

Type, No. XXB1349, University of Königsberg Museum and two other females designated as paratypes, one in the Königsberg Collection and

the other, No. 9796 in the Museum of Comparative Zoölogy. Seven other specimens are probably this species also although these are not so well preserved.

*Conostigmus resinae* sp. nov.

♀. Length 1.6 mm. Apparently entirely black; possibly with the legs pale although this seems to be due to a bleaching of these in the type specimen; wings hyaline. Very similar in most characters to the preceding species. Head smooth and shining. Antennae with the pedicel narrow, although thicker distally, fully three times as long as wide; first flagellar joint slightly more than twice as long as thick; following joints shorter and decidedly thicker beyond the third joint, the apical ones more than twice as thick as the first flagellar joint and all longer than wide. Mesonotum smooth, the middle lobe highly convex in front; parapsidal furrows approaching the median furrow at an angle of about 45° but reaching the posterior margin at a point well separated from the median line. Second tergite of abdomen extending about half way to the tip; smooth, without striae or grooves at the base. Stigma more than half as wide as long, more or less triangular, but with the lower and outer sides distinctly convex; radial vein long, extending fully two-thirds the distance from the stigma to the wing margin, of uniform thickness throughout.

Type in the Königsberg collection. It is not so well preserved as might be wished, but is evidently distinct from the other specimens before me.